

Tutor.com Effectiveness Study (2022–23)

Study Type: ESSA Evidence Level II

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Tutor.com

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EXECUTIVE SUMMARY

Tutor.com contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the impact of Tutor.com on K–12 student outcomes. LearnPlatform by Instructure designed the study to satisfy Level II requirements (Moderate Evidence) of the Every Student Succeeds Act (ESSA).

Study Sample, Measures, and Methods

This quasi-experimental study occurred during the 2022–23 school year and included a matched analysis sample of 746 students (373 treatment, 373 comparison) from one grade 9–12 California district. The district is predominantly Hispanic (59%) and Asian (35%). Approximately 85% of households have Broadband internet and 23% have income below the poverty level. Study participant demographics mirrored district demographic information.

Researchers used administrative and state summative assessment data to examine the impact of Tutor.com on student outcomes. Researchers conducted descriptive analyses to examine participant characteristics and understand program implementation. For student outcomes, researchers conducted regressions. For each impact analysis, researchers created matched samples and conducted baseline equivalence. All analyses met What Works Clearinghouse (WWC) baseline equivalence standards (Hedges $g < .04$). Researchers also included student-level covariates to control for potential selection bias.

Program Implementation and Student Findings

Student usage. In the 2022–23 school year, participating students each used Tutor.com for an average of 13.2 sessions. The average session duration was 22.8 minutes, with a range of 1 to 77.1 minutes.

Student outcomes. Researchers examined the influence of different intensities of Tutor.com use on student outcomes. There were two positive, statistically significant findings. Specifically, students who completed over two sessions or over 300 minutes had fewer absences compared to students with lower Tutor.com use. There were no influences of different intensities of Tutor.com use on spring semester GPA or grades.

Next, researchers examined the impact of Tutor.com on student outcomes by comparing Tutor.com users to demographically similar non-users. There were two positive, statistically significant impacts of Tutor.com on student spring semester GPA and grades. Specifically, Tutor.com students had higher spring semester GPA and fewer Ds and Fs compared to demographically similar non-users. Additionally, Tutor.com students had fewer absences, higher math grades, and higher state summative assessment scores compared to demographically similar non-users, but these differences were not statistically significant.

Researchers also examined the impact of Tutor.com for low-achieving students with fall semester GPA values in the bottom 25% (i.e., fall semester GPA below 2.53). There were two positive,

statistically significant impacts for these students. Specifically, low-achieving students who used Tutor.com had a higher spring semester GPA and fewer Ds and Fs compared to low-achieving students who did not use Tutor.com. Additionally, low-achieving students who used Tutor.com had fewer absences compared to similar non-users, but this difference was not statistically significant.

Conclusion

Given positive outcome findings, this study meets ESSA evidence requirements for Level II (Moderate Evidence). Specifically, this quasi-experimental study was properly designed and implemented, documented baseline equivalence, included statistical controls, had more than 350 students across multiple schools, and had multiple positive statistically significant findings.

ESSA Level II Study Key Takeaways



Students used Tutor.com across a range of subjects.



Students used Tutor.com for an average of 13.1 sessions lasting on average 22.8 minutes.



Students most frequently participated in math, science, and English language arts tutoring sessions.



The system flagged a subset of students for early intervention alerts based on unusually long sessions (i.e., 75% longer than average; $n = 228$) and/or frequently requested subjects (i.e., 7+ times in one week; $n = 98$). Tutors also flagged a subset of students for a lack of content mastery ($n = 42$) or prerequisite knowledge ($n = 94$) during the session.



Variations in Tutor.com usage predicted attendance.



Tutor.com users who completed more sessions and minutes had fewer absences. Variations in Tutor.com usage did not predict spring semester GPA values or grades.



Tutor.com had a positive impact on GPA and grades.



Students who used Tutor.com had a higher spring semester GPA than non-users.



Students who used Tutor.com had fewer Ds and Fs in the spring semester compared to non-users.



Low-achieving students (i.e., fall GPAs below 2.53) who used Tutor.com had a higher GPA and fewer Ds and Fs in the spring semester compared to matched non-users.



Tutor.com students had some similar outcomes as non-users.



Students who used Tutor.com had slightly better math grades, attendance, and state summative assessment scores than non-users, but these differences were not statistically significant.

Table of Contents

Introduction	1
Methods	2
Program Implementation	4
Student Findings	5
Conclusions	14
References	15
Appendix A. Tutor.com Logic Model	16
Appendix B. Additional Information on Study Design and Methods	17
Appendix C. Additional information from regressions	20

Introduction

Tutor.com recognizes that students often need specific, targeted assistance to understand academic content. Learners benefit from Tutor.com's on-demand, individualized tutoring to help clarify complex concepts, catch up after missing school, or complete homework and in-class assignments. Tutor.com promotes educational equity, opportunity, and achievement for all learners by providing live tutoring and assignment review by highly qualified, rigorously vetted tutors in a virtual environment. Tutor.com is learner-focused, geared toward creating opportunities for students to engage in on-demand, scheduled, and asynchronous tutoring sessions to help them progress beyond roadblocks and close gaps in their understanding (see logic model in Appendix A; Hunt, Long, & Cavanaugh, 2022).

As part of their ongoing efforts to demonstrate effectiveness, Tutor.com contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the impact of Tutor.com on student outcomes. LearnPlatform by Instructure designed the study to satisfy Level II requirements (Moderate Evidence) of the Every Student Succeeds Act (ESSA).

The present study had the following research questions:

Implementation Research Questions

1. To what extent did students engage with Tutor.com?
 - a. How many tutoring sessions did students complete?
 - b. What was the range and average number of minutes per tutoring session?
 - c. How many sessions were flagged for early intervention alerts?

Effectiveness Research Questions

2. What was the influence of different intensities of Tutor.com usage on:
 - a. the number of Ds and Fs students received?
 - b. course grades?
 - c. absenteeism?
3. What was the impact of Tutor.com on:
 - a. the number of Ds and Fs students received?
 - b. course grades?
 - c. math grades?
 - d. absenteeism?
 - e. state summative assessments?
4. What was the impact of Tutor.com on low-achieving student outcomes?

Methods

This section of the report briefly describes the study design, setting and participants, measures, analysis methods, and baseline equivalence practices.

Study Design

This study used a quasi-experimental design¹ with propensity score matching to align with ESSA Level II evidence standards. The treatment group included students who used Tutor.com during the 2022–23 school year. The comparison group included students who did not access Tutor.com but who were demographically similar, with comparable fall achievement.

