

Research Report

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Exploring Relationships Between English Proficiency and ACT[®] Test Performance of English Learners

State 2

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Conclusions

This report contains the findings from State 2 of a two-state study investigating relationships between English proficiency and the performance of English learners (ELs) on the ACT® test. For both states, we found that the English proficiency level of ELs was a significant predictor of performance on the ACT, such that students with lower levels of English proficiency tended to have lower ACT scores, and students with higher levels of English proficiency tended to have higher ACT scores. Additional analyses from State 2 suggest that the test scores of students scoring at the lowest English proficiency levels may reflect some amount of construct-irrelevant variance due to limited English proficiency, and ELs who took the ACT with testing supports had scores that were about half a Composite score point higher than the scores of ELs who took the ACT without testing supports. ELs also tended to have lower Grade 11 GPAs, were more likely to take lower-level courses, and were less likely to take advanced, honors, or college-level courses in Grade 11, which likely contributed to their lower performance on the ACT. The results of this study indicate that the English proficiency levels of ELs should be taken into consideration when interpreting the ACT scores of ELs; in particular, caution should be taken when drawing conclusions about the knowledge and skills of ELs with low levels of English proficiency.

So What?

It is important that users of test scores consider not only the knowledge and skills that are being measured by the test but also other contextual information that may be relevant when interpreting scores. For English learners, limited English proficiency can affect students' ability to adequately access the test content and accurately respond to the test items, leading to construct-irrelevant variance and resulting in scores that may not fully represent what they know and can do. This study provides evidence that English proficiency is indeed strongly related to performance on the ACT, and caution should be exercised when interpreting the scores of students at the lowest levels of English proficiency.

Now What?

Future research should replicate these findings with other testing programs and in other states to further build up evidence of how well we are measuring the knowledge and skills of English learners when the test content is in English, especially for students with low levels of English proficiency.

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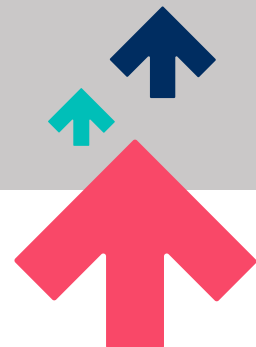
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Abstract

This study examined relationships between English proficiency and the performance of English learners (ELs) on the ACT® test. Using a sample of students from a U.S. state who took both WIDA ACCESS English proficiency assessments and the ACT in Grade 11 during the 2018–19 to 2022–23 school years, we found that ACCESS Reading scores have a strong relationship with performance on the ACT across all test sections and the Composite score. Students with lower levels of English proficiency as measured by ACCESS Reading tended to have lower ACT scores, and as reading proficiency increased, performance on the ACT increased.

ELs also tended to have lower Grade 11 GPAs than non-ELs, and for ELs, correlations between ACT scores and Grade 11 GPA increased as ACCESS Reading level increased. In fact, correlations were small and near zero for ELs at Levels 1 and 2. ELs also tended to earn fewer credit hours and were less likely to take advanced courses than non-ELs, especially ELs at lower English language proficiency (ELP) levels.

Psychometric analyses on a subset of the study sample found that the ACT scores of ELs with lower levels of reading proficiency (Levels 1–3) showed some evidence of differential item functioning (DIF) and had lower reliability compared to the scores of ELs with higher levels of reading proficiency (Levels 4–6) and non-ELs. However, the large differences in mean scores and standard deviations of the scores of ELs compared to those of non-ELs may affect the results of the psychometric analyses. Conditional standard errors of measurement (CSEM) were similar across groups.

Regression models showed that ACCESS Reading scores were strong predictors of ACT performance across all test sections and the Composite score. Use of testing supports on the ACT had a significant positive relationship with the performance of ELs, even after we controlled for ACCESS Reading scores, free and reduced-price lunch eligibility, and Grade 11 GPA and coursework.

Overall, these results indicate that the English proficiency levels of ELs are strongly related to performance on the ACT. Caution should be taken when interpreting the scores of ELs with the lowest ELP levels (ACCESS Reading levels of 1–2) because limited English proficiency may be introducing construct-irrelevant variance in the scores. However, we also found evidence that the testing supports for ELs taking the ACT had a positive relationship with their performance, and we encourage educators to ensure that ELs know they are eligible for these supports and to provide resources about signing up to receive them when taking the ACT.

Introduction

This report contains the findings from State 2 of a two-state study investigating relationships between English proficiency and the performance of English learners (ELs) on the ACT® test. Both participating states have been administering the ACT to all Grade 11 students for multiple years, and both states have been members of the WIDA consortium for multiple years. Both states provided data files containing student-level demographic information, and WIDA

ACCESS data were obtained either from the state or from WIDA with the state's permission. Parallel analyses were conducted across the two states where possible, and Grade 11 high school transcript data provided by State 2 allowed for additional analyses related to grades earned, credit hours earned, and coursework taken. Additional details about the State 2 data samples are provided below, and the State 1 findings can be found in a separate report (Moore & Schnieders, 2026).

ACT began offering testing supports (also referred to as language supports or accommodations) to ELs in the fall of 2017. These supports include extended time (one and one half, single day), translated test instructions provided by ACT, and use of an approved word-to-word bilingual dictionary without definitions. ACT has conducted research investigating ACT performance, score gains, and psychometric properties of the scores of ELs taking the ACT with or without supports compared to those of non-ELs (Moore, 2021; Moore et al., 2021), as well as the experiences and perceptions of ELs testing with supports (Schnieders et al., 2023).

In general, the research cited above has found that ELs (with or without testing supports) tend to score lower on the ACT than non-ELs. ELs are also more likely than non-ELs to report lower family income and to report that their parents did not attend college, suggesting potentially less access to resources that are available to more affluent students. ELs earn lower high school grades, are less likely to take core academic courses such as trigonometry, calculus, or chemistry, and are less likely to take AP or honors courses, all of which likely contribute to their lower performance on the ACT (Moore, 2021).

One limitation of the research cited above is that the data used in these studies did not include students' English language proficiency (ELP) scores, making it impossible to disentangle the extent to which the lower performance of ELs, when compared to that of their peers, was due to true differences in academic achievement, the impact of limited language proficiency, differences in opportunity to learn the tested material, access to educational resources, or other factors. ACT English scores were considered a rough proxy for ELP, but as a college readiness assessment, the ACT test was not designed to measure the ELP of ELs. For the current study, we obtained ELP scores from two states that administer the ACT annually to virtually all Grade 11 students in each state, allowing us to investigate relationships between ELP and performance on the ACT.

The [WIDA consortium](#) has a suite of large-scale ELP assessments called ACCESS that are administered annually to ELs in K–12 in multiple states. The ACCESS assessment measures English proficiency in four domains: Listening, Speaking, Reading, and Writing. Examinees receive proficiency levels and scores for each domain. Proficiency levels map to six performance levels: Entering, Emerging, Developing, Expanding, Bridging, and Reaching. Proficiency levels are on a 1.0–6.0 scale, and scores are on a 100–600 scale. The whole number for proficiency level score corresponds to the student's proficiency level, and the decimal indicates progress within that level. Proficiency levels are grade and domain specific (WIDA, 2025).

In addition to the four domain scores and levels, several composite scores and levels are also calculated:

- Oral Language (50% Listening + 50% Speaking)
- Literacy (50% Reading + 50% Writing)
- Comprehension (70% Reading + 30% Listening)
- Overall (35% Reading + 35% Writing + 15% Listening + 15% Speaking)

It is anticipated that in a study of relationships between English proficiency and ACT performance, the Reading domain will be the most relevant to students' ability to access the test content and demonstrate what they know, since the ACT is administered as a written test (except for students with visual impairments who require verbal administration).

The purpose of this research study is to investigate ACT performance by WIDA's ACCESS scores and proficiency levels to answer the following research questions:

Research Questions

1. What are the average ACCESS scores and ELP level distributions for ELs taking the ACT? To what extent do the average ACCESS scores and ELP level distributions differ between ELs taking the ACT with supports and ELs taking the ACT without supports?
2. What is the relationship between ACT performance and ELP scores? How do the relationships between ACT scores and ELP scores differ across different ACT subject areas?
3. Do relationships between high school grades and ACT scores vary across ELP levels?
4. How do psychometric properties of the ACT compare across EL status and ELP levels?
5. Are there differences in the number of credit hours earned (overall and by subject area) across ELP levels, by EL status, and for ELs taking the ACT with or without supports?
6. Are there differences in highest course taken in math, science, and English across ELP levels, by EL status, and for ELs taking the ACT with or without supports?
7. Are there differences in the distributions of remedial/developmental, general, and honors/AP/IB courses across ELP levels, by EL status, and for ELs taking the ACT with or without supports?
8. To what extent do student characteristics, course-taking patterns, and Grade 11 GPA account for the variance in the ACT scores of ELs above and beyond their level of English proficiency?

Hypotheses

ELs are expected to have lower ACT scores and lower Grade 11 GPAs than non-ELs. ELP is expected to be positively related to courses taken, grades earned, and ACT scores such that students with higher ELP will be more likely to take more advanced courses, earn higher grades, and have higher ACT scores. Students with low ELP are expected to have less reliable ACT scores and higher standard errors of measurement (*SEM*). ELP is expected to account for a large proportion of the variance in the ACT scores of ELs, even after we control for student characteristics.

Compared to non-ELs, ELs are expected to be less likely to take advanced or honors/AP courses, more likely to take remedial/developmental courses, and more likely to earn lower grades. Differences in course-taking patterns and grades earned are expected to account for additional variance in the ACT scores of ELs after we control for ELP and student characteristics.

Data Samples

The State 2 Department of Education agreed to participate in this study. State 2 is part of the WIDA consortium and has been administering the ACT to virtually all Grade 11 students since before the 2017–18 school year, when ACT began offering testing supports to English learners. The state provided data files for the 2018–19 to 2022–23 school years containing demographic information about its students, including gender, race/ethnicity, and whether the student was eligible for free or reduced-price lunch, which is a proxy for low family income. The state also granted permission for WIDA to share student-level ACCESS data with ACT. The state data and WIDA data were combined with ACT Grade 11 state test data and data from ACT's accommodations system. Records were excluded if they were not included in the state demographics data files or if they did not have at least one ACT section test score (English, math, reading, or science). Records of ELs were excluded if they did not have WIDA ACCESS scores. The state also included a file containing Grade 11 courses taken and grades earned, which allowed us to conduct additional analyses for this state.

Table 1 contains the sample sizes by school year and EL status. Approximately 10% of the sample are ELs. Nationally, approximately 7% of Grade 11 students (11% across K–12) in public schools in the United States are ELs (National Center for Education Statistics, 2024). Approximately 20% of the ELs in the study sample took the ACT with supports.

Table 1. Data Sample

School year	ELs with supports	All ELs	Non-ELs	Total
2018–19	228	3,624	28,744	32,368
2019–20	696	3,380	29,276	32,656
2020–21	397	2,079	26,583	28,662
2021–22	708	3,280	29,050	32,330
2022–23	1,196	3,425	29,808	33,233
Total	3,225	15,788	143,461	159,249

Note. *ELs with supports* is a subset of *All ELs*; these are ELs who took the ACT with testing supports.

Table 2 contains the demographic characteristics of the data sample. There is a slightly higher percentage of male ELs than female ELs, while the non-EL sample has approximately equal percentages of male and female students. ELs are predominantly Hispanic/Latino (87% of all ELs), while non-ELs are a more diverse group, with 38% Hispanic/Latino, 35% white, 11% Black/African American, and smaller percentages of students from other racial/ethnic groups. ELs are also more likely to be eligible for free/reduced-price lunch (68%) compared to non-ELs (47%).

