k12 Tutoring

Associations Between Time in Tutoring and High School Course Grades in Math and English Language Arts

ESSA Level III Report

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Contents

Executive Summary

To assess the impact of its tutoring usage on student achievement, K12 Tutoring carried out a comprehensive evaluation. This study was specifically designed to satisfy the Promising Evidence (Level III) requirements outlined by the Every Student Succeeds Act (ESSA).

Study Sample, Measures, and Methods

The study included 218 high school students in grades 9-12 enrolled in 11 fully online schools across seven states. The sample was predominantly female (61%) and represented diverse racial, ethnic, and socioeconomic backgrounds: 36% White, 16% African American, 6% Hispanic, 1% Asian, and 41% not disclosed; 50% qualified for free or reduced-price lunch, 27% received special education support, and 9% were English Language Learners. While tutoring was offered in seven subjects, this analysis focused on Math (n = 131) and English Language Arts (ELA, n = 87).

Student engagement with K12 Tutoring was measured by cumulative hours of tutoring, calculated as the sum of all attended session times per semester. Academic performance was assessed using semester course grades in Math and ELA. Multilevel models were conducted to evaluate the association between tutoring time and academic outcomes, with fixed effects for tutoring time, semester, and grade level and random intercepts for students and for teachers nested within schools to account for the hierarchical structure of the data and potential systematic differences across students, instructors, and schools.

Results

Among students in the K12 Tutoring program, median cumulative tutoring time per semester was 5.5 hours for Math and 5.0 hours for ELA, with participation varying widely across students. Tutoring time was a significant positive predictor of course grades, with every 15 hours of tutoring associated with an expected increase of roughly 5.70% in Math and 6.02% in ELA, equivalent to over half a letter grade, highlighting the meaningful academic benefits of sustained engagement.

Conclusion

Based on these outcomes, the study meets the ESSA Tier III (Promising Evidence) standards.

Introduction

A subset of high school students experience significant learning gaps, which can impede their academic progress and readiness for postsecondary education and careers. Between 2019 and 2022, average 12th grade math scores declined modestly, while reading scores remained stagnant, with the largest deficits observed among historically underperforming student groups, including those from lower-income backgrounds and marginalized communities (National Center for Education Statistics [NCES], 2022). High school represents a critical stage in students' academic development, as it encompasses the consolidation of algebra, geometry, and higher-order literacy skills that are essential for postsecondary success (National Mathematics Advisory Panel, 2008; ACT, 2020). Deficits at this stage can limit students' opportunities for college enrollment, career pathways, and long-term economic mobility (Siegler et al., 2012). The persistence of these achievement gaps underscores the importance of targeted interventions, such as tutoring and supplemental academic support, to help students strengthen foundational skills, close gaps, and prepare for success beyond high school.

Academic achievement in high school is influenced by many factors, including access to supplemental academic support. Tutoring offers students individualized instruction, targeted review of challenging material, and reinforcement of classroom learning. Research indicates that high school students who participate in tutoring showed improved performance in core subjects such as math and reading, as well as an increased likelihood of meeting graduation requirements (Nickow et al., 2024; Fryer, 2017). For example, a study conducted in Chicago found that students randomly assigned to tutoring performed better on math exams, earned higher course grades, and were more likely to pass their high school classes (Cook et al., 2014). Similarly, students who participated in an eight-week online math tutoring program experienced gains in standardized test scores and end-of-year math grades (Gortazar et al., 2024). Beyond these academic benefits, tutoring also helps students develop self-directed learning skills and take ownership of their progress, supporting long-term educational success.

K12 Tutoring collaborates with school districts throughout the United States to deliver individualized, virtual tutoring services conducted by certified teachers. The program provides high school students with one-on-one instructional support in a fully online environment, enabling them to engage in targeted academic assistance from the convenience of their own homes. Through K12 Tutoring's digital platform, students can select a qualified tutor and schedule sessions at times that accommodate their personal and academic commitments, promoting flexibility and personalized learning experiences tailored to each student's needs. It is hypothesized that this tutoring model will increase assignment completion, adding points to course grades, and that the knowledge gained through the completion of these assignments will improve exam performance, both ultimately contributing to enhanced course grades.

To assess the effectiveness of its program and services, K12 Tutoring conducted an evaluation of its impact on student outcomes. This study was designed to meet Level III standards (Promising Evidence) under the Every Student Succeeds Act (ESSA).

The current study was guided by the following research questions:

1. What is the overall amount of tutoring time completed by students participating in the K12 Tutoring program?
2. To what extent is the amount of time high school students engage in tutoring associated with their academic performance as measured by course grades?