Setting and Participants

The study compared Grade 9–12 students who used Tutor.com with matched students who did not (373 treatment, 373 comparison). Students were from one grade 9-12 district in California. The district is predominantly Hispanic (59%) and Asian (35%). Approximately 85% of households have Broadband internet and 23% have income below the poverty level (NCES, 2023). Study participant demographics mirrored district demographics. Additional demographic information can be found in Appendix B.

Measures

This study includes the following measures to provide insights into Tutor.com implementation and evidence for the impact of Tutor.com on student outcomes.

Tutor.com Usage Metrics. Researchers utilized 2022–23 student-level usage data (i.e., system early intervention alerts for exceptionally long sessions [i.e., 75% longer than average] or exceptionally frequent sessions [i.e., 7+ times in one week], tutor early intervention alerts for a lack of content mastery or a lack of prerequisite knowledge, total sessions, total minutes). Usage data informed the extent to which students used Tutor.com during the school year and whether students' use of Tutor.com influenced student outcomes.

Student Outcomes. Researchers used several administrative data points for the present study, including: a count of fall and spring semester Ds and Fs, fall and spring semester GPA values, fall and spring semester math grades, and total 2022–23 absences. Researchers also used 11th grade state summative assessment ELA and math scale scores from the California Assessment of Student Performance and Progress (CAASPP).

¹ A quasi-experimental design compares the outcomes of Tutor.com users to non-users.

Data Analysis

Researchers conducted descriptive statistics to describe participant characteristics and support implementation analyses. Researchers then conducted regressions to examine Tutor.com outcomes and impacts. Analyses included student-level covariates and nearest neighbor propensity score matching to account for potential selection bias. In addition, researchers calculated standardized effect sizes (i.e., Hedges g^2) to determine the magnitude of difference in Tutor.com student outcomes compared to similar non-users.

Baseline Equivalence

To ensure the validity to the study's findings and adhere to ESSA Level II standards, researchers conducted baseline equivalence tests on matched treatment and comparison student samples. These findings are discussed in the Student Findings section and referenced in Appendix B.

² Hedges g represents the standardized mean difference in outcomes between two groups of students.

Program Implementation

This section presents descriptive findings on Tutor.com implementation. Researchers analyzed program usage metrics to determine the extent to which grade 9–12 students used Tutor.com during the 2022–23 school year.

To what extent did students engage with Tutor.com?

Number of tutoring sessions completed. Among students using Tutor.com, the average number of sessions completed across all subjects was 13.2, with sessions lasting an average of 22.8 minutes, and some students having session durations as high as 77.1 minutes (see Table 1). Math tutoring sessions were most common, with 275 students averaging 11.9 sessions over the course of the year, with each session lasting 22.8 minutes. Foreign language tutoring sessions were least common, with just six students completing tutoring in this subject.

Table 1. Tutor.com student tutoring sessions by subject

Subject	Average sessions	Range of sessions	Average duration (minutes)	Range (minutes)	Number of students
Math	11.9	1 – 389	22.8	1 – 77.1	275
Science	7.5	1 – 116	21.9	1 – 66.3	111
English Language Arts	8.4	1 – 176	28.2	2.1 – 67.5	91
Social Studies	3.3	1 – 20	13.7	3 – 29.6	12
Foreign Language	2.2	1 – 6	29.6	3.2 – 81.9	6
Total	13.2	1 – 540	22.8	1 – 77.1	373

Number of tutoring sessions flagged for early intervention. Tutor.com uses an early intervention alert system to identify when (a) students frequently request tutoring on the same subject and (b) tutoring sessions run especially long. There were 98 students with tutoring sessions flagged for frequently requested subjects. Among these students, an average of 22 sessions were flagged as frequently requested subjects. There were 228 students with tutoring sessions flagged for being unusually long. Students in this group had an average of 8.6 sessions flagged as unusually long in duration.

Tutors also use early intervention alerts to identify when students demonstrate a lack of (a) content mastery and (b) prerequisite knowledge in a tutoring session. Tutors flagged 42 students for content mastery, with each student flagged across an average of 2.6 sessions. Additionally, tutors flagged 94 students for a lack of prerequisite knowledge, with each student flagged across an average of 4.3 sessions.

Student Findings

To answer effectiveness research questions, researchers conducted regressions for Tutor.com students only and regressions using matched samples of users to non-users. The following section details (a) the influence of different levels of Tutor.com usage on student outcomes and (b) the impact of Tutor.com on student outcomes. Researchers report statistically significant findings at the $p = .05$ level. Statistically significant findings are marked green (positive effect) or red (negative effect) in subsequent graphs. Findings that are not statistically significant are marked gray. Additional information on regression models is available in Appendix C.

What was the influence of different intensities of Tutor.com usage on student outcomes?

Number of Ds and Fs. Researchers conducted regressions for Tutor.com students, exploring the influence of different intensities of Tutor.com usage on the number of spring semester Ds and Fs. Models included fall semester GPA, ethnicity (i.e., Hispanic/Not Hispanic), and gender as covariates. Overall, students who completed more sessions and spent more minutes in Tutor.com had fewer Ds and Fs in the spring, but these differences were not statistically significant; see Figures 1 and 2.

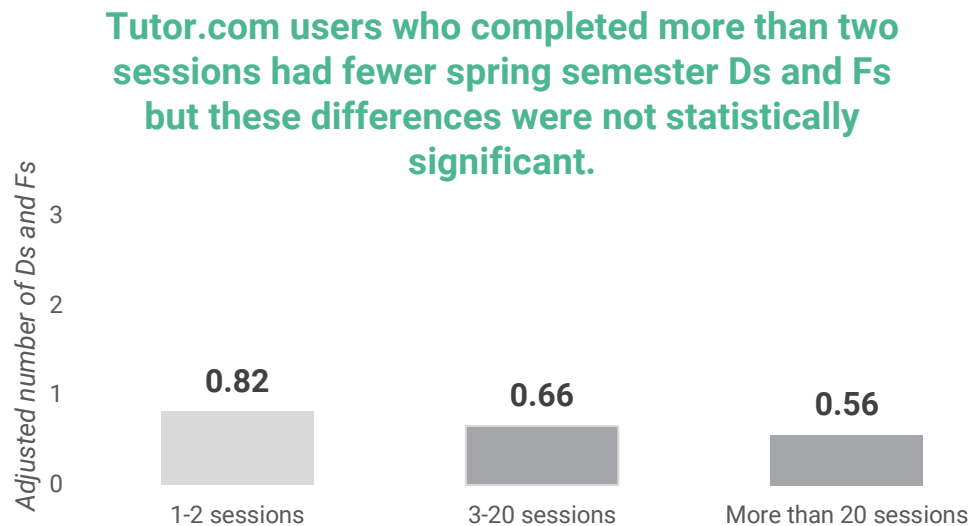


Figure 1. Influence of the number of sessions on Tutor.com users' spring semester Ds and Fs ($n = 373$). Mean differences between 1-2 sessions and higher usage groups were not statistically significant ($g = -0.13, p > .05$; $g = -0.20, p > .05$).