Table 2. Demographic Characteristics (*N* and Percentage) of Data Samples

Student characteristic	ELs with supports	All ELs	Non-ELs	Total
Female	1,508 (47%)	6,802 (43%)	72,042 (50%)	78,844 (50%)
Male	1,717 (53%)	8,984 (57%)	71,376 (50%)	80,360 (50%)
American Indian/AK Native	1 (0%)	12 (0.1%)	1,242 (1%)	1,254 (1%)
Asian	208 (6%)	1,147 (7%)	9,985 (7%)	11,132 (7%)
Black/African American	50 (2%)	307 (2%)	15,587 (11%)	15,894 (10%)
Hispanic/Latino	2,887 (90%)	13,776 (87%)	54,163 (38%)	67,939 (43%)
Native HI/Pacific Islander	14 (0.4%)	137 (1%)	2,379 (2%)	2,516 (2%)
Two or more races	5 (0.1%)	57 (0.4%)	9,661 (7%)	9,718 (6%)
White	60 (2%)	352 (2%)	50,444 (35%)	50,796 (32%)
Free/reduced-price lunch eligible	2,176 (67%)	10,767 (68%)	67,633 (47%)	78,400 (49%)

Course Grades Data

State 2 provided Grade 11 courses taken and grades earned for the students in the study sample. A large amount (82%) of the course grades data for the 2018–19 school year was unavailable, while course grades data were matched to 97% of the students in the 2019–20 to 2022–23 samples; therefore, analyses including course grades data were limited to the 2019–20 to 2022–23 school years.

In a small number of cases (1% of the sample), students had multiple records for a given course and term. These cases are likely records that were updated. In 69% of these cases, the grade earned was the same, but in 31% of cases, the grade earned was different (within 0.5 grade points for 71% of these cases). In cases where the grade earned was different, we took the higher grade, assuming that the grade was more likely to have been adjusted upward than downward. The difference in the mean grade point earned was less than 0.003 (the mean grade point earned was 2.654 if we took the higher grade and 2.652 if we took the lower grade), so ultimately our handling of duplicate grades did not make much difference.

Courses were categorized into 21 subjects (excluding miscellaneous and non-subject-specific courses; see Table 36). When calculating subject-specific Grade 11 GPAs, we included only courses that were classified as English language and literature to calculate English GPA, mathematics to calculate math GPA, social sciences and history to calculate social studies GPA, and life and physical sciences to calculate science GPA. While we could have included other courses (e.g., information technology as math, or engineering and technology or health care sciences as science or STEM), we ultimately decided to exclude these courses when calculating subject-specific GPA because these courses, based on their names, were more likely elective or specialty courses than core English, math, social studies, and science courses. When calculating overall GPA, we included all courses across all subjects that had a course grade (0–100 or A–F). Courses where students earned a grade of passing or satisfactory (or conversely earned a grade of no credit, unsatisfactory, or withdrew) were not included in GPA calculations, but grades of passing or satisfactory were included in calculations of the number of course credits earned. The number of course credits earned was calculated overall and for each of the 21 subjects.

Prior research by ACT (ACT, 2006) was referenced to determine the highest course taken in English, math, and science. This study provided evidence of the benefits of taking a core academic high school curriculum, defined by ACT as 4 years of English and 3 years each of math, science, and social studies. Because we obtained only students' Grade 11 coursework, we were unable to calculate the number of years of courses taken, but we used the typical course progressions in the study to identify the highest course taken in each subject area (except for social studies, which did not have a hierarchical progression).

For ELA, the typical course progression in high school is English 9, English 10, English 11, and English 12. Because students in this study were all in Grade 11, the majority of them (76%) were taking English 11, and the sample sizes for other English courses were small; therefore, advanced, honors, AP, and IB English were combined with English 12 into an Advanced/Above Grade 11 category, English 10 and below were combined into a Below English 11 category, and other English courses that were not specific to a grade level (e.g., Creative Writing, U.S. or World Literature) were combined into a General/Other category, yielding four categories (from high to low): Advanced/Above Grade 11, English 11, Below English 11, and General/Other.

For math, the typical course progression in high school is Algebra 1; geometry; Algebra 2; precalculus, trigonometry, or statistics; and calculus. Due to small sample sizes in prealgebra and remedial math, we created a single category containing algebra, prealgebra, and remedial

math, called Algebra or Lower Math. Precalculus, trigonometry, and statistics were combined into a single category, and calculus and other advanced math courses were combined into a single category, resulting in six categories (from high to low): Calculus/Advanced Math, Precalculus/Trigonometry/Statistics, Algebra 2, Geometry, Algebra or Lower Math, and General/Other Math. General/Other Math contains courses that could not be easily classified into one of the other categories (e.g., general mathematics, foundational mathematics, or integrated mathematics).

For science, the typical course progression in high school is general or Earth science, biology, chemistry, and physics. Five categories were created (from high to low): Physics, Other Advanced Science, Chemistry, Biology, and Earth/General/Other Science. Other Advanced Science included science courses that would typically require biology or chemistry as prerequisites (e.g., astronomy, genetics, or biomedical sciences), whereas Earth/General/Other Science included science courses that do not appear to require prior science coursework (e.g., general science or integrated science).

Analyses

Research Questions

1. What are the average ACCESS scores and ELP level distributions for ELs taking the ACT? To what extent do the average ACCESS scores and ELP level distributions differ between ELs taking the ACT with supports and ELs taking the ACT without supports?

Research Question 1 was answered using descriptive analyses including means and frequency distributions. Independent samples *t* tests and Cohen's *d* effect sizes were used to determine statistical significance and magnitude of differences.

2. What is the relationship between ACT performance and ELP scores? How do the relationships between ACT scores and ELP scores differ across different ACT subject areas?

Research Question 2 was answered using descriptive analyses including mean scores by ELP level and correlations. Independent samples *t* tests and Cohen's *d* effect sizes were used to determine statistical significance and magnitude of differences.

3. Do relationships between high school grades and ACT scores vary across ELP levels?

Research Question 3 was answered using descriptive analyses including mean high school GPA by ELP level and correlations.

4. How do psychometric properties of the ACT compare across EL status and ELP levels?

Research Question 4 was answered by examining differential item functioning (DIF), conditional standard errors of measurement (*CSEM*), standard errors of measurement (*SEM*), and reliability across subgroups defined by EL status and ELP levels. ACCESS proficiency levels were

combined into low (Levels 1–3) and high (Levels 4–6) to ensure adequate sample sizes for the subgroup analyses.

5. Are there differences in the number of credit hours earned (overall and by subject area) across ELP levels, by EL status, and for ELs taking the ACT with or without supports?
6. Are there differences in the highest course taken in math, science, and English across ELP levels, by EL status, and for ELs taking the ACT with or without supports?
7. Are there differences in the distributions of remedial/developmental, general, and honors/AP/IB courses across ELP levels, by EL status, and for ELs taking the ACT with or without supports?

Research Questions 5–7 were answered using descriptive analyses including means and frequency distributions.

8. To what extent do student characteristics, course-taking patterns, and Grade 11 high school GPA account for the variance in the ACT scores of ELs above and beyond their level of English proficiency?

Research Question 8 was answered using regression and dominance analyses. A series of regression models was estimated to capture the change in R^2 when each set of variables was added to the model. Separate models were run to predict the ACT Composite score and each section score (English, math, reading, and science). Preliminary analyses were conducted to determine whether we should focus on ACCESS Reading or one of the composite ACCESS scores.

Model 1: ACT score = ACCESS score

Model 2: ACT score = ACCESS score + EL supports

Model 3: ACT score = ACCESS score + EL supports + demographics

Model 4: ACT score = ACCESS score + EL supports + demographics + Grade 11 GPA and coursework

Demographics considered for the regression models included gender, race/ethnicity, and eligibility for free or reduced-price lunch. Due to small sample sizes for multiple racial/ethnic groups in the EL group (see Table 2), we excluded race/ethnicity from the regression models. Additionally, preliminary analyses found that neither race/ethnicity nor gender contributed meaningfully to the prediction of ACT scores after we controlled for ACCESS Reading scores, use of testing supports on the ACT, and free or reduced-price lunch eligibility, so gender was also excluded from the models. Therefore, free or reduced-price lunch eligibility was the only demographic characteristic included in Model 3 and Model 4.

Two variables were included in the models to represent coursework. The first was the total number of course credits earned; this included the total overall number of course credits, which was used to predict the ACT Composite score, and the total number of credits in each subject area (English, math, social studies, or science), which was used to predict the ACT section test scores. The second was a dummy variable for course rigor, which was coded as 1 if a student had taken any college-level, dual-credit, or advanced/honors courses and as 0 if a student had taken only general or basic/remedial courses or courses of unspecified rigor.

Dominance analyses were also conducted to determine the relative importance of each predictor in the regression models. A dominance analysis considers all possible subset regression models in order to calculate the contribution of each predictor to the overall proportion of variance explained in the model. A separate dominance analysis was conducted for the predictors in Model 4, resulting in 5 analyses predicting the ACT Composite score and each section test.

Results

Research Question 1: What are the average ACCESS scores and ELP level distributions for ELs taking the ACT? To what extent do the average ACCESS scores and ELP level distributions differ between ELs taking the ACT with supports and ELs taking the ACT without supports?

Table 3 contains the average ACCESS scores of the ELs in the study sample. The ACCESS scores of ELs who tested with and without supports were generally very similar, indicating a similar average level of English proficiency across the two groups. Students tended to have higher scores in Listening, followed by Reading, with lower scores in Writing and the lowest scores in Speaking. Between the scores of ELs who took the ACT with supports and those of ELs who took the ACT without supports, there were statistically significant differences in Writing, Speaking, Oral Language, Literacy, and Overall ACCESS scores (see Table A1), but the effect sizes were small (Cohen's d ranged from -0.1 to 0.0), indicating that the two groups had similar levels of English proficiency.

Table 3. Average ACCESS Scores (and Standard Deviations) of ELs Taking the ACT

ACCESS domain	ELs with supports	ELs without supports	All ELs
Reading	387.5 (34.2)	387.1 (33.8)	387.2 (33.8)
Writing	355.0 (36.3)	359.0 (35.3)	358.2 (35.5)
Listening	402.3 (44.7)	403.4 (43.9)	403.1 (44.0)
Speaking	304.4 (63.3)	307.7 (60.1)	307.0 (60.8)
Oral Language	353.6 (46.1)	355.8 (43.8)	355.3 (44.3)
Literacy	371.5 (30.4)	373.3 (29.3)	372.9 (29.5)
Comprehension	392.0 (34.3)	392.1 (33.4)	392.0 (33.6)
Overall	365.9 (32.3)	367.8 (30.7)	367.4 (31.1)

Table 4, Table 5, and Table 6 contain the percentages of students scoring within each ACCESS performance level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. The *N*-counts can be found in the appendix (Table A4, Table A5, and Table A6). Most ELs in the study sample had Overall scores of Levels 1–4. This is because the cut score for English proficiency in State 2 is between 4.0 and 5.0 (the specific value is not reported to protect the anonymity of the state), meaning that students with Overall scores at or above the proficiency cut score would be considered proficient, or former ELs. The percentages of students at Levels 5 and 6 were higher in the domains of Reading and Listening than in the other domains. Overall, the distributions of ELP levels were similar for ELs taking the ACT with supports and ELs taking the ACT without supports. A slightly greater percentage of ELs testing with supports (40%) had a Level 1 ACCESS Speaking score than did ELs testing without supports (36%).