Method

Study Design

This study employed a correlational research design to investigate the relationship between students' engagement with K12 Tutoring services and their academic outcomes, as measured by course grades. The study was structured to satisfy Level III (Promising Evidence) requirements of the Every Student Succeeds Act (ESSA), providing a rigorous, evidence-based evaluation of K12 Tutoring. Statistical analyses were conducted to determine the strength and direction of associations between cumulative tutoring time and academic performance.

Participants

During the 2024–2025 academic year, 218 high school students in grades 9-12 who were enrolled in 11 fully online high schools participated in K12 Tutoring. These schools were distributed across seven states: Arkansas, Arizona, Michigan, South Carolina, Texas, West Virginia, and Wisconsin. Although each institution operated under its own governance, the tutoring initiative was implemented consistently through a standardized program model. Although tutoring was offered in seven subject areas, the present analysis was limited to participation in Math (n = 131) and English Language Arts (ELA, n = 87), reflecting the study's focus on core academic domains.

The sample was predominantly female (61%). With respect to racial and ethnic background, 36% of participants identified as White, 16% as African American, 6% as Hispanic, and 1% as Asian. An additional 41% did not disclose their racial or ethnic identity. Socioeconomic and service eligibility indicators showed that 50% of students qualified for free or reduced-price lunch, 27% received special education support, and 9% were designated as English Language Learners.

Measures

To examine how K12 Tutoring influenced student outcomes, the study utilized multiple assessment measures designed to reflect achievement across core subject areas.

K12 Tutoring Participation Metrics.
Tutoring participation was managed through an online scheduling system in which students independently selected the subject area, tutor, session date, time, and duration. Sessions were available in either 30- or 60-minute intervals. To account for this variability, cumulative tutoring exposure was operationalized as the total number of tutoring hours attended per student per semester. To mitigate the influence of extreme values in regression analyses, total tutoring hours in each subject per semester were Windsorized at 30 hours, affecting three students in Math and

none in ELA. These participation data served as the primary measure of engagement with the K12 Tutoring program during the 2024–2025 academic year.

Student Outcomes. Student achievement was assessed using course grades in Math and ELA, recorded on a percentage scale from 0 to 100%. Each grade was linked to the student's assigned teacher and school for that semester to account for potential differences in grading, curriculum, and course offerings.

Data Analysis

Descriptive analyses were performed to characterize the student sample and examine patterns of program implementation. To evaluate the impact of K12 Tutoring on Math and ELA achievement, multilevel models were conducted separately for each subject. Fixed effects included tutoring time, semester, and grade level, while random intercepts for students and for teachers nested within schools accounted for the hierarchical structure of the data and potential systematic differences across students, instructors, and schools.

Results

What is the overall amount of tutoring time completed by students participating in the K12 Tutoring program?

Among students enrolled in the K12 Tutoring program, the median cumulative tutoring time per semester was 5.50 hours in Math and 5.00 hours in ELA. Examination of the full range of participation, as shown in Table 1, revealed substantial variability, with total tutoring minutes ranging from less than 1 hour to over 40 hours. This broad distribution reflects differences in individual student engagement, scheduling preferences, and subject selection.

Table 1

Descriptive Statistics for Tutoring Duration (Hours) per Semester

Subject	*n*	Median	Mean (*SD*)	Range
Math	131	5.50	7.28 (6.95)	0.50 – 47.00
ELA	87	5.00	6.52 (4.72)	1.00 – 21.00

To what extent is the amount of time high school students engage in tutoring associated with their academic performance as measured by course grades?

Multilevel models were used, with tutoring time in hours as the primary predictor. Tutoring time was Windsorized at 30 hours to correct extreme values, affecting three students in Math and none in ELA; analyses with and without this adjustment produced the same overall pattern of results. Course grades

were measured as percentages. Models controlled for semester and grade level and included random intercepts for students and for teachers nested within schools. Students could be included in the Fall, Spring, or both semesters depending on when they participated in tutoring. For additional details on the full models, see Appendix.

Math Outcomes.
As shown in Figure 1, tutoring time was a statistically significant positive predictor of Math course grades (β = 0.38, SE = 0.15, t = 2.58, p = .01). This effect corresponds to an expected increase of approximately 5.70% in Math course grades for every 15 hours of tutoring, equivalent to over half a letter grade. For full model details, see Appendix, Table A1.

ELA Outcomes.
Tutoring time was also a statistically significant positive predictor of ELA course grades (β = 0.40, SE = 0.19, t = 2.09, p = .04). This effect corresponds to an expected increase of approximately 6.02% in ELA course grades for every 15 hours of tutoring, again equivalent to over half a letter grade. For full model details, see Appendix, Table A2.