Tutor.com users who completed more than 60 minutes had fewer spring semester Ds and Fs but these differences were not statistically significant.

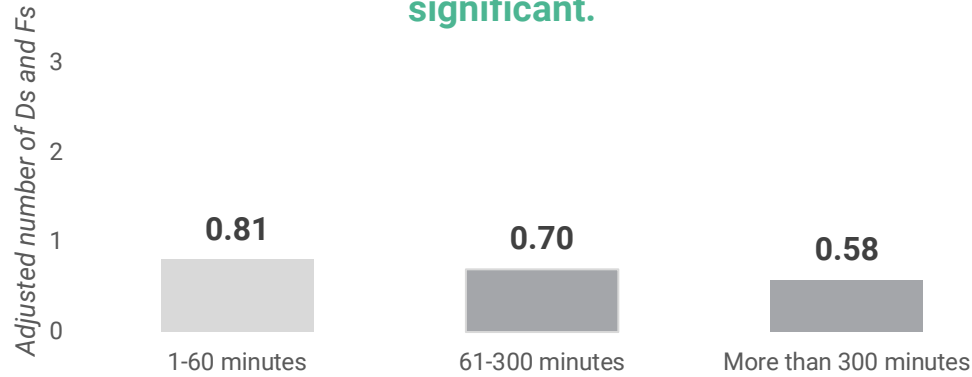


Figure 2. Influence of the number of minutes on Tutor.com users' spring semester Ds and Fs ($n = 373$). Mean differences between 1-60 minutes and higher usage groups were not statistically significant ($g = -0.08, p > .05$; $g = -0.18, p > .05$).

Course grades. Researchers conducted regressions exploring the influence of different intensities of Tutor.com usage on spring semester GPA. Models included fall semester GPA, ethnicity (i.e., Hispanic/Non-Hispanic), and gender as covariates. Overall, students who completed more sessions and spent more minutes in Tutor.com had a higher spring semester GPA, but these differences were not statistically significant; see Figures 3 and 4.

Tutor.com users who completed more than two sessions had higher spring semester GPAs but these differences were not statistically significant.

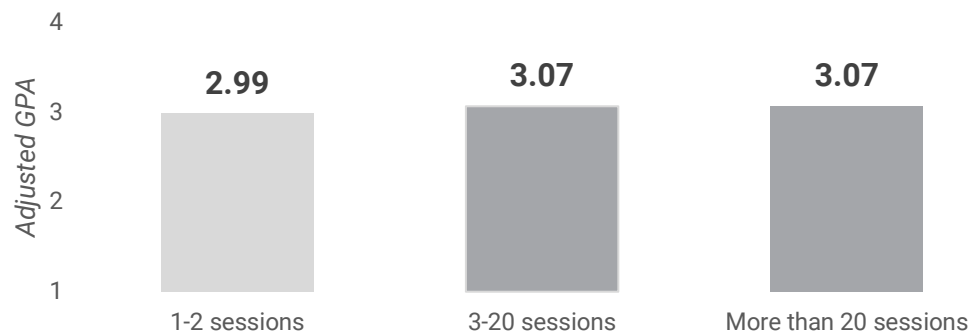


Figure 3. Influence of the number of sessions on Tutor.com users' spring 2023 GPA ($n = 373$). Mean differences between 1-2 sessions and higher usage groups were not statistically significant ($g = 0.08, p > .05$; $g = 0.08, p > .05$).

Tutor.com users who completed more than 60 minutes had higher spring semester GPAs but these differences were not statistically significant.

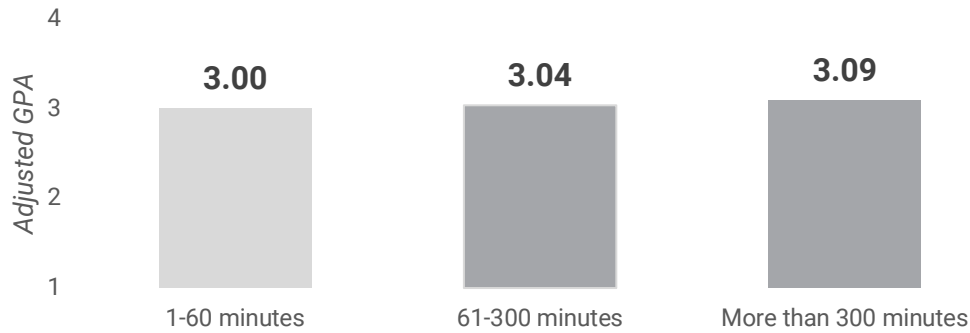


Figure 4. Influence of the number of minutes on Tutor.com users' spring 2023 GPA ($n = 373$). Mean differences between 1-60 minutes and higher usage groups were not statistically significant ($g = 0.04, p > .05$; $g = 0.10, p > .05$).

Attendance. Researchers conducted regressions for Tutor.com students, exploring the influence of different intensities of Tutor.com usage on student absenteeism. Models included fall semester GPA, ethnicity (i.e., Hispanic/Non-Hispanic), and gender as covariates. Overall, students who completed more sessions and spent more minutes in Tutor.com had fewer absences over the 2022-23 school year and these differences were statistically significant; see Figures 5 and 6.

Tutor.com users who completed more than two sessions had fewer absences during the 2022-23 school year.

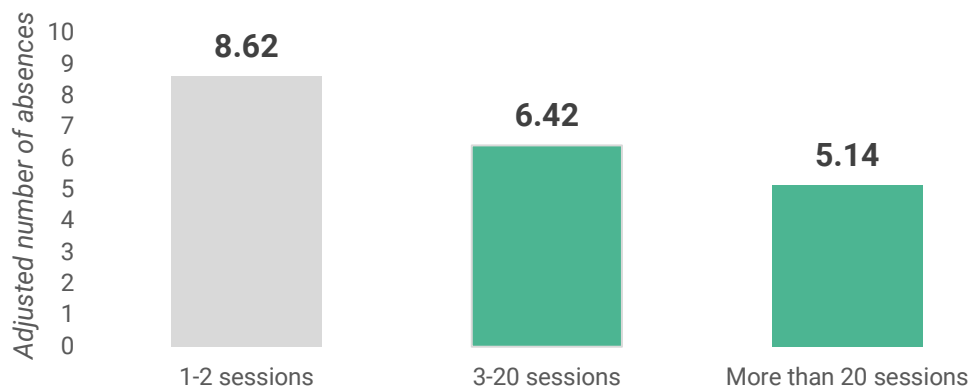


Figure 5. Influence of the number of sessions on Tutor.com users' total 2022-23 absences ($n = 373$). Mean differences between 1-2 sessions and higher usage groups were statistically significant ($g = -0.21, p < .05$; $g = -0.29, p = .04$).