Table 4. Distribution (Percentage) of ACCESS ELP Levels for ELs Taking the ACT With Supports

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	15	26	22	9	16	12
Writing	9	21	54	16	0.2	0
Listening	8	10	22	25	20	16
Speaking	40	25	31	3	0.1	0
Oral Language	22	20	41	16	1	0.2
Literacy	8	24	47	19	2	0.1
Comprehension	10	22	25	13	18	12
Overall	12	23	48	16	1	0

Table 5. Distribution (Percentage) of ACCESS ELP Levels for ELs Taking the ACT Without Supports

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	14	28	22	8	16	12
Writing	7	18	55	19	0.3	0
Listening	8	8	24	24	20	16
Speaking	36	30	32	3	0.1	0
Oral Language	18	21	43	16	1	0.1
Literacy	7	22	48	20	2	0
Comprehension	9	23	25	14	18	11
Overall	9	23	50	17	1	0

Table 6. Distribution (Percentage) of ACCESS ELP Levels for All ELs Taking the ACT

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	14	28	22	8	16	12
Writing	8	19	55	18	0.3	0
Listening	8	9	24	24	20	16
Speaking	37	29	32	3	0.1	0
Oral Language	19	21	43	16	1	0.1
Literacy	7	23	48	20	2	0
Comprehension	9	23	25	14	18	11
Overall	10	23	49	17	1	0

Table 7, Table 8, and Table 9 contain correlations among the ACCESS scores and composites for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. In general, the ACCESS domains were moderately correlated, and as expected, correlations were high between the composite scores and the domains that make up that

composite. The correlation between the ACCESS Reading and ACCESS Overall score was 0.83 across all ELs, indicating the feasibility of using the ACCESS Reading score as an indicator of English proficiency when exploring the relationship between ELP and ACT performance.

Table 7. Correlations Among ACCESS Scores of ELs Taking the ACT With Supports

ACCESS domain	Reading	Writing	Listening	Speaking	Oral	Literacy	Comprehension	Overall
Reading	1.00	—	—	—	—	—	—	—
Writing	0.48	1.00	—	—	—	—	—	—
Listening	0.66	0.40	1.00	—	—	—	—	—
Speaking	0.48	0.49	0.44	1.00	—	—	—	—
Oral Language	0.65	0.53	0.79	0.90	1.00	—	—	—
Literacy	0.85	0.87	0.61	0.57	0.69	1.00	—	—
Comprehension	0.96	0.49	0.85	0.51	0.76	0.83	1.00	—
Overall	0.84	0.80	0.74	0.76	0.88	0.95	0.87	1.00

Note. All correlations are statistically significant at $p < 0.01$.

Table 8. Correlations Among ACCESS Scores of ELs Taking the ACT Without Supports

ACCESS domain	Reading	Writing	Listening	Speaking	Oral	Literacy	Comprehension	Overall
Reading	1.00	—	—	—	—	—	—	—
Writing	0.44	1.00	—	—	—	—	—	—
Listening	0.62	0.35	1.00	—	—	—	—	—
Speaking	0.46	0.45	0.41	1.00	—	—	—	—
Oral Language	0.62	0.48	0.78	0.89	1.00	—	—	—
Literacy	0.84	0.86	0.57	0.53	0.65	1.00	—	—
Comprehension	0.95	0.45	0.83	0.49	0.75	0.82	1.00	—
Overall	0.83	0.78	0.71	0.74	0.86	0.95	0.87	1.00

Note. All correlations are statistically significant at $p < 0.01$.

Table 9. Correlations Among ACCESS Scores of All ELs Taking the ACT

ACCESS domain	Reading	Writing	Listening	Speaking	Oral	Literacy	Comprehension	Overall
Reading	1.00	—	—	—	—	—	—	—
Writing	0.45	1.00	—	—	—	—	—	—
Listening	0.63	0.36	1.00	—	—	—	—	—
Speaking	0.46	0.46	0.41	1.00	—	—	—	—
Oral Language	0.63	0.49	0.78	0.89	1.00	—	—	—
Literacy	0.84	0.86	0.57	0.54	0.66	1.00	—	—
Comprehension	0.95	0.46	0.83	0.49	0.75	0.82	1.00	—
Overall	0.83	0.78	0.72	0.74	0.87	0.95	0.87	1.00

Note. All correlations are statistically significant at $p < 0.01$.

Research Question 2: What is the relationship between ACT performance and ELP scores? How do the relationships between ACT scores and ELP scores differ across different ACT subject areas?

Table 10 contains the average ACT scores of the ELs and non-ELs in the study sample. ELs scored lower than non-ELs across all test sections and the Composite score, and these differences were all statistically significant (see Table A2) with large effect sizes (Cohen's d of -0.8 for math to -1.0 for English, reading, and the Composite). ELs who took the ACT with testing supports scored higher than ELs who tested without supports; these differences were also statistically significant (see Table A3) with small to moderate effect sizes (Cohen's d of 0.1 for math to 0.3 for English and the Composite score). There were also large differences in the standard deviations of the ACT scores of ELs compared to those of non-ELs across all test sections and the Composite score; for example, the standard deviation of the Composite scores was 2.0 for all ELs and 5.0 for non-ELs. ELs who tested with supports and ELs who tested without supports had similar standard deviations.

Table 10. Average ACT Scores (and Standard Deviations) of ELs and Non-ELs Taking the ACT

ACT subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	11.6 (2.7)	10.9 (2.8)	11.0 (2.8)	16.9 (6.1)
Math	14.3 (2.1)	14.2 (2.0)	14.2 (2.0)	17.7 (4.7)
Reading	13.2 (3.2)	12.6 (2.9)	12.7 (2.9)	18.5 (6.3)
Science	14.4 (2.9)	13.9 (3.0)	14.0 (3.0)	18.3 (5.1)
Composite	13.5 (2.0)	13.0 (2.0)	13.1 (2.0)	18.0 (5.0)

Table 11, Table 12, and Table 13 contain correlations between ACT scores and ACCESS scores for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. Across ACT sections and the Composite score, the highest correlations were with ACCESS Reading and ACCESS Comprehension (a composite of 70% Reading and 30% Listening). This makes logical sense because accessing ACT test content requires reading skills to a greater extent than it does listening, speaking, or writing (with the exception of the ACT writing test, which was not considered in this study). The ACT English test also indirectly measures writing skills with items that require test takers to evaluate and edit written passages for correct grammar, punctuation, usage, and production of writing, which is reflected in the higher correlations between ACCESS Writing and ACT English scores compared to correlations between ACCESS Writing and the other ACT section test scores.

Table 11. Correlations Between ACT Scores and ACCESS Scores for ELs Taking the ACT With Supports

ACCESS domain	ACT English	ACT math	ACT reading	ACT science	ACT Composite
Reading	0.45	0.30	0.43	0.29	0.52
Writing	0.26	0.20	0.25	0.17	0.31
Listening	0.38	0.30	0.36	0.25	0.44
Speaking	0.20	0.16	0.20	0.17	0.26
Oral Language	0.32	0.26	0.31	0.24	0.39
Literacy	0.41	0.29	0.39	0.26	0.48
Comprehension	0.46	0.33	0.44	0.30	0.53
Overall	0.41	0.30	0.39	0.28	0.48

Note. All correlations are statistically significant at $p < 0.01$.

Table 12. Correlations Between ACT Scores and ACCESS Scores for ELs Taking the ACT Without Supports

ACCESS domain	ACT English	ACT math	ACT reading	ACT science	ACT Composite
Reading	0.39	0.27	0.34	0.27	0.44
Writing	0.22	0.16	0.18	0.13	0.24
Listening	0.33	0.26	0.29	0.23	0.38
Speaking	0.17	0.16	0.15	0.13	0.21
Oral Language	0.28	0.24	0.25	0.20	0.33
Literacy	0.36	0.26	0.31	0.23	0.40
Comprehension	0.40	0.30	0.36	0.28	0.46
Overall	0.36	0.28	0.31	0.24	0.41

Note. All correlations are statistically significant at $p < 0.01$.

Table 13. Correlations Between ACT Scores and ACCESS Scores for All ELs Taking the ACT

ACCESS domain	ACT English	ACT math	ACT reading	ACT science	ACT Composite
Reading	0.40	0.28	0.36	0.27	0.45
Writing	0.22	0.17	0.19	0.13	0.25
Listening	0.34	0.27	0.30	0.24	0.39
Speaking	0.18	0.16	0.16	0.13	0.22
Oral Language	0.29	0.25	0.26	0.21	0.34
Literacy	0.36	0.26	0.32	0.24	0.41
Comprehension	0.41	0.30	0.37	0.29	0.47
Overall	0.36	0.28	0.33	0.25	0.42

Note. All correlations are statistically significant at $p < 0.01$.

Taking into account that reading is the more relevant skill required for accessing test content on the ACT and that there were moderate to high correlations among the ACCESS domain and composite scores, the rest of this paper focuses on ACCESS Reading scores as the primary measure of English proficiency in order to examine students across the full distribution of Levels 1–6 for the analyses in this study.

Table 14, Table 15, and Table 16 contain the average ACT scores by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. Standard deviations are also provided. Across EL groups and across subjects and the Composite score, as English proficiency level increased, ACT performance increased.

Table 14. Average ACT Scores (and Standard Deviations) by ACCESS Reading Level for ELs Taking the ACT With Supports

ACT subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	10.3 (2.0)	10.6 (2.0)	11.4 (2.3)	11.8 (2.4)	12.6 (2.6)	14.3 (3.0)
Math	13.6 (1.7)	13.8 (1.6)	14.2 (1.9)	14.4 (2.1)	14.8 (2.1)	15.9 (2.8)
Reading	11.7 (2.2)	12.2 (2.5)	12.9 (2.7)	13.4 (2.9)	14.2 (3.1)	16.5 (3.9)
Science	13.5 (2.5)	13.7 (2.7)	14.3 (2.7)	14.7 (2.7)	15.0 (2.8)	16.3 (3.4)
Composite	12.4 (1.3)	12.7 (1.4)	13.3 (1.6)	13.7 (1.7)	14.3 (1.8)	15.9 (2.4)

Table 15. Average ACT Scores (and Standard Deviations) by ACCESS Reading Level for ELs Taking the ACT Without Supports

ACT subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	9.7 (2.2)	10.0 (2.2)	10.6 (2.4)	11.1 (2.5)	11.7 (2.7)	13.5 (3.4)
Math	13.7 (1.6)	13.8 (1.7)	14.0 (1.8)	14.4 (1.9)	14.6 (2.0)	15.6 (2.8)
Reading	11.6 (2.3)	11.9 (2.3)	12.3 (2.4)	12.7 (2.5)	13.4 (2.9)	15.0 (3.8)
Science	13.1 (2.6)	13.2 (2.8)	13.7 (2.8)	14.0 (2.9)	14.4 (3.0)	15.9 (3.5)
Composite	12.1 (1.4)	12.3 (1.5)	12.8 (1.6)	13.2 (1.7)	13.7 (1.8)	15.1 (2.6)

Table 16. Average ACT Scores (and Standard Deviations) by ACCESS Reading Level for All ELs Taking the ACT

ACT subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	9.9 (2.1)	10.1 (2.2)	10.8 (2.4)	11.3 (2.5)	11.9 (2.7)	13.6 (3.4)
Math	13.7 (1.7)	13.8 (1.7)	14.0 (1.8)	14.4 (2.0)	14.6 (2.0)	15.7 (2.8)
Reading	11.6 (2.3)	11.9 (2.4)	12.4 (2.5)	12.8 (2.6)	13.6 (2.9)	15.3 (3.9)
Science	13.2 (2.6)	13.3 (2.7)	13.8 (2.8)	14.2 (2.9)	14.5 (3.0)	16.0 (3.5)
Composite	12.2 (1.4)	12.4 (1.5)	12.9 (1.6)	13.3 (1.7)	13.8 (1.8)	15.3 (2.6)

Comparing the average ACT scores by ACCESS Reading level of ELs who took the ACT with supports (Table 15) to those of ELs who took the ACT without supports (Table 16), we see some patterns in the differences in performance. The largest differences were in English and reading; ELs who tested with supports had English scores that were 0.6 to 0.9 score points higher across reading levels. The differences in ACT reading performance increased as reading level increased, with a difference of 0.1 at Level 1 to a difference of 1.5 at Level 6. Math had very small differences, ranging from -0.1 to 0.3. In science, ELs who tested with supports scored 0.4 to 0.7 score points higher than ELs who tested without supports. Composite scores also showed an increasing pattern as reading level improved, most likely due to the effect of the improved reading performance.