Figure 1

Tutoring Time as a Predictor of Course Grades
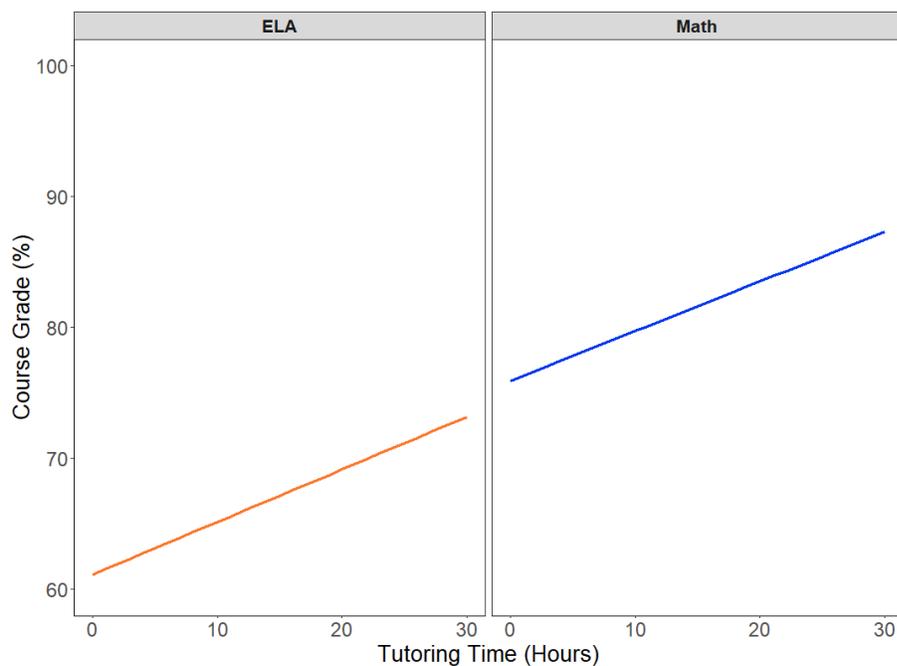
Conclusions

The results of this study indicate that cumulative hours of tutoring were positively associated with course grades in both Math and ELA. These findings highlight the importance of sustained tutoring engagement as an effective strategy to support high school students' academic performance. Based on these outcomes, the study meets the ESSA Tier III (Promising Evidence) standards.

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Appendix

Additional Details on Model Outcomes

This section presents results examining the association between tutoring time and course grades, analyzed separately by subject. Multilevel models were used, with tutoring time in hours as the primary predictor. Tutoring time was Windsorized at 30 hours to correct extreme values, affecting three students in Math and none in ELA; analyses with and without this adjustment produced the same overall pattern of results. Course grades were measured as percentages. Models controlled for semester and grade level and included random intercepts for students and for teachers nested within schools. Students could be included in the Fall, Spring, or both semesters depending on when they participated in tutoring.

As shown in Table A1, tutoring time was a significant positive predictor of course grades in both subjects. In the Math model, each additional hour of tutoring was associated with an estimated 0.38 percentage-point increase in course grade. In the ELA model, each additional hour of tutoring was associated with an estimated 0.40 percentage-point increase in course grade.

The random effects structure of the models indicates that most of the variation in course grades is at the student level, reflecting differences in baseline performance across students. Differences between teachers within the same school were minimal, suggesting that once school-level factors are accounted for, teachers contributed little additional variability to grades. Some variation was observed across schools, likely reflecting differences in curriculum or grading policies, but this was smaller than the variation observed between students. Overall, these results suggest that while student performance varies widely, differences across teachers and schools have a relatively limited impact on the outcomes.

Table A1

Full Multilevel Model Estimates for Math Achievement

	Estimate	SE	df	t-value	p-value
Fixed Effects					
Intercept	75.93	17.62	124.19	4.31	< .001
Tutoring (Hours)	0.38	0.15	56.70	2.58	.01
Semester	2.55	1.31	38.17	1.94	.06
Grade	0.09	1.76	122.89	0.05	.96
Random Effects	Variance	Std. Dev.	n		
Student	174.95	13.23	131		
Teacher/School	0.00	0.00	54		
School	59.07	7.69	10		
Residual	26.34	5.13			

Table A2

Full Multilevel Model Estimates for ELA Achievement

	Estimate	SE	df	t-value	p-value
Fixed Effects					
Intercept	61.14	16.66	43.59	3.67	< .001
Tutoring (Hours)	0.40	0.19	54.74	2.09	.04
Semester	4.59	1.56	37.62	2.94	.01
Grade	1.08	1.29	71.52	0.83	.41
Random Effects	Variance	Std. Dev.	n		
Student	53.44	7.31	87		
Teacher/School	0.00	0.00	51		
School	825.89	28.74	9		
Residual	31.49	5.61			