Tutor.com users who completed more than 300 minutes had fewer absences than users who completed less than 60 minutes.

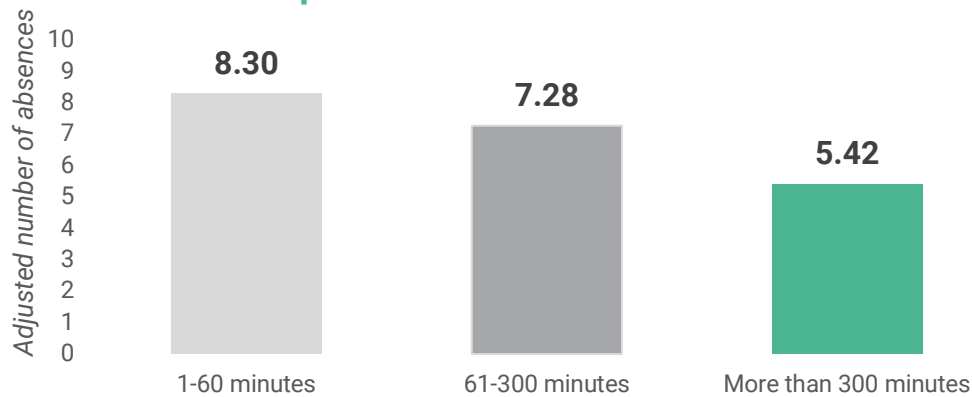


Figure 6. Influence of the number of minutes on Tutor.com users' total 2022-23 absences ($n = 373$). Mean difference between 1-60 minutes and more than 300 minutes was statistically significant ($g = -0.26, p = .04$). The mean difference between 1-60 minutes and 61-300 minutes was not statistically significant ($g = -0.09, p > .05$).

What was the impact of Tutor.com on student outcomes?

Number of Ds and Fs. Researchers created a matched sample of Tutor.com users and non-users based on students' total D and F scores in the fall semester, grade level, gender, and ethnicity. The matched sample demonstrated baseline equivalence (Hedges $g = 0.00$) in fall semester D and F scores. Next, researchers conducted a regression model using the matched sample, examining the impact of participating in Tutor.com on student Ds and Fs in the spring semester, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com users had 18% fewer Ds and Fs, on average, compared to non-users and this difference was statistically significant ($g = -0.14; p < .01$); see Figure 7.

Tutor.com users had 18% fewer spring semester Ds and Fs compared to non-users.

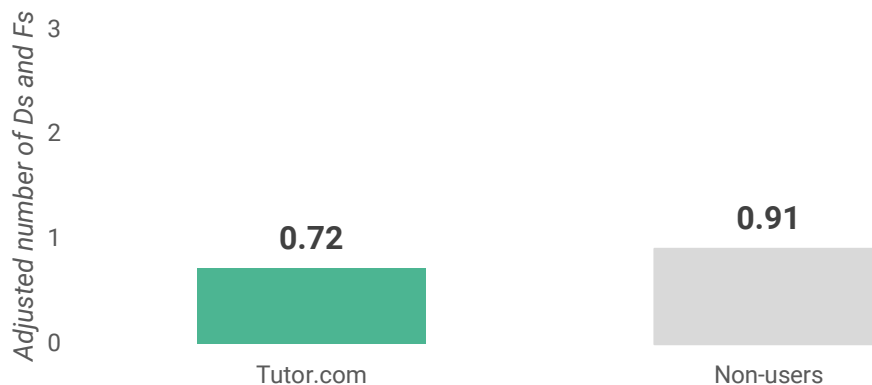


Figure 7. Adjusted mean number of Ds and Fs for Tutor.com users and non-users. Mean difference was statistically significant ($g = -0.14, p < .01; n = 746$).

Course grades. Researchers created a matched sample of Tutor.com users and non-users based on students' fall GPA, grade level, gender, and ethnicity. The matched sample demonstrated baseline equivalence ($g = 0.04$) in fall GPA. Next, researchers conducted a regression using the matched sample, examining the impact of participating in Tutor.com on spring semester GPA, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com users had a higher spring semester GPA compared to non-users and this difference was statistically significant ($g = 0.14$; $p < .001$); see Figure 8.

Tutor.com users had a higher semester GPA compared to non-users.

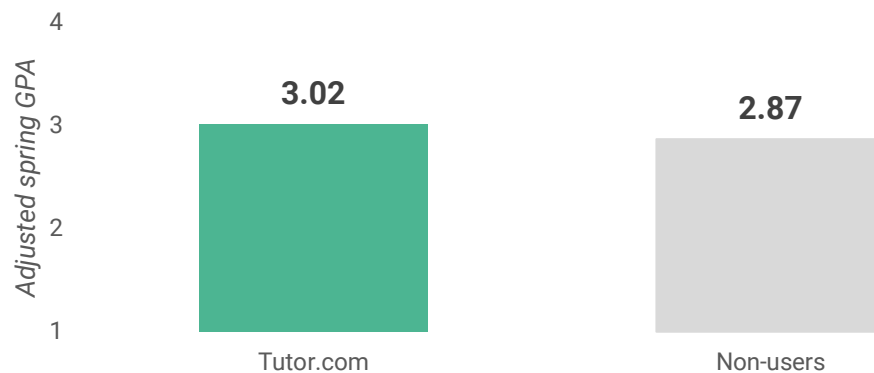


Figure 8. Adjusted mean spring GPA for Tutor.com users and non-users. Mean difference was statistically significant ($g = 0.15$, $p < .001$; $n = 746$).

Math grades. Researchers created a matched sample of Tutor.com math users and non-users based on students' fall math grades, grade level, gender, and ethnicity. The matched sample demonstrated baseline equivalence ($g = 0.00$) in fall math grades. Next, researchers conducted a regression using the matched sample, examining the impact of participating in Tutor.com on spring semester math grades, controlling for fall semester math grades. Tutor.com users had higher spring semester math grades compared to non-users, but this difference was not statistically significant; see Figure 9.