Research Question 3: Do relationships between high school grades and ACT scores vary across ELP levels?

Table 17 contains the average Grade 11 GPA for each group. Non-ELs tended to have higher GPAs than ELs. ELs who took the ACT with supports tended to have higher GPAs than ELs who took the ACT without supports. Across groups, students tended to have higher overall Grade 11 GPAs compared to their subject-specific GPAs. This is due to students earning higher grades in other non-core courses such as art or physical education.

Table 17. Average Grade 11 Subject-Specific and Overall GPAs (and Standard Deviations) of ELs and Non-ELs Taking the ACT

GPA subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	2.21 (1.10)	2.10 (1.11)	2.13 (1.11)	2.66 (1.14)
Math	1.85 (1.14)	1.79 (1.15)	1.80 (1.15)	2.32 (1.19)
Social studies	2.28 (1.06)	2.15 (1.13)	2.18 (1.12)	2.76 (1.10)
Science	2.14 (1.12)	2.02 (1.14)	2.05 (1.14)	2.59 (1.14)
Overall	2.49 (0.73)	2.43 (0.72)	2.44 (0.72)	2.88 (0.80)

Table 18 contains the percentages of students missing a Grade 11 GPA for each group. Less than 5% of students were missing a Grade 11 GPA, while higher percentages of students (8% to 16%) were missing subject-specific Grade 11 GPAs. Data were missing if there were no course data available for that student (approximately 3% of the 2019–20 to 2022–23 data) or if a student did not take any courses earning an A–F grade in that subject or overall.

Table 18. Percentages of Missing Grade 11 GPAs of ELs and Non-ELs Taking the ACT

GPA subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	15	11	12	14
Math	11	8	9	9
Social studies	10	9	9	13
Science	12	15	14	16
Overall	1	2	2	4

To evaluate the appropriateness of using the Grade 11 GPA data given the moderately higher percentages of missing data for subject-specific Grade 11 GPAs, we calculated the average ACT scores of students without GPAs (Table 19) and with GPAs (Table 20). Students with GPAs tended to have slightly higher average ACT scores than students without GPAs, but the differences were not large (no more than 0.5 points). The biggest differences were found in reading: for ELs who tested without supports, those without a GPA scored 12.0, while those with a GPA scored 12.5. Similarly, for all ELs, those without a GPA scored 12.2, while those with a GPA scored 12.7. These small differences should be kept in mind when interpreting the results of this study.

Table 19. Average ACT Scores of Students Without Grade 11 GPAs

ACT subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	11.9	10.5	10.7	16.5
Math	14.3	13.8	13.9	17.1
Reading	13.2	12.0	12.2	18.2
Science	14.0	13.5	13.6	17.8
Composite	13.5	12.6	12.7	17.5

Table 20. Average ACT Scores of Students With Grade 11 GPAs

ACT subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	11.6	10.8	11.0	16.9
Math	14.3	14.1	14.1	17.5
Reading	13.1	12.5	12.7	18.5
Science	14.4	13.9	14.0	18.2
Composite	13.5	13.0	13.1	17.9

Table 21, Table 22, Table 23, and Table 24 contain correlations between ACT scores and GPAs for ELs who took the ACT with supports, ELs who took the ACT without supports, all ELs, and non-ELs, respectively. Across subjects and overall, correlations were higher for non-ELs than ELs, indicating a stronger relationship between GPA and ACT performance for non-ELs than for

ELs. This is likely related to the lower variability (standard deviations) of the ACT scores of ELs; a follow-up analysis weighting the non-EL group to match the distribution of the ACT Composite scores of the EL group provides evidence that the lower variability of scores may indeed play a role in the smaller correlations (additional details can be found in the appendix). The correlations between overall GPAs and ACT Composite scores were similar across ELs who took the ACT with supports and ELs who took the ACT without supports, but some differences can be seen across subject-specific GPAs and ACT test sections.

Table 21. Correlations Between ACT Scores and Grade 11 GPAs for ELs Taking the ACT With Supports

GPA subject	ACT English	ACT math	ACT reading	ACT science	ACT Composite
English	0.19	0.14	0.20	0.12	0.22
Math	0.20	0.23	0.18	0.19	0.27
Social studies	0.20	0.18	0.21	0.17	0.26
Science	0.22	0.19	0.21	0.18	0.28
Overall	0.24	0.25	0.23	0.19	0.31

Note. All correlations are statistically significant at $p < 0.01$.

Table 22. Correlations Between ACT Scores and Grade 11 GPAs for ELs Taking the ACT Without Supports

GPA subject	ACT English	ACT math	ACT reading	ACT science	ACT Composite
English	0.21	0.18	0.18	0.17	0.25
Math	0.20	0.22	0.16	0.18	0.25
Social studies	0.22	0.18	0.20	0.18	0.27
Science	0.21	0.20	0.17	0.18	0.26
Overall	0.26	0.24	0.22	0.22	0.32

Note. All correlations are statistically significant at $p < 0.01$.

Table 23. Correlations Between ACT Scores and Grade 11 GPAs for All ELs Taking the ACT

GPA subject	ACT English	ACT math	ACT reading	ACT science	ACT Composite
English	0.20	0.17	0.18	0.16	0.25
Math	0.20	0.22	0.16	0.18	0.26
Social studies	0.22	0.18	0.21	0.18	0.27
Science	0.22	0.20	0.19	0.18	0.27
Overall	0.26	0.24	0.22	0.21	0.32

Note. All correlations are statistically significant at $p < 0.01$.

Table 24. Correlations Between ACT Scores and Grade 11 GPAs for Non-ELs Taking the ACT

GPA subject	ACT English	ACT math	ACT reading	ACT science	ACT Composite
English	0.46	0.42	0.43	0.42	0.48
Math	0.44	0.46	0.40	0.43	0.47
Social studies	0.44	0.41	0.42	0.41	0.46
Science	0.44	0.43	0.41	0.42	0.46
Overall	0.52	0.50	0.48	0.49	0.55

Note. All correlations are statistically significant at $p < 0.01$.

Table 25, Table 26, and Table 27 contain the average Grade 11 GPA by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. There is a clear pattern of increasing Grade 11 GPA as ACCESS Reading level increases for each group.

Table 25. Average Grade 11 GPAs (and Standard Deviations) by ACCESS Reading Level for ELs Taking the ACT With Supports

GPA subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	2.01 (1.03)	2.01 (1.08)	2.15 (1.12)	2.22 (1.07)	2.52 (1.04)	2.63 (1.08)
Math	1.54 (1.16)	1.60 (1.11)	1.78 (1.11)	1.96 (1.05)	2.11 (1.11)	2.43 (1.08)
Social studies	1.96 (1.08)	2.06 (1.01)	2.28 (1.05)	2.37 (1.02)	2.55 (1.02)	2.78 (0.99)
Science	1.78 (1.12)	1.95 (1.11)	2.05 (1.08)	2.14 (1.05)	2.49 (0.98)	2.74 (1.07)
Overall	2.24 (0.68)	2.31 (0.67)	2.45 (0.71)	2.52 (0.69)	2.72 (0.69)	2.91 (0.72)

Table 26. Average Grade 11 GPAs (and Standard Deviations) by ACCESS Reading Level for ELs Taking the ACT Without Supports

GPA subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	1.86 (1.06)	1.96 (1.11)	2.04 (1.08)	2.10 (1.08)	2.28 (1.10)	2.60 (1.08)
Math	1.55 (1.09)	1.61 (1.12)	1.74 (1.10)	1.82 (1.14)	2.00 (1.15)	2.30 (1.18)
Social studies	1.78 (1.12)	1.95 (1.11)	2.15 (1.09)	2.25 (1.07)	2.41 (1.09)	2.70 (1.07)
Science	1.69 (1.14)	1.81 (1.08)	2.01 (1.12)	2.07 (1.12)	2.24 (1.12)	2.55 (1.11)
Overall	2.19 (0.65)	2.27 (0.68)	2.40 (0.69)	2.49 (0.71)	2.61 (0.72)	2.83 (0.75)

Table 27. Average Grade 11 GPAs (and Standard Deviations) by ACCESS Reading Level for All ELs Taking the ACT

GPA subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	1.90 (1.06)	1.97 (1.10)	2.07 (1.09)	2.13 (1.08)	2.34 (1.09)	2.61 (1.08)
Math	1.55 (1.11)	1.61 (1.12)	1.75 (1.10)	1.86 (1.12)	2.02 (1.14)	2.34 (1.16)
Social studies	1.82 (1.11)	1.97 (1.09)	2.18 (1.08)	2.28 (1.06)	2.45 (1.08)	2.72 (1.05)
Science	1.72 (1.14)	1.84 (1.09)	2.02 (1.11)	2.09 (1.10)	2.31 (1.09)	2.60 (1.11)
Overall	2.20 (0.66)	2.28 (0.68)	2.42 (0.70)	2.50 (0.70)	2.64 (0.71)	2.85 (0.74)

Table 28, Table 29, and Table 30 contain correlations between ACT scores and GPAs by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. In general, as Reading level increased, the correlation between ACT scores and GPA increased, indicating a stronger relationship between the two measures. For Reading Levels 1 and 2, the correlations were small and in many cases non-significant. Correlations were higher for students at ACCESS Reading Level 3 and above, and only one correlation was not significant (the correlation between ACT English and Grade 11 English GPA for ELs who took the ACT with supports and scored at ACCESS Reading Level 3). Again, it is likely that the lower variability (standard deviations) of the ACT scores of ELs at lower reading levels contributed to the lower correlations for students at lower reading levels. A follow-up analysis weighting the non-EL group to match the distribution of the ACT Composite scores of ELs at ACCESS Reading Levels 1 and 2 provides evidence that the lower variability of scores may play a role in the smaller correlations, but for ELs at the lowest ACCESS Reading levels, construct-irrelevant variance may also be contributing to the smaller correlations; additional details can be found in the appendix.

Table 28. Correlations Between ACT Scores and Grade 11 GPAs by ACCESS Reading Level for ELs Taking the ACT With Supports

ACT–GPA subjects	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English–English	0.10*	–0.01 ^{ns}	0.06 ^{ns}	0.18*	0.18	0.18
Math–math	0.07 ^{ns}	0.07 ^{ns}	0.20	0.21	0.18	0.31
Reading–social studies	0.03 ^{ns}	0.04 ^{ns}	0.14	0.23	0.11*	0.16
Science–science	0.08 ^{ns}	0.11	0.13	0.17*	0.15	0.16
Composite–overall GPA	0.09 ^{ns}	0.10	0.19	0.28	0.23	0.28

Note. All correlations are statistically significant at $p < 0.01$ unless noted.

* Indicates significant at $p < 0.05$; ^{ns} indicates not significant.

Table 29. Correlations Between ACT Scores and Grade 11 GPAs by ACCESS Reading Level for ELs Taking the ACT Without Supports

ACT–GPA subjects	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English–English	0.04 ^{ns}	0.07	0.14	0.14	0.21	0.27
Math–math	0.08	0.04 ^{ns}	0.15	0.21	0.24	0.32
Reading–social studies	0.04 ^{ns}	0.10	0.13	0.13	0.18	0.20
Science–science	0.05 ^{ns}	0.08	0.13	0.09*	0.20	0.25
Composite–overall GPA	0.09	0.12	0.19	0.24	0.31	0.35

Note. All correlations are statistically significant at $p < 0.01$ unless noted.

* Indicates significant at $p < 0.05$; ^{ns} indicates not significant.

Table 30. Correlations Between ACT Scores and Grade 11 GPAs by ACCESS Reading Level for All ELs Taking the ACT

ACT–GPA subjects	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English–English	0.06*	0.06	0.12	0.15	0.21	0.25
Math–math	0.08	0.04*	0.17	0.21	0.22	0.32
Reading–social studies	0.04 ^{ns}	0.09	0.14	0.16	0.16	0.20
Science–science	0.06*	0.09	0.13	0.11	0.20	0.23
Composite–overall GPA	0.09	0.12	0.19	0.25	0.30	0.34

Note. All correlations are statistically significant at $p < 0.01$ unless noted.

* Indicates significant at $p < 0.05$; ^{ns} indicates not significant.

Research Question 4: How do psychometric properties of the ACT compare across EL status and ELP levels?

The psychometric analyses conducted for this study are form-specific, meaning that these analyses require a sufficient number of students taking the same test form. For a given ACT test event, students take one of several forms. For State 2, there was one test form that had sample sizes over 1,000 for each group, and this required combining ACCESS Reading levels into two categories, Low Reading (Levels 1, 2, and 3) and High Reading (Levels 4, 5, and 6). We were

also unable to compare ELs who took the ACT with supports to ELs who took the ACT without supports due to the small sample sizes.

The total sample used for the psychometric analyses included 27,652 students, with 24,836 (90%) non-EL students and 2,816 (10%) EL students. Among the EL students, 1,711 (60%) were classified as Low Reading, and 1,105 (40%) were classified as High Reading. Table 31 shows the descriptive statistics of the ACT test scores for the three groups of interest in the psychometric analysis sample. The average performance of the EL groups is lower than that of the non-EL group, with the Low Reading group performing below the High Reading group. The standard deviations of the EL groups are much smaller than those of the non-EL group, with the Low Reading group being the smallest. Note that the smaller variability within the EL groups may affect the reliability indices.

Table 31. Average ACT Scores (and Standard Deviations) for the Psychometric Analysis Sample by Group

ACT subject	Low Reading (<i>N</i> = 1,711)	High Reading (<i>N</i> = 1,105)	Non-ELs (<i>N</i> = 24,836)
English	10.29 (2.26)	12.21 (2.94)	17.15 (5.91)
Math	14.18 (1.43)	15.27 (2.02)	18.37 (4.53)
Reading	12.11 (2.33)	13.70 (3.19)	18.88 (6.14)
Science	12.93 (2.73)	14.68 (3.19)	18.63 (5.12)
Composite	12.51 (1.50)	14.10 (2.12)	18.38 (4.91)

Differential item functioning (DIF) between each EL group and the non-EL group was examined using the Mantel-Haenszel method (Holland & Thayer, 1988; Mantel & Haenszel, 1959). Mantel-Haenszel chi-square (MH-CHISQ) *p*-values and Mantel-Haenszel effect sizes (MH-D) were used to classify the items into different categories following the criteria listed in Table 32 (negligible, moderate, and large DIF; Dorans & Holland, 1993). Plus and minus signs were used to indicate whether the item favors the focal group (+) or the reference group (-). The number and percentage of items identified for each test section for Low Reading ELs (focal group) versus non-ELs (reference group) are presented in Table 33, and those for the High Reading ELs (focal group) versus non-ELs (reference group) are presented in Table 34. A higher proportion of items exhibited B- or C-level DIF favoring the non-EL group for the Low Reading group (10%) than for the High Reading group (3%), suggesting some potential influence of limited English proficiency on ACT performance for the Low Reading group.

Table 32. Criteria for A, B, and C DIF Categories for the Mantel-Haenszel Procedure

Category	Description	Criterion
A	Negligible DIF	Nonsignificant MH-CHISQ ($p > 0.05$) or $ MH-D < 1.0$
B	Moderate DIF	Significant MH-CHISQ ($p \leq 0.05$) and $1.0 \leq MH-D < 1.5$
C	Large DIF	Significant MH-CHISQ ($p \leq 0.05$) and $ MH-D \geq 1.5$

Table 33. Summary of DIF Classifications Between Low Reading ELs (Focal) and Non-ELs (Reference)

Subject	A	B+	B-	C+	C-	Total	Flagged	% Flagged	%+	%-
English	67	1	7	0	0	75	8	11%	1%	9%
Math	55	0	4	0	1	60	5	8%	0%	8%
Reading	34	1	5	0	0	40	6	15%	3%	13%
Science	35	0	5	0	0	40	5	13%	0%	13%
Total	191	2	21	0	1	215	24	11%	1%	10%

+ Indicates DIF favoring focal group; - indicates DIF favoring reference group.

Table 34. Summary of DIF Classifications Between High Reading ELs (Focal) and Non-ELs (Reference)

Subject	A	B+	B-	C+	C-	Total	Flagged	% Flagged	%+	%-
English	74	0	1	0	0	75	1	1%	0%	1%
Math	59	0	1	0	0	60	1	2%	0%	2%
Reading	37	0	2	0	1	40	3	8%	0%	8%
Science	39	0	1	0	0	40	1	3%	0%	3%
Total	209	0	5	0	1	215	6	3%	0%	3%

+ Indicates DIF favoring focal group; - indicates DIF favoring reference group.

A strong true score model (Lord, 1965) was used to estimate the reliability, *SEM*, and conditional *SEM* (*CSEM*) of the ACT scale scores for each test section using data from each group. True number correct scores were assumed to have a four-parameter β distribution, and measurement errors conditional on each true score were assumed to have a compound binomial distribution. Scale score *CSEM*, *SEM*, and reliability were estimated following procedures described in Kolen et al. (1992).

Figure 1 presents the *CSEM* of scale scores for the three groups by subject area. The curves for the three test groups are very similar for English, math, and reading, indicating that measurement precision was similar across the three test groups at each true scale score for these tests. The curves are slightly more separated for science, with the *CSEM* of the non-EL group being the smallest, followed by the High Reading group and the Low Reading group.

Figure 1. Scale Score CSEMs

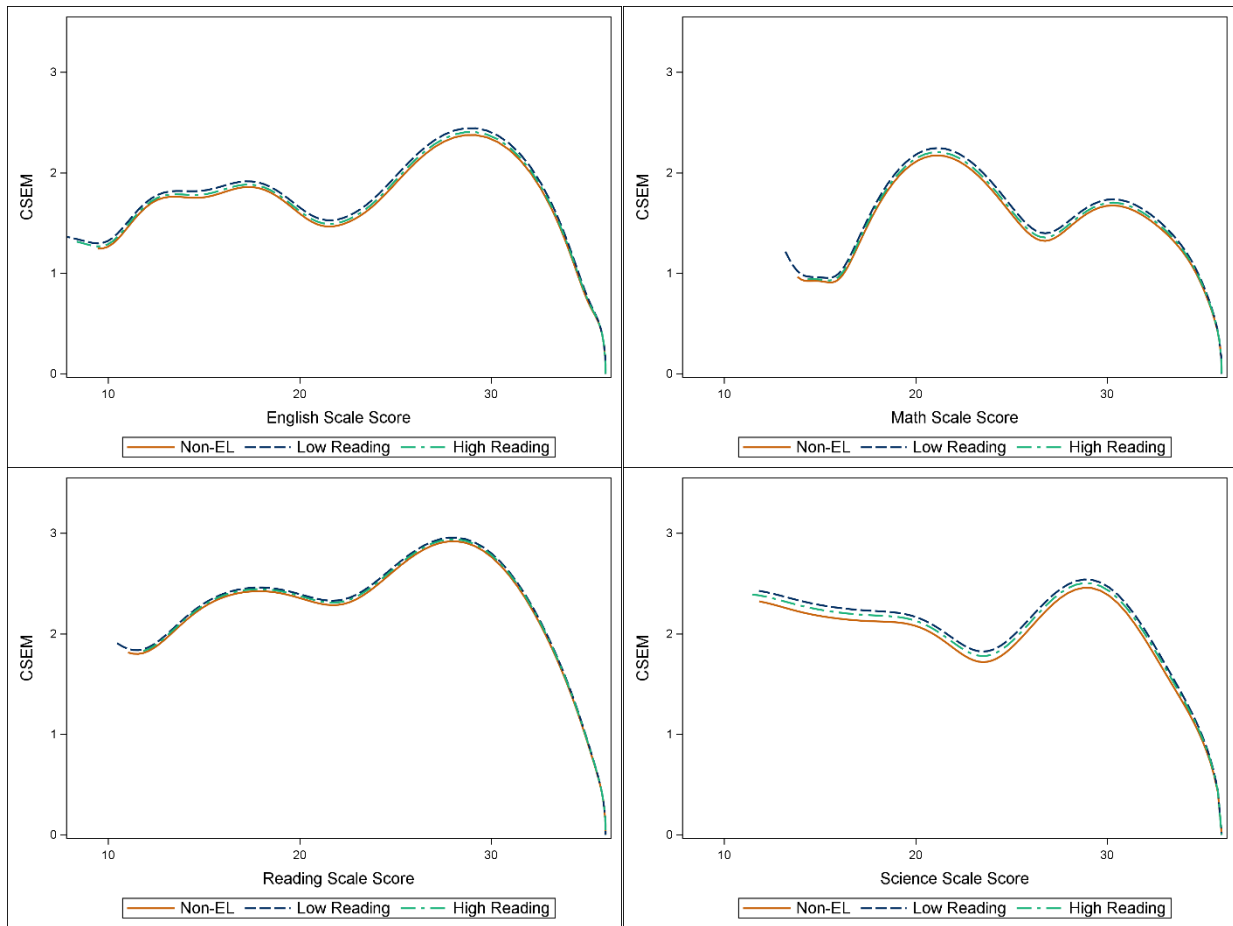


Table 35 presents the reliability and *SEM* of each test section by group. As expected from the similarity in *CSEMs*, the *SEMs* of the three groups are similar, with a magnitude of differences no larger than 0.38. The *SEMs* of the EL groups are slightly lower than those of the non-EL group for English, math, and reading, and slightly higher than that of the non-EL group for science, but these differences have no practical impact on score interpretation. However, the reliability indices are severely influenced by the differences in group variability, as shown in Table 31; reliability is calculated as shown in the equation below, where σ_e^2 represents the error variance, and σ_x^2 represents the observed score variance. With the same error variance (i.e., the squared value of the *SEMs*), the larger the observed score variance, the higher the reliability estimates. Because of the small observed score variability within each EL group, the reliability indices calculated based on the EL groups are all lower than those based on the non-EL group.

$$reliability = 1 - \frac{\sigma_e^2}{\sigma_x^2}$$

Therefore, comparison of psychometric properties should focus on *CSEM* and *SEM* instead of reliability indices when groups under comparison differ significantly in variability. The similarity

of the *SEM* values and the *CSEM* curves of the EL groups and non-EL groups indicates that the ACT test measures with similar precision for all these groups.