Tutor.com math users had higher spring semester math grades than non-users, but this difference was not statistically significant.

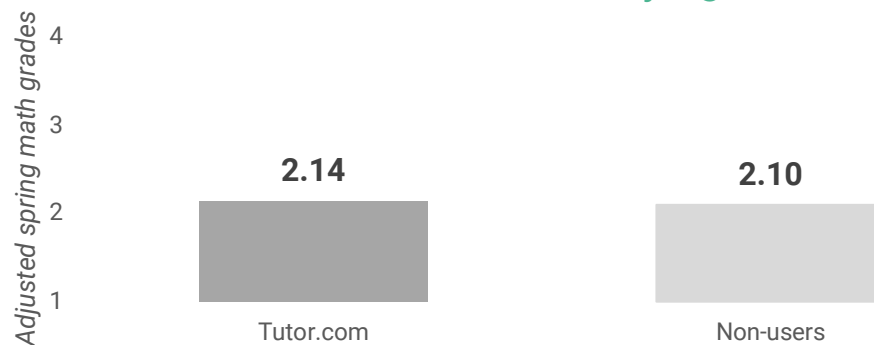


Figure 9. Adjusted mean spring math grades for Tutor.com math users and non-users. Mean difference was not statistically significant ($g = 0.03$, $p > .05$, $n = 524$).

Attendance. Researchers used the previously referenced matched sample of Tutor.com students and non-users based on students' fall semester GPA, grade level, gender, and ethnicity and conducted a regression using the matched sample, examining the impact of Tutor.com on student absenteeism, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com students had fewer absences compared to non-users, but this difference was not statistically significant ($g = -0.06$; $p > .05$); see Figure 10.

Tutor.com users had fewer absences compared to non-users during the 2022-23 school year, but this difference was not statistically significant.

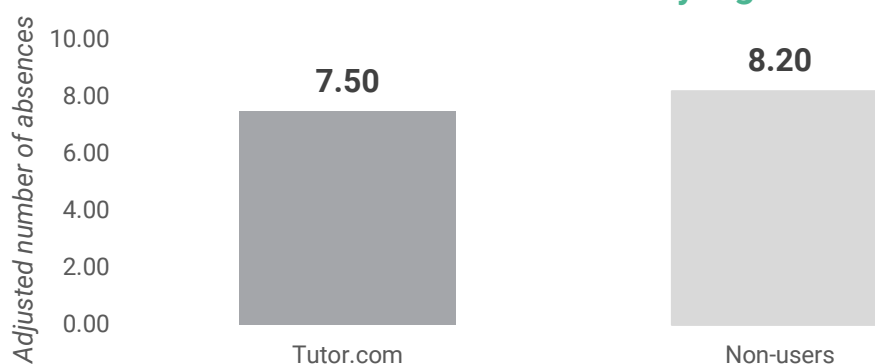


Figure 10. Adjusted number of absences in 2022–23 for Tutor.com users and non-users. Mean difference was not statistically significant ($g = -0.06$, $p > .05$; $n = 746$).

State summative assessments. Researchers used the previously referenced matched sample of Tutor.com students and non-users based on students' fall semester GPA, grade level, gender, and ethnicity. Next, researchers conducted a regression using the matched sample, examining the impact of participating in Tutor.com on 11th grade state math summative assessment scale scores, controlling for ethnicity (i.e., Hispanic/Non-Hispanic) and fall semester GPA. Tutor.com 11th grade students had higher math state summative assessment scores compared to non-users in spring 2023 but this difference was not statistically significant ($g = 0.11$, $p > .05$); see Figure 11.

Tutor.com 11th grade users had higher math CAASPP state summative assessment scores than non-users, but this difference was not statistically significant.

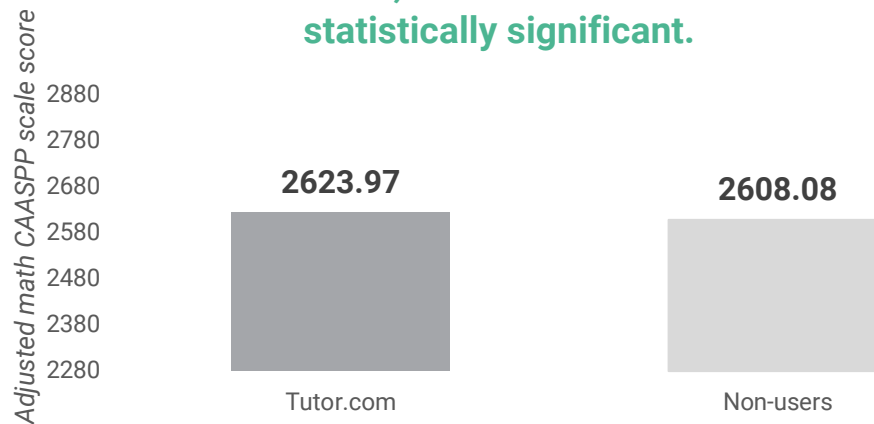


Figure 11. Adjusted math state summative assessment CAASPP end-of-year 2023 scale scores for Tutor.com users and non-users. Mean difference was not statistically significant ($g = 0.11, p > .05; n = 291$).

Using the same matched sample, researchers conducted a second regression model, examining the impact of Tutor.com on 11th grade state ELA summative assessment scale scores, controlling for ethnicity (i.e., Hispanic/Non-Hispanic) and fall GPA. Tutor.com 11th grade students had higher state ELA summative assessment scores compared to non-users in spring 2023, but this difference was not statistically significant ($g = 0.11, p > .05$); see Figure 12.

Tutor.com 11th grade users had higher ELA CAASPP state summative assessment scores than non-users, but this difference was not statistically significant.

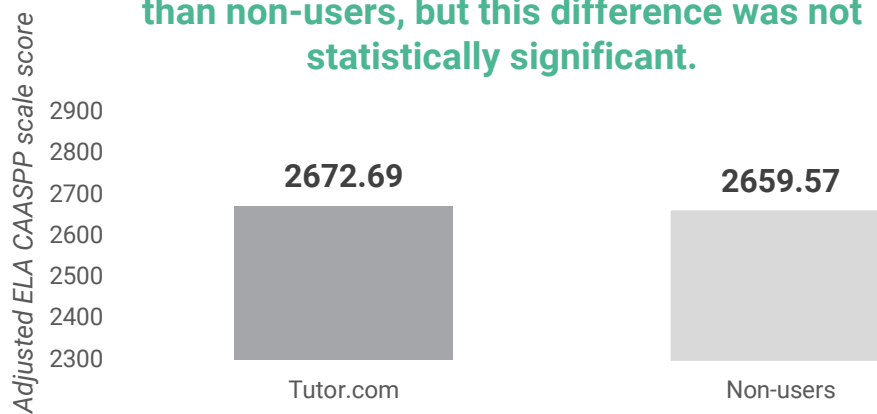


Figure 12. Adjusted ELA state summative assessment CAASPP end-of-year 2023 scale scores for Tutor.com users and non-users. Mean difference was not statistically significant ($g = 0.11, p > .05; n = 291$).