Table 35. Scale Score Reliability and *SEM*

Subject	Reliability			<i>SEM</i>		
	Low Reading	High Reading	Non-ELs	Low Reading	High Reading	Non-ELs
English	0.58	0.71	0.92	1.47	1.59	1.69
Math	0.47	0.72	0.90	1.04	1.07	1.42
Reading	0.31	0.59	0.86	1.93	2.05	2.30
Science	0.24	0.49	0.83	2.38	2.27	2.10

Research Question 5: Are there differences in the number of credit hours earned (overall and by subject area) across ELP levels, by EL status, and for ELs taking the ACT with or without supports?

Table 36 contains the average number of credit hours earned in Grade 11 for the ELs and non-ELs in the study sample. Credit hours are defined such that a student will earn 1 credit hour by earning a passing grade in a year-long course. In general, the differences by subject were fairly small, with differences of 0.0 to 0.16 when comparing ELs to non-ELs and 0.0 to 0.07 when comparing ELs who took the ACT with or without supports. Overall, however, ELs earned fewer credit hours (5.50) than non-ELs (5.96), and ELs who took the ACT without supports earned fewer credit hours (5.43) than ELs who took the ACT with supports (5.70).

Table 36. Average Number of Credit Hours Earned for ELs and Non-ELs Taking the ACT

Subject	ELs with supports	ELs without supports	All ELs	Non-ELs
English	0.97	0.90	0.92	0.89
Math	0.76	0.77	0.77	0.88
Social studies	0.78	0.72	0.74	0.83
Science	0.97	0.93	0.94	1.10
Arts	0.59	0.56	0.57	0.60
Religion	0.00	0.00	0.00	0.00
Physical education	0.40	0.44	0.43	0.34
Military science	0.04	0.04	0.04	0.04
Information technology	0.08	0.08	0.08	0.09
Communication & A/V technology	0.04	0.03	0.04	0.06
Business & marketing	0.11	0.07	0.08	0.10
Manufacturing	0.03	0.02	0.02	0.03
Health care sciences	0.04	0.03	0.03	0.06
Public, protective & govt. service	0.07	0.05	0.06	0.07
Hospitality & tourism	0.08	0.06	0.06	0.08
Architecture & construction	0.02	0.02	0.02	0.03
Agriculture, food & natural resources	0.01	0.01	0.01	0.02
Human services	0.05	0.05	0.05	0.08
Transportation & logistics	0.04	0.03	0.04	0.03
Engineering & technology	0.03	0.02	0.02	0.04
World languages	0.31	0.26	0.27	0.28
Overall	5.70	5.43	5.50	5.96

Note. The overall credit hours earned may not be equal to the sum of credit hours earned in each subject area because the calculation of overall credit hours included miscellaneous courses that were not associated with a specific subject area.

Table 37, Table 38, and Table 39 contain the average number of credit hours earned in Grade 11 by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. Differences were small in terms of specific subjects, but overall, the number of credit hours was higher for students with higher levels of reading proficiency, with a difference of about one credit hour between Level 1 and Level 6.

Table 37. Average Number of Credit Hours Earned by ACCESS Reading Level for ELs Taking the ACT With Supports

Subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	1.1	1.0	0.9	0.9	0.9	0.9
Math	0.7	0.7	0.8	0.8	0.8	0.9
Social studies	0.9	1.0	1.0	0.9	1.0	1.0
Science	0.7	0.7	0.8	0.8	0.9	0.8
Overall	5.3	5.4	5.8	5.7	6.0	6.2

Table 38. Average Number of Credit Hours Earned by ACCESS Reading Level for ELs Taking the ACT Without Supports

Subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	1.0	0.9	0.9	0.8	0.9	1.0
Math	0.7	0.7	0.8	0.8	0.8	0.9
Social studies	0.8	0.9	0.9	1.0	1.0	1.1
Science	0.6	0.7	0.7	0.7	0.8	0.8
Overall	4.9	5.2	5.4	5.6	5.8	6.0

Table 39. Average Number of Credit Hours Earned by ACCESS Reading Level for All ELs Taking the ACT

Subject	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English	1.0	0.9	0.9	0.8	0.9	0.9
Math	0.7	0.7	0.8	0.8	0.8	0.9
Social studies	0.8	0.9	0.9	1.0	1.0	1.1
Science	0.6	0.7	0.7	0.8	0.8	0.8
Overall	5.0	5.3	5.5	5.6	5.9	6.1

Research Question 6: Are there differences in highest course taken in math, science, and English across ELP levels, by EL status, and for ELs taking the ACT with or without supports?

Table 40 contains the distribution of the highest-level courses taken in English, math, and science for the ELs and non-ELs in the study sample. Across subject areas, ELs were more likely than non-ELs to have lower-level courses as their highest-level courses. For example, 19% of non-ELs took English 12 or another advanced English course in Grade 11 as their highest-level English course compared to only 4% of ELs, whereas 75% of non-ELs took English 11 as their highest-level English course compared to 87% of ELs. Similarly, non-ELs were more likely to take calculus or other advanced math (5% vs. 0% of ELs) or precalculus, trigonometry, or statistics (17% vs. 2% of ELs) as their highest-level math course, whereas ELs

were more likely than non-ELs to take Algebra 2, geometry, algebra, or general math as their highest-level math course. In science, non-ELs were more likely to take physics (25% vs. 10% of ELs) as their highest-level science course, and ELs were more likely to take Earth, general, or other science (29% vs. 23% of non-ELs) as their highest-level science course.

Table 40. Distribution (Percentage) of Highest Course Taken in English, Math, and Science for ELs and Non-ELs Taking the ACT

Highest course	ELs with supports	ELs without supports	All ELs	Non-ELs
English 12 or other advanced English	4	4	4	19
English 11	86	87	87	75
Below English 11	8	7	7	2
General or other English	1	2	2	4
Calculus or other advanced math	0.4	0.4	0.4	5
Precalculus, trigonometry, or statistics	1	2	2	17
Algebra 2	68	61	62	57
Geometry	20	22	22	11
Algebra or lower math	5	5	5	2
General or other math	6	10	9	8
Physics	14	9	10	25
Other advanced science	25	25	25	24
Chemistry	32	32	32	23
Biology	4	4	4	5
Earth, general, or other science	26	31	29	23

Note. Students who did not take a course in a given subject area or who had missing data for this variable were excluded from the calculations presented in this table.

Between ELs who took the ACT with supports and ELs who took the ACT without supports, there were generally small differences in the highest level of coursework taken, with some exceptions: ELs who took the ACT with supports were more likely to have taken Algebra 2 (68% vs. 61%) or physics (14% vs. 9%) and less likely to have taken general or other math (6% vs. 10%) or Earth, general, or other science (26% vs. 31%).

Table 41, Table 42, and Table 43 contain the distribution of the highest-level courses taken in English, math, and science by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. A similar pattern emerged in that ELs with higher levels of reading proficiency were more likely to have highest-level courses such as English 12, other advanced English, calculus, precalculus, trigonometry, statistics, Algebra 2, physics, or chemistry. Conversely, ELs with lower levels of reading proficiency were more likely to have highest-level courses such as those below English 11, algebra or lower math, general or other math, biology, Earth science, general science, or other science.

Between ELs who took the ACT with supports and ELs who took the ACT without supports, there were generally small differences in the highest level of coursework taken by ACCESS

Reading level, with some exceptions. ELs who took the ACT with supports were more likely to have taken Algebra 2 across ACCESS Reading levels (7%–10% difference), with a smaller gap (3%) at Level 5. ELs who took the ACT with supports were less likely to have taken general or other math courses as their highest math course if their ACCESS Reading scores were at Level 1 (9%) or Level 2 (7%), with smaller differences at higher Reading levels (1%–3%). ELs who took the ACT with supports and had ACCESS Reading scores at Level 6 were more likely to take physics as their highest level of coursework in science, with a difference of 9%; this gap grew smaller as students' reading proficiency decreased (from a 6% gap at Level 5 to less than 1% at Level 1). ELs who took the ACT with supports were also less likely to take Earth, general, or other science courses as their highest level of science coursework; the differences were more pronounced at Level 3 and Level 5, with gaps of 8% and 6%, respectively, and the smallest difference was at Level 6 (2%).

Table 41. Distribution (Percentage) of Highest Course Taken in English, Math, and Science by ACCESS Reading Level for ELs Taking the ACT With Supports

Highest course	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English 12 or other advanced English	2	4	5	5	5	7
English 11	82	86	87	89	88	88
Below English 11	15	9	7	5	6	4
General or other English	2	1	2	1	1	0.3
Calculus or other advanced math	0	0.3	0.3	0	0.5	1
Precalculus, trigonometry, or statistics	0	0.3	1	1	2	3
Algebra 2	54	63	71	75	73	78
Geometry	27	25	19	16	17	12
Algebra or lower math	9	6	4	3	3	1
General or other math	10	6	4	4	4	4
Physics	5	8	14	14	20	27
Other advanced science	31	25	27	20	26	19
Chemistry	26	34	34	35	31	27
Biology	7	5	2	3	2	4
Earth, general, or other science	30	28	23	28	21	22

Note. Students who did not take a course in a given subject area or who had missing data for this variable were excluded from the calculations presented in this table.

Table 42. Distribution (Percentage) of Highest Course Taken in English, Math, and Science by ACCESS Reading Level for ELs Taking the ACT Without Supports

Highest course	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English 12 or other advanced English	2	3	3	5	6	9
English 11	83	87	89	88	88	85
Below English 11	14	8	5	5	4	3
General or other English	2	2	2	2	3	4
Calculus or other advanced math	0.1	0.1	0.5	0.5	1	1
Precalculus, trigonometry, or statistics	0.4	1	1	2	2	6
Algebra 2	44	55	64	67	70	70
Geometry	26	25	22	23	18	16
Algebra or lower math	10	6	5	3	3	2
General or other math	19	13	8	5	6	5
Physics	5	5	8	9	14	18
Other advanced science	27	26	26	21	24	21
Chemistry	28	31	32	35	33	32
Biology	5	4	4	5	3	5
Earth, general, or other science	35	34	31	31	27	24

Note. Students who did not take a course in a given subject area or who had missing data for this variable were excluded from the calculations presented in this table.

Table 43. Distribution (Percentage) of Highest Course Taken in English, Math, and Science by ACCESS Reading Level for All ELs

Highest course	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
English 12 or other advanced English	2	3	4	5	5	8
English 11	82	87	89	89	88	85
Below English 11	14	9	5	5	5	3
General or other English	2	2	2	2	2	3
Calculus or other advanced math	0.1	0.1	0.4	0.3	1	1
Precalculus, trigonometry, or statistics	0.3	1	1	2	2	5
Algebra 2	47	57	66	69	71	72
Geometry	26	25	21	21	17	15
Algebra or lower math	10	6	5	3	3	2
General or other math	17	12	7	5	5	5
Physics	5	6	9	11	15	21
Other advanced science	28	26	26	20	24	20
Chemistry	28	32	32	35	33	31
Biology	6	4	3	4	2	5
Earth, general, or other science	34	32	29	30	26	23

Note. Students who did not take a course in a given subject area or who had missing data for this variable were excluded from the calculations presented in this table.

Research Question 7: Are there differences in the distributions of remedial/developmental, general, and honors/AP/IB courses across EL status, by EL status, and for ELs taking the ACT with or without supports?

Table 44 contains the distribution of the most rigorous course taken across subject areas for courses taken in Grade 11 for the ELs and non-ELs in the study sample. ELs were less likely than non-ELs to take college or dual enrollment courses (2% vs. 10%) or advanced or honors courses (33% vs. 51%) and more likely to take general education courses (61% vs. 37%) as their most rigorous course. ELs who took the ACT with supports were more likely to take advanced or honors courses compared to ELs who took the ACT without supports (38% vs. 33%).

Table 44. Distribution (Percentage) of Most Rigorous Course for ELs and Non-ELs Taking the ACT

Highest level of rigor	ELs with supports	ELs without supports	All ELs	Non-ELs
College/dual enrollment	2	2	2	10
Advanced/honors	38	33	34	51
General	59	61	61	37
Basic/remedial	0.1	0.1	0.1	0
Unspecified	1	3	3	2

Note. Students with missing data for this variable were excluded from the calculations presented in this table. The missing rates were 1% for the three EL groups and 3% for non-ELs.

Table 45, Table 46, and Table 47 contain the distribution of the most rigorous course across subject areas for courses taken in Grade 11 by ACCESS Reading level for ELs who took the ACT with supports, ELs who took the ACT without supports, and all ELs, respectively. Overall, ELs with higher levels of reading proficiency were more likely to take college or dual enrollment courses or advanced or honors courses as their most rigorous course than students with lower levels of reading proficiency. ELs who took the ACT with supports were more likely to take advanced or honors courses than ELs who took the ACT without supports across ACCESS Reading levels.

Table 45. Distribution (Percentage) of Most Rigorous Course by ACCESS Reading Level for ELs Taking the ACT With Supports

Highest level	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
College/dual enrollment	0.4	1	2	3	4	5
Advanced/honors	29	32	36	42	45	53
General	70	66	61	53	50	41
Basic/remedial	0	0	0.2	0.4	0	0
Unspecified	1	1	1	1	1	1

Note. Students with missing data for this variable were excluded from the calculations presented in this table.

Table 46. Distribution (Percentage) of Most Rigorous Course by ACCESS Reading Level for ELs Taking the ACT Without Supports

Highest level	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
College/dual enrollment	1	1	2	3	4	5
Advanced/honors	25	28	32	36	40	48
General	71	68	63	59	52	45
Basic/remedial	0.4	0	0.1	0	0.1	0
Unspecified	3	3	3	3	4	2

Note. Students with missing data for this variable were excluded from the calculations presented in this table.

Table 47. Distribution (Percentage) of Most Rigorous Course by ACCESS Reading Level for All ELs Taking the ACT

Highest level	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
College/dual enrollment	1	1	2	3	4	5
Advanced/honors	26	29	33	37	41	50
General	70	67	62	57	51	44
Basic/remedial	0.3	0	0.2	0.1	0.1	0
Unspecified	3	3	3	2	3	2

Note. Students with missing data for this variable were excluded from the calculations presented in this table.

Research Question 8: To what extent do student characteristics, course-taking patterns, and Grade 11 high school GPA account for the variance in the ACT scores of ELs above and beyond their level of English proficiency?

Table 48 contains the results of a series of regression models predicting the ACT Composite scores of ELs, and Table 49 through Table 52 contain the same series of models predicting ACT English, math, reading, and science scores. Model 1 predicts ACT scores from ACCESS Reading scores; Model 2 adds an indicator for whether students took the ACT with testing supports; Model 3 adds an indicator for free/reduced-price lunch eligibility; and Model 4 adds overall Grade 11 GPA, number of credits earned (using total number of credits earned to predict the ACT Composite score and number of credits earned in each subject area to predict each ACT section test score), and an indicator of highest rigor of coursework taken across subject areas (college/dual enrollment or advanced/honors versus general, basic/remedial, or unspecified).

Across all the models, ACCESS Reading scores were a significant predictor of performance on the ACT, including the Composite score and all four section test scores. Taking the ACT with testing supports was also a significant predictor of performance, boosting the Composite and all section scores except math by approximately half a point after we controlled for ACCESS Reading scores. It should also be noted that the indicator for taking the ACT with supports is based on whether students were approved to take the test with supports; ACT did not collect information about whether students actually used the supports during testing, meaning that the effects of the supports could be underestimated depending on how many approved students did not use the supports. Free and reduced-price lunch status was also a significant predictor of ACT performance for all scores except reading. Grade 11 GPA and rigor of coursework were also significant predictors of the ACT Composite score and all section test scores, while the number of course credits earned in English, math, and science did not significantly predict students' English, math, and science scores after we controlled for all other variables in the models.

Based on the R^2 values across models, ACCESS Reading scores accounted for about 21% of the variance in the Composite score, and amongst the section tests, ACCESS Reading scores accounted for the largest proportion of variance in English (0.16), followed by reading (0.14) and then math and science (0.07). Adding EL supports to the model increased the adjusted R^2 by 0.01 when predicting the Composite score and each section test score. Free and reduced-price lunch status did not contribute meaningfully to the adjusted R^2 (less than 0.01), while Grade 11 GPA and coursework contributed approximately 0.01 (for ACT reading), 0.02 (for ACT English and science), 0.03 (for math), or 0.04 (for the Composite score) to the adjusted R^2 values in the models. While student characteristics, course-taking patterns, and Grade 11 high school GPA accounted for some variance in the ACT scores of ELs above and beyond their level of English proficiency, the contributions were relatively small.

Table 53 contains the results of dominance analyses including all the variables from Model 4 of the regression analyses to predict the ACT Composite and each section test score. For the ACT Composite and each test section, ACCESS Reading score is the strongest predictor in each model, with over half of the total adjusted R^2 value attributed to this variable (ranging from 51% when predicting ACT math to 71% when predicting ACT reading). Overall or subject-specific Grade 11 GPA is the second strongest predictor, ranging from 13% (predicting ACT English and reading) to 25% (predicting ACT math).

Table 48. Results of Regression Analysis Predicting ACT Composite Score

Variable	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Intercept	2.89***	0.18	2.78***	0.18	2.94***	0.18	2.95***	0.18
ACCESS Reading score	0.03***	0.00	0.03***	0.00	0.03***	0.00	0.02***	0.00
EL with supports	—	—	0.50***	0.04	0.50***	0.04	0.45***	0.04
Free/reduced-price lunch eligible	—	—	—	—	-0.19***	0.03	-0.17***	0.03
Grade 11 overall GPA	—	—	—	—	—	—	0.46***	0.03
Total number of credits earned	—	—	—	—	—	—	0.04***	0.01
Highest rigor of coursework	—	—	—	—	—	—	0.33***	0.03
Adjusted R^2	—	0.21	—	0.22	—	0.22	—	0.26

*** Indicates statistical significance at $p < 0.0001$.

Table 49. Results of Regression Analysis Predicting ACT English Score

Variable	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Intercept	-1.53***	0.26	-1.70***	0.262	-1.51***	0.265	-0.75*	0.28
ACCESS Reading score	0.03***	0.00	0.03***	0.001	0.03***	0.001	0.03***	0.00
EL with supports	—	—	0.77***	0.053	0.77***	0.053	0.7***	0.06
Free/reduced-price lunch eligible	—	—	—	—	-1.21***	0.049	-0.21***	0.05
Grade 11 English GPA	—	—	—	—	—	—	0.31***	0.03
Number of English credits earned	—	—	—	—	—	—	-0.06 ^{ns}	0.05
Highest rigor of coursework	—	—	—	—	—	—	0.51	0.05
Adjusted R^2	—	0.16	—	0.17	—	0.17	—	0.19

*** Indicates statistical significance at $p < 0.0001$. * Indicates statistical significance at $p < 0.01$. ^{ns} Indicates not significant.

Table 50. Results of Regression Analysis Predicting ACT Math Score

Variable	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Intercept	7.64***	0.21	7.60***	0.21	7.79***	0.21	8.16***	0.22
ACCESS Reading score	0.02***	0.00	0.02***	0.00	0.02***	0.00	0.01***	0.00
EL with supports	—	—	0.19***	0.04	0.19***	0.04	0.18***	0.04
Free/reduced-price lunch eligible	—	—	—	—	-0.22***	0.04	-0.21***	0.04
Grade 11 math GPA	—	—	—	—	—	—	0.28***	0.02
Number of math credits earned	—	—	—	—	—	—	0.05 ^{ns}	0.05
Highest rigor of coursework	—	—	—	—	—	—	0.4***	0.04
Adjusted R^2	—	0.07	—	0.08	—	0.08	—	0.11

*** Indicates statistical significance at $p < 0.0001$. * Indicates statistical significance at $p < 0.01$. ^{ns} Indicates not significant.

Table 51. Results of Regression Analysis Predicting ACT Reading Score

Variable	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Intercept	0.08 ^{ns}	0.28	-0.05 ^{ns}	0.28	0.04 ^{ns}	0.29	0.56 ^{ns}	0.30
ACCESS Reading score	0.03***	0.00	0.03***	0.00	0.03***	0.00	0.03***	0.00
EL with supports	—	—	0.60***	0.06	0.60***	0.06	0.56***	0.06
Free/reduced-price lunch eligible	—	—	—	—	-0.1 ^{ns}	0.05	-0.08 ^{ns}	0.06
Grade 11 social studies GPA	—	—	—	—	—	—	0.24***	0.03
Number of social studies credits earned	—	—	—	—	—	—	0.25***	0.05
Highest rigor of coursework	—	—	—	—	—	—	0.31***	0.05
Adjusted R^2	—	0.14	—	0.15	—	0.15	—	0.16

*** Indicates statistical significance at $p < 0.0001$. * Indicates statistical significance at $p < 0.01$. ^{ns} Indicates not significant.

Table 52. Results of Regression Analysis Predicting ACT Science Score

Variable	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Intercept	4.89***	0.30	4.79***	0.30	4.95***	0.30	5.20***	0.33
ACCESS Reading score	0.02***	0.00	0.02***	0.00	0.02***	0.00	0.02***	0.00
EL with supports	—	—	0.45***	0.06	0.45***	0.06	0.36***	0.06
Free/reduced-price lunch eligible	—	—	—	—	-0.18***	0.06	-0.19**	0.06
Grade 11 science GPA	—	—	—	—	—	—	0.31***	0.03
Number of science credits earned	—	—	—	—	—	—	0.14 ^{ns}	0.09
Highest rigor of coursework	—	—	—	—	—	—	0.29***	0.06
Adjusted R^2	—	0.07	—	0.08	—	0.08	—	0.10

*** Indicates statistical significance at $p < 0.0001$. ** Indicates statistical significance at $p < 0.01$. ^{ns} Indicates not significant.

Table 53. Results of Dominance Analysis R^2 Contribution and Percentage of Total Adjusted R^2

Predictor	Composite	English	Math	Reading	Science
ACCESS Reading score	0.16 (62%)	0.13 (69%)	0.06 (51%)	0.12 (71%)	0.06 (62%)
EL with supports	0.01 (4%)	0.01 (6%)	0.00 (1%)	0.01 (4%)	0.00 (3%)
Free/reduced-price lunch eligible	0.00 (1%)	0.00 (1%)	0.00 (2%)	0.00 (0%)	0.00 (1%)
Grade 11 GPA ^a	0.05 (20%)	0.03 (13%)	0.03 (25%)	0.02 (13%)	0.02 (21%)
Number of credits earned ^a	0.02 (6%)	0.00 (1%)	0.01 (7%)	0.01 (6%)	0.01 (6%)
Highest rigor of coursework	0.02 (7%)	0.02 (9%)	0.01 (13%)	0.01 (5%)	0.01 (6%)
Adjusted R^2	0.26	0.19	0.11	0.16	0.10

^a Grade 11 GPA and credits earned are subject-specific for the test sections and overall for the ACT Composite score.

Discussion

This study examined the relationship between English proficiency and performance on the ACT for English learners (ELs) in a U.S. state. The data sample included ELs who took both WIDA ACCESS English proficiency assessments and the ACT in Grade 11 during the 2018–19 to 2022–23 school years, as well as non-ELs who took the ACT in Grade 11 during the same time period. ELs tended to have lower ACT scores than non-ELs across all subjects and the Composite score, which was expected based on previous research (Moore, 2021; Moore et al., 2021).