What was the impact of Tutor.com on low-achieving student outcomes?

Researchers used the originally matched samples of Tutor.com users and non-users based on number of fall Ds and Fs or fall GPA and restricted analyses to students who were in the bottom 25%

of fall GPA values (i.e., fall GPA lower than 2.53). These smaller samples demonstrated baseline equivalence (Hedges $g < 0.5$).

Number of Ds and Fs. Researchers used the matched sample of Tutor.com users and non-users based on students' total D and F scores in the fall semester and restricted the sample to 93 Tutor.com users and 91 non-users with fall semester GPAs in the bottom 25%. Researchers then conducted a regression examining the impact of low-achieving students participating in Tutor.com on student Ds and Fs in the spring semester, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com users had 47% fewer spring semester Ds and Fs compared to non-users, and this difference was statistically significant ($g = -0.29$; $p < .05$); see Figure 13.

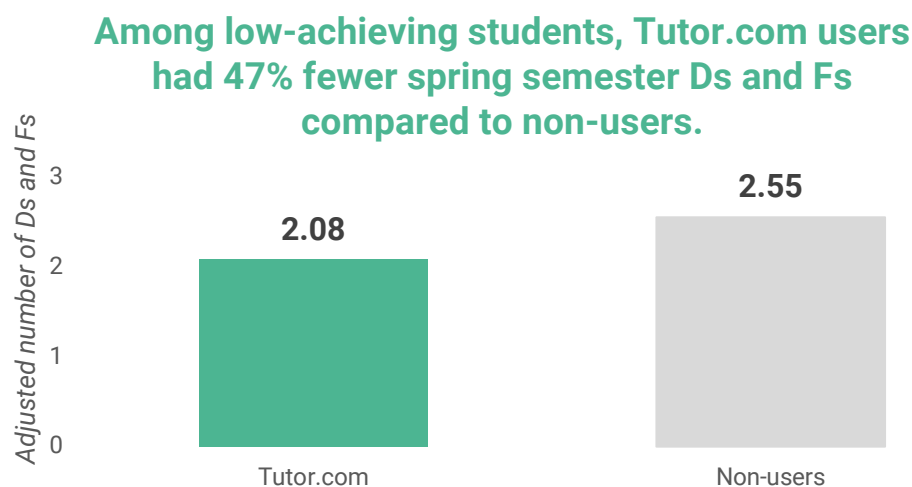


Figure 13. Adjusted mean number of Ds and Fs for Tutor.com users and non-users (low-achieving students in the fall semester). Mean difference was statistically significant ($g = -0.29$, $p < .05$; $n = 184$).

Course grades. Researchers used the matched sample of Tutor.com users and non-users based on students' fall GPA values and restricted the sample to 89 Tutor.com users and 96 non-users with fall semester GPAs in the bottom 25%. Researchers then conducted a regression examining the impact of low-achieving students participating in Tutor.com on spring semester GPA, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com users, who had fall semester grades in the bottom 25% of students, had a higher spring semester GPA compared to non-users and this difference was statistically significant ($g = 0.26$; $p < .05$); see Figure 14.

Among low-achieving students, Tutor.com users had a higher spring semester GPA compared to non-users.

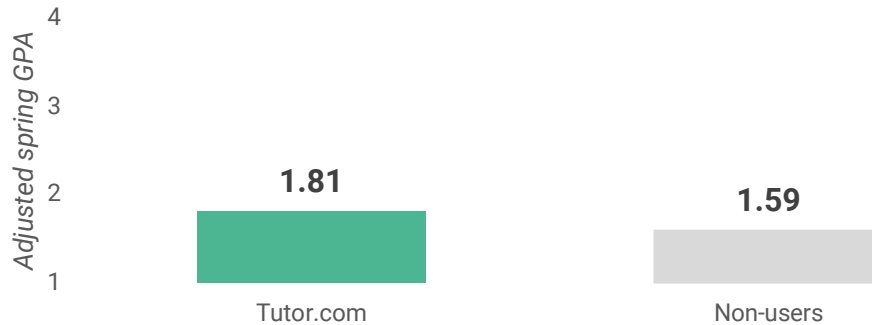


Figure 14. Adjusted mean spring GPA for Tutor.com users and non-users (low-achieving students in the fall semester). Mean difference was statistically significant ($g = 0.26$ $p < .05$; $n = 185$).

Attendance. Finally, using the previously mentioned matched sample, researchers conducted a regression examining the impact of low achieving students participating in Tutor.com on student absenteeism, controlling for gender, ethnicity (i.e., Hispanic/Non-Hispanic), and fall semester GPA. Tutor.com users, who had fall semester grades in the bottom 25% of students, had fewer absences compared to non-users, but this difference was not statistically significant ($g = -0.15$; $p > .05$); see Figure 15.

Among low-achieving students, Tutor.com users had fewer absences compared to non-users during the 2022-23 school year, but this difference was not statistically significant.

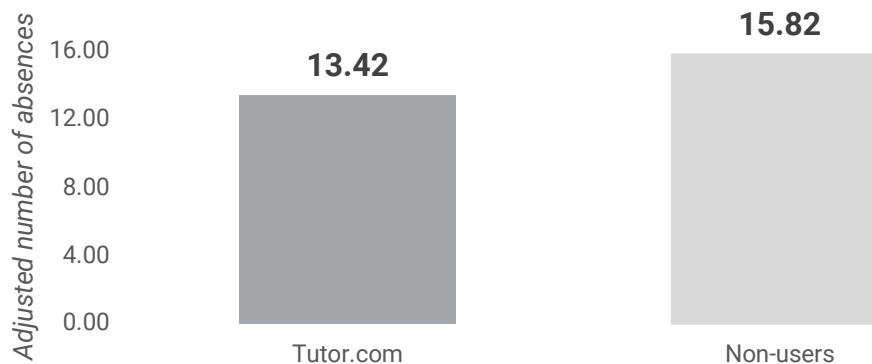


Figure 15. Adjusted number of absences in 2022–23 for Tutor.com users and non-users (low-achieving students in the fall semester). Mean difference was not statistically significant ($g = -0.15$, $p > .05$; $n = 185$).