A strong relationship was found between ACCESS Reading scores and ACT scores such that ACT performance across all test sections and the Composite score increased as reading proficiency increased. ELs also tended to have lower Grade 11 GPAs than non-ELs, and for ELs, correlations between ACT scores and GPA increased as ACCESS Reading level increased. In fact, correlations between ACT scores and GPA were small and near zero for ELs at Levels 1 and 2, suggesting that when a student’s English reading proficiency is very low, ACT scores may not accurately reflect their academic performance, as limited English proficiency may be introducing construct-irrelevant variance in the scores; however, the low variability of the ACT scores of students at the lowest English proficiency levels may also be suppressing the correlations of students with the lowest English proficiency levels.

ELs—especially those at lower ELP levels—also tended to earn fewer credit hours and were less likely than non-ELs to take more advanced courses (both in terms of where the course fell in a sequence of courses and in terms of course designation as honors, college-level, or dual credit). These results were consistent with the findings of a previous study about ELs’ course-taking patterns that relied on the self-reported high school GPAs and course-taking patterns of ELs who took the ACT with or without testing supports (Moore, 2021).

Psychometric analyses found little difference in measurement precision for subgroups defined by EL status or ELP levels. The standard error of measurement (*SEM*) and conditional standard errors of measurement (*CSEM*) were similar across these groups, indicating that ACT scores from ELs and non-ELs can be interpreted with similar levels of confidence. However, results from Mantel-Haenszel tests of DIF between each EL group and the non-EL group showed a higher proportion of items identified as B or C DIF favoring the non-EL group for ELs with lower levels of reading proficiency (Levels 1–3) than ELs with higher levels of reading proficiency (Levels 4–6), indicating that some caution should be taken when interpreting the scores of ELs with low levels of reading proficiency. The large differences in the score distributions of ELs compared to those of non-ELs should be considered when interpreting the results of the psychometric analyses.

Regression models showed that ACCESS Reading scores were strong predictors of ACT performance across all section tests and the Composite score, and the results of dominance analyses found that ACCESS Reading scores were stronger predictors of the performance of ELs than were student characteristics, coursework taken, and Grade 11 GPA. Use of testing supports on the ACT significantly improved the performance of ELs, even after we controlled for

ACCESS Reading scores, free and reduced-price lunch eligibility, and Grade 11 GPA and coursework. ELs who tested with supports showed estimated scores of nearly half a Composite score point higher than ELs who tested without supports; the largest estimated effect was in English (with an increase of 0.70 score points), and the smallest was in math (with an increase of 0.18 score points). While these may not seem like large increases, a single score point difference could affect whether a student is eligible for a scholarship or how the student is classified in terms of state or federal proficiency.

This study also compared ELs who took the ACT with or without testing supports. There were only minor differences in average ACCESS scores and distributions of ACCESS levels, and the relationships between ACCESS scores and ACT performance were similar. Some differences were found in coursework taken; for instance, ELs who took the ACT with supports were more likely to have reached Algebra 2 or physics by Grade 11, and ELs who took the ACT with supports had somewhat higher ACT performance. ELs who took the ACT with supports were also more likely to take advanced or honors courses than ELs who took the ACT without supports across ACCESS Reading levels.

Overall, these results indicate that the English proficiency levels of ELs are strongly related to performance on the ACT. Caution should be taken when interpreting the ACT scores of ELs with the lowest levels of ELP (ACCESS Reading levels of 1–2), as limited English proficiency may be introducing construct-irrelevant variance in the scores. However, we also found evidence that the use of testing supports for ELs taking the ACT was a significant positive predictor of their performance, and we encourage educators to ensure that ELs know they are eligible for supports and to provide resources about signing up to receive them when taking the ACT.

Limitations

This study was based on a single U.S. state and may not generalize to the entire U.S. population or to other states. We also did not have information about the types of resources and services available to ELs that could also affect both their English language acquisition and their learning of academic content. ACT had data indicating which ELs had been approved to use testing supports when taking the ACT but did not collect information about whether the supports were actually used, which could affect inferences about the effectiveness of the supports. Future research should replicate this research with additional populations and, if possible, include additional data that may help determine the extent to which the lower performance of ELs is due to limited English proficiency or to lack of content knowledge.

Conclusion

This study found evidence that English proficiency is strongly related to performance on the ACT. ELs at all levels of reading proficiency scored lower than non-ELs, on average, but ELs with the lowest levels of proficiency in reading had very low ACT scores, and on average they earned scores that were similar to what students would earn by guessing on the test questions. Additionally, students at the lowest two proficiency levels in reading had ACT scores that were

not significantly related to their performance in high school as measured by Grade 11 GPA. While GPA can be a problematic measure due to lack of standardization across schools, subjectivity in grading practices, and grade inflation, high school GPA generally has a moderately strong correlation with standardized test scores for non-ELs. We therefore encourage users of test scores to take into account ELs' English proficiency levels when interpreting their ACT scores and to use caution when interpreting the ACT scores of ELs at the lowest levels of English proficiency (i.e., students with ACCESS Reading scores at Level 1 or Level 2).

We also found evidence that the testing supports that ELs can receive when taking the ACT positively related to their performance. We urge educators to ensure that these supports are available to their students. All ELs are eligible for these supports; ACT's [policy](#) and the [process for requesting supports](#) can be found by clicking on the links provided.

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Appendix

Table A1. Results of Independent Samples *t* Tests Comparing ACCESS Scores of ELs Taking the ACT With or Without Supports

ACCESS domain	ELs with supports	ELs without supports	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
Reading	387.5 (34.2)	387.1 (33.8)	0.52	4961.1	0.601	0.01
Writing	355.0 (36.3)	359.0 (35.3)	-5.61	4897.3	0.000	-0.11
Listening	402.3 (44.7)	403.4 (43.9)	-1.20	4936.4	0.232	-0.02
Speaking	304.4 (63.3)	307.7 (60.1)	-2.66	4820.4	0.008	-0.05
Oral Language	353.6 (46.1)	355.8 (43.8)	-2.41	4827.7	0.016	-0.05
Literacy	371.5 (30.4)	373.3 (29.3)	-3.05	4879.7	0.002	-0.06
Comprehension	392.0 (34.3)	392.1 (33.4)	-0.08	4908.3	0.938	0.00
Overall	365.9 (32.3)	367.8 (30.7)	-3.05	4826.4	0.002	-0.06

Table A2. Results of Independent Samples *t* Tests Comparing ACT Scores of ELs and Non-ELs Taking the ACT

ACT subject	All ELs	Non-ELs	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
English	11.0 (2.8)	16.9 (6.1)	-216.5	35941	0.000	-1.01
Math	14.2 (2.0)	17.7 (4.7)	-170.0	37786	0.000	-0.77
Reading	12.7 (2.9)	18.5 (6.3)	-202.9	34520	0.000	-0.97
Science	14.0 (3.0)	18.3 (5.1)	-157.8	27134	0.000	-0.88
Composite	13.1 (2.0)	18.0 (5.0)	-237.6	43943	0.000	-1.02

Table A3. Results of Independent Samples *t* Tests Comparing ACT Scores of ELs Taking the ACT With or Without Supports

ACT subject	ELs with supports	ELs without supports	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
English	11.6 (2.7)	10.9 (2.8)	13.9	5150.7	0.000	0.27
Math	14.3 (2.1)	14.2 (2.0)	2.5	4839.1	0.010	0.05
Reading	13.2 (3.2)	12.6 (2.9)	10.1	4656.6	0.000	0.21
Science	14.4 (2.9)	13.9 (3.0)	9.4	5151.2	0.000	0.18
Composite	13.5 (2.0)	13.0 (2.0)	12.9	4994.3	0.000	0.26

Table A4. Distribution (Counts) of ACCESS ELP Levels for ELs Taking the ACT With Supports

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	487	835	713	279	525	386
Writing	288	675	1,746	510	6	0
Listening	265	313	703	802	633	509
Speaking	1,298	818	1,005	99	4	1
Oral Language	713	640	1,306	517	43	6
Literacy	267	758	1,518	600	80	2
Comprehension	322	707	795	433	579	389
Overall	378	754	1,535	527	30	1

Table A5. Distribution (Counts) of ACCESS ELP Levels for ELs Taking the ACT Without Supports

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	1,719	3,559	2,794	1,052	1,991	1,448
Writing	932	2,290	6,954	2,352	35	0
Listening	955	1,057	3,023	3,029	2,472	2,027
Speaking	4,511	3,708	4,014	319	8	3
Oral Language	2,312	2,644	5,446	2,011	142	8
Literacy	857	2,808	6,075	2,527	294	2
Comprehension	1,114	2,876	3,175	1,759	2,276	1,363
Overall	1,159	2,879	6,242	2,165	117	1

Table A6. Distribution (Counts) of ACCESS ELP Levels for All ELs Taking the ACT

ACCESS domain	Level 1: Entering	Level 2: Emerging	Level 3: Developing	Level 4: Expanding	Level 5: Bridging	Level 6: Reaching
Reading	2,206	4,394	3,507	1,331	2,516	1,834
Writing	1,220	2,965	8,700	2,862	41	0
Listening	1,220	1,370	3,726	3,831	3,105	2,536
Speaking	5,809	4,526	5,019	418	12	4
Oral Language	3,025	3,284	6,752	2,528	185	14
Literacy	1,124	3,566	7,593	3,127	374	4
Comprehension	1,436	3,583	3,970	2,192	2,855	1,752
Overall	1,537	3,633	7,777	2,692	147	2

Follow-Up Analysis of Lower Correlations Between ACT Scores and Grade 11 GPAs

A follow-up analysis was conducted to investigate the extent to which the smaller correlations between ACT scores and Grade 11 GPAs for ELs compared to those for non-ELs can be attributed to the lower variability of the ACT scores of ELs than of non-ELs. This analysis used weighting of the non-EL group to match the distribution of ACT Composite scores (mean and standard deviation) of the EL group, and then correlations were calculated using the weighting. If the correlation for the weighted non-EL group is similar to the correlation for the EL group, this suggests that the smaller correlation may be mainly due to differences in score distributions rather than construct-irrelevant variance. If the correlation is larger for the weighted non-EL group than for the EL group, this suggests that construct-irrelevant variance may be contributing to the smaller correlations.

Weighting the non-EL group to match the distribution of ACT Composite scores of the EL group resulted in a weighted mean of 13.08 and a standard deviation of 2.05, compared to a mean of 13.08 and a standard deviation of 1.97 for the EL group. The correlation between ACT Composite scores was 0.29 for the weighted non-EL group and 0.31 for the EL group. This provides evidence that the lower correlations may be mainly due to the lower variability of scores for the EL group.

A second analysis was conducted to investigate the extent to which the smaller correlations of ELs with very low ACCESS Reading scores (Levels 1 and 2) can be attributed to the lower variability of this group's scores. The same procedure was followed as above, using weighting of the non-EL group to match the ACT Composite score distribution of ELs at ACCESS Reading Levels 1 or 2.

Weighting the non-EL group to match the distribution of ACT Composite scores of ELs at ACCESS Reading Levels 1 or 2 resulted in a weighted mean of 12.31 and a standard deviation of 1.54, compared to a mean of 12.31 and a standard deviation of 1.43 for ELs at Levels 1 or 2. The correlation between ACT Composite scores was 0.18 for the weighted non-EL group and 0.11 for the ELs at Levels 1 or 2, meaning the correlation for the weighted non-EL group was lower than when non-weighted but still higher than the correlation for the ELs at the lowest ACCESS Reading levels. This provides evidence that the lower variability of scores may be playing a role in the lower correlations for ELs at the lowest ACCESS Reading levels, but construct-irrelevant variance related to limited English proficiency may also be contributing to the smaller correlations.



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