Conclusions

Given multiple positive outcome findings, this study provides results to satisfy ESSA evidence requirements for Level II (Moderate Evidence). Specifically, this quasi-experimental study met the following criteria for Level II:

- ✓ Proper design and implementation
- ✓ Baseline equivalence for treatment and comparison groups
- ✓ Statistical controls through covariates
- ✓ At least 350 students in the analysis sample
- ✓ Representative, multi-site study
- ✓ At least one statistically significant, positive finding

References

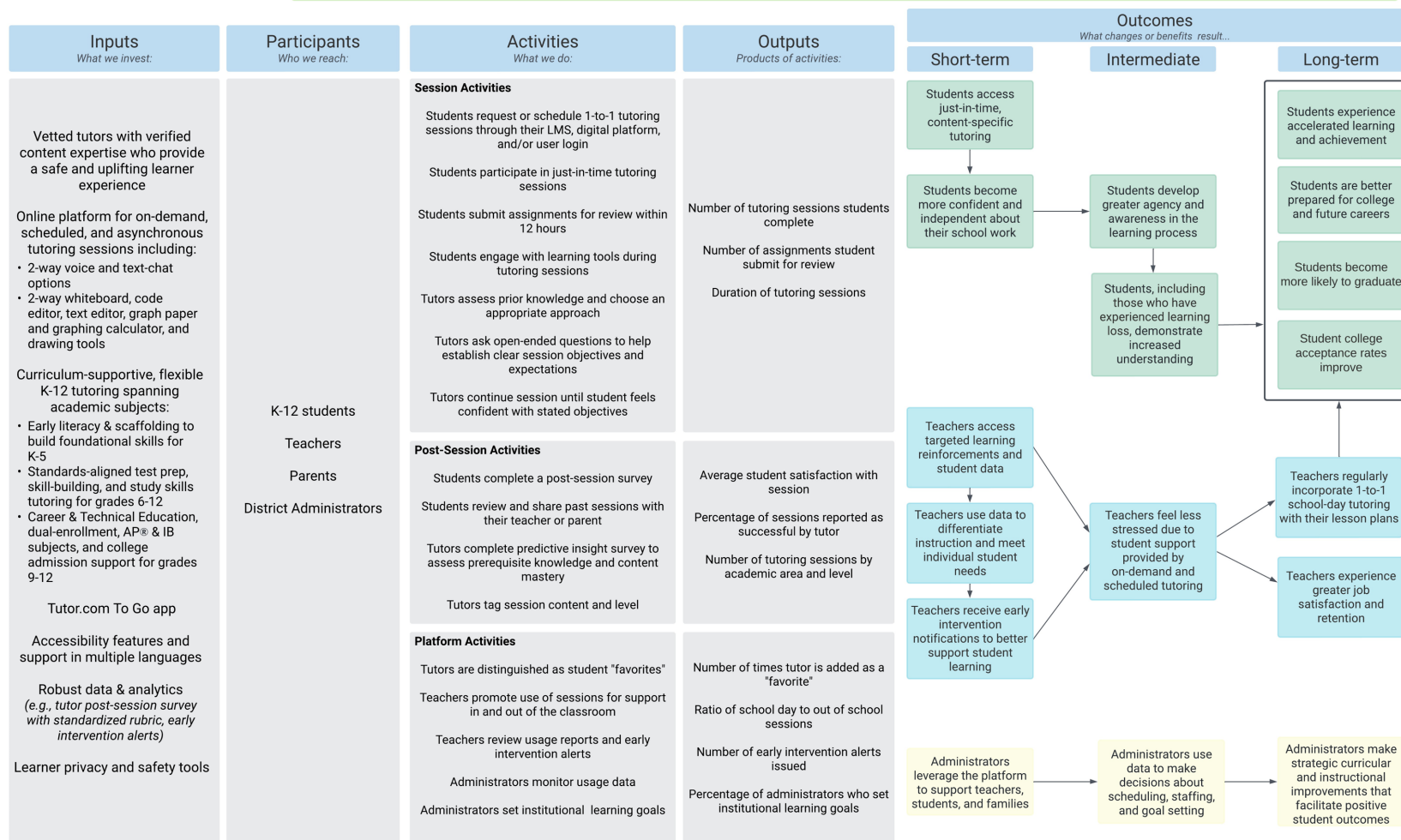
Hunt, A., Long, C., & Cavanaugh, S.A. (2022). Tutor.com Logic Model: ESSA Evidence Level IV Report. Raleigh, NC: LearnPlatform.

National Center for Education Statistics (2023). ACS-ED District Demographic Dashboard 2017-21.

Appendix A. Tutor.com Logic Model



Problem Statement: Students often need specific, targeted assistance to understand content; for example, to clarify a complex concept, to catch up after missing school, or to complete homework and in-class assignments. Tutor.com promotes educational equity, opportunity, and achievement for all learners by providing live tutoring and assignment review through a network of qualified tutors in a virtual environment. The support provided by Tutor.com is learner-focused, creating opportunities for individualized just-in-time support that allows students to request on-demand, scheduled, and asynchronous sessions and progress beyond roadblocks or gaps in understanding.



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Appendix B. Additional Information on Study Design and Methods

A total of 373 Tutor.com students had complete demographic, achievement, and usage data. Researchers had a sample of 6,448 comparison students with complete demographic and achievement data. Using this dataset of 373 Tutor.com students and 6,448 non-Tutor.com students, researchers used propensity score matching (i.e., nearest neighbor matching without replacement) to create a matched study sample of 373 Tutor.com students and 373 non-Tutor.com students with similar fall performance, gender, ethnicity, and grade level. Consequently, the matched study sample included 746 students from one California district with five schools. Additional demographic information on participating students is included in Tables B1-B3.

Table B1. Student demographics by group for matched sample based on fall semester Ds and Fs

Characteristic	Tutor.com students (n = 373)		Non-Tutor.com students (n = 373)		Total sample (n = 746)	
	Percent	<i>n</i>	Percent	<i>n</i>	Percent	<i>n</i>
Gender						
Male	39%	146	39%	146	39%	292
Female	61%	227	61%	227	61%	454
Race/Ethnicity						
Hispanic	54%	202	54%	202	54%	404
Asian	42%	156	42%	156	42%	312
Two or More	3%	13	1%	5	2%	18
White	0.3%	1	2%	8	1%	9
Black	0.3%	1	1%	2	0.4%	3
Ethnicity						
Hispanic	54%	202	54%	202	54%	404
Non-Hispanic	46%	171	46%	171	46%	342
Homelessness						
Yes	9%	32	9%	35	9%	67
No	91%	341	91%	338	91%	679
Section 504						
Yes	2%	6	1%	5	3%	11
No	98%	367	99%	343	97%	710
Migrant						
Yes	2%	7	2%	8	2%	15

No	98%	366	98%	365	98%	731
Grade						
9th	6%	22	6%	22	6%	44
10th	31%	116	31%	116	31%	232
11th	43%	159	43%	159	43%	318
12th	20%	76	20%	76	20%	152

Table B2. Student demographics by group for matched sample based on fall semester GPA

Characteristic	Tutor.com students (n = 373)		Non-Tutor.com students (n = 373)		Total sample (n = 746)	
	Percent	n	Percent	n	Percent	n
Gender						
Male	39%	146	41%	152	40%	298
Female	61%	227	59%	221	60%	448
Race/Ethnicity						
Hispanic	54%	202	53%	196	53%	398
Asian	42%	156	43%	161	42%	317
Two or More	3%	13	3%	10	3%	23
White	0.3%	1	2%	6	1%	7
Black	0.3%	1	0%	0	0.1%	1
Ethnicity						
Hispanic	54%	202	53%	196	53%	398
Non-Hispanic	46%	171	47%	177	47%	348
Homelessness						
Yes	9%	32	6%	24	8%	56
No	91%	341	94%	349	92%	690
Section 504						
Yes	2%	6	1%	4	1%	10
No	98%	367	99%	331	99%	698
Migrant						
Yes	2%	7	2%	7	2%	14
No	98%	366	98%	366	98%	732

Grade						
9th	6%	22	11%	40	8%	62
10th	31%	116	26%	98	29%	214
11th	43%	159	36%	136	40%	295
12th	20%	76	27%	99	23%	175

After matching across groups, researchers conducted regression analyses using the propensity score matched sample to confirm there were no statistically significant differences between student groups. The matched samples met WWC baseline equivalence standards with Hedges g effect sizes ranging from 0.00 to 0.046.

Table B3. Baseline equivalence on fall grades and GPA

Outcome Variable	Mean (Tutor.com)	n (SD) (Tutor.com)	Mean (non-users)	n (SD) (non-users)	Hedges g
Number of Ds and Fs (fall)	0.76	373 (1.27)	0.76	373 (1.27)	0.00
GPA (fall)	2.98	373 (0.97)	3.02	373 (0.93)	0.04
Math grades (fall)	2.09	262 (1.35)	2.09	262 (1.35)	0.00
Low-achieving students' number of Ds and Fs (fall)	2.42	93 (1.40)	2.48	91 (1.39)	0.046
Low-achieving students' GPA (fall)	1.60	89 (0.64)	1.56	96 (0.65)	0.04

Appendix C. Additional Information from Regressions

Examining the influence of different intensities of Tutor.com usage on student learning outcomes

Table C1. Learning outcomes predicted by Tutor.com usage groups

Outcome	Predictor	Unstandardized Beta Coefficient	Standard Error	Test statistic	p-value
Spring semester Ds and Fs	Total sessions group (Medium vs. low)	-0.16	0.10	-1.60	.11
	Total sessions group (High vs. low)	-0.26	0.15	-1.71	.09
	Fall semester GPA	-0.91	0.05	-16.86	<.001
Spring semester Ds and Fs	Total minutes group (Medium vs. low)	-0.12	0.11	-1.05	.30
	Total minutes group (High vs. low)	-0.23	0.13	-1.86	.06
	Fall semester GPA	-0.90	0.05	-16.69	<.001
Spring semester GPA	Total sessions group (Medium vs. low)	0.08	0.06	1.31	0.19
	Total sessions group (High vs. low)	0.08	0.09	0.91	0.36
	Fall semester GPA	0.83	0.03	26.56	<.001
Spring semester GPA	Total minutes group (Medium vs. low)	0.05	0.06	0.76	0.45
	Total minutes group (High vs. low)	0.10	0.07	1.38	0.17
	Fall semester GPA	0.83	0.03	26.32	<.001
2022-23 absences	Total sessions group (Medium vs. low)	-2.19	1.10	0.59	.045
	Total sessions group (High vs. low)	-3.48	1.68	-2.08	.04
	Fall semester GPA	-3.45	0.59	-5.83	<.001
2022-23 absences	Total minutes group (Medium vs. low)	-1.02	1.17	-0.87	.39
	Total minutes group (High vs. low)	-2.88	1.38	-2.08	.04
	Fall semester GPA	-3.46	0.60	-5.77	<.001

Note. Test statistics are a t-score; demographic covariates are not included in the table.

Examining the impact of Tutor.com on student learning outcomes

Table C2. Impact of Tutor.com on learning outcomes (all students)

Outcome	Predictor	Unstandardized Beta Coefficient	Standard Error	Test statistic	p-value
Spring semester Ds and Fs	Condition	-0.18	0.07	-2.73	.006
	Fall semester GPA	-1.06	0.04	-26.38	<.001
Spring semester GPA	Condition	0.14	0.04	3.70	<.001

Outcome	Predictor	Unstandardized Beta Coefficient	Standard Error	Test statistic	p-value
Math grades	Fall semester GPA	0.84	0.02	37.76	<.001
	Condition	0.04	0.07	0.62	.53
2022-23 absences	Fall math grades	0.83	0.03	31.77	<.001
	Condition	-0.70	0.73	-0.95	.34
Math CAASPP scale score	Fall semester GPA	-4.57	0.42	-10.76	<.001
	Condition	15.89	11.63	1.37	.17
ELA CAASPP score	Fall semester GPA	76.01	6.48	11.72	<.001
	Condition	13.11	11.43	1.15	.25
	Fall semester GPA	61.43	6.36	9.65	<.001

Note. Test statistics are a t-score; demographic covariates are not included in the table.

Table C3. Impact of Tutor.com on learning outcomes (low-achieving students)

Outcome	Predictor	Unstandardized Beta Coefficient	Standard Error	Test statistic	p-value
Spring semester Ds and Fs	Condition	-0.47	0.21	-2.20	.03
	Fall semester GPA	-1.24	0.17	-7.25	<.001
Spring semester GPA	Condition	0.21	0.11	2.03	.04
	Fall semester GPA	0.64	0.08	7.80	<.001
2022-23 absences	Condition	-2.40	2.19	-1.10	.27
	Fall semester GPA	-8.64	1.71	-5.06	<.001

Note. Test statistics are a t-score; demographic covariates are not included in the table.