

# Connections ESSA Level III Study (2022–23)



Prepared for:  
Perfection Learning

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## EXECUTIVE SUMMARY

Perfection Learning contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the association between student usage of the *Connections* program and literacy achievement. LearnPlatform designed the study to satisfy Level III requirements (*Promising Evidence*) according to Every Student Succeeds Act (ESSA)<sup>1</sup>.

### Study Sample, Measures, and Methods

This study used data from the 2022–23 school year with a sample of 503 grade 9 students across five classrooms in five schools from a large charter school network in Texas.

Researchers used measures of usage and achievement to provide insights into how teachers implemented the *Connections* program and the potential impacts on student achievement. LearnPlatform collected teachers' self-reported usage of *Connections* via online surveys and students' state standardized assessment scores (i.e., State of Texas Assessments of Academic Readiness [STAAR]) and demographic information were provided by the charter network. Researchers used these data to evaluate whether there were significant differences in achievement associated with usage of *Connections* accounting for students' subgroup membership.

Researchers used a variety of quantitative analytic approaches including descriptive statistics to examine participant characteristics and implementation. A series of regression analyses were used to investigate how *Connections* use is related to students' achievement on end-of-year literacy assessments (i.e., STAAR English I test). The analyses included student-level covariates to control for potential selection bias. Researchers also calculated improvement index estimates to determine the magnitude of changes in literacy achievement at the beginning- and end-of-year.

### Conclusions

Given positive outcome findings, this study provides results to satisfy ESSA evidence requirements for Level III (*Promising Evidence*).

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<sup>1</sup> To show promising evidence, an ESSA Tier 3 study must be a well-designed and implemented correlation study with statistical controls for selection bias, have at least one statistically significant positive result on a relevant outcome, and no strong negative findings from other quasi-experimental or experimental studies.

## Key Takeaways



On average, teachers reported using *Connections* 31–45 minutes per day for literacy instruction. The most used *Connections* resources included Literary Lens, Preview and Making Connections, First Read, Build Background, Student Book, and Perfection Next.



On average, for every additional 15 minutes per day of instruction using *Connections*, a student at the 50<sup>th</sup> percentile would be expected to perform at the 61<sup>st</sup> percentile (i.e., an 11 percentile point increase).



Receiving more minutes of *Connections* instruction per day was significantly associated with increased end-of-year STAAR English 1 scores for Grade 9 students ( $p < .01$ ), controlling for days absent, gender, and socioeconomic, special education, and emergent bilingual designations.

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## Introduction

Perfection Learning contracted with LearnPlatform by Instructure, a third-party edtech research company, to examine the association between student usage of *Connections* and literacy achievement. LearnPlatform designed the study to satisfy Level III requirements (*Promising Evidence*) according to the Every Student Succeeds Act (ESSA).

Clear communication and critical thinking skills are essential for success in higher education and the workplace. However, K–12 students often lack the opportunities to develop these skills (i.e., the ability to comprehend, analyze, and discuss complex texts and ideas). Perfection Learning provides a set of research-based learning resources, *Connections*, that enable teachers to incorporate high-quality content and instructional strategies into their lessons to ensure students become more proficient in reading and writing (see logic model in [Appendix A](#); Lee & Shah, 2023).

The present study had the following research questions:

### Implementation Question

1. During the 2022–23 school year, what is the average number of minutes per day that teachers used *Connections* for English 1 instruction?

### Outcome Question

2. During the 2022-23 school year, do grade 9 students who receive more minutes per day of *Connections* instruction have higher literacy achievement (i.e., STAAR English 1 assessment scores), controlling for days absent, gender, and socioeconomic, special education, and emergent bilingual designations?

This report details the study design and methods, implementation, findings, conclusions, and recommended next steps.

## Study Design and Methods

This section of the report briefly describes the study’s design, setting, participants, measures, and analysis methods.

### Study Design

This study used a correlative design to examine the association between Perfection Learning usage and literacy achievement during the 2022–2023 school year. This analysis controlled for days absent, gender, and socioeconomic, special education, and emergent bilingual designations. All the covariates were significantly associated with the outcome variable, so they were included in the final model.

### Setting and Participants

This study used data from the 2022–23 school year with a sample of 503 grade 9 students across five classrooms in five schools in a large Texas charter network. The five teachers taught 57-188 students, with an average of 101 students per teacher. The full sample included students who identified as Hispanic (60%), Black/African American (20%), White (13%), Asian (4%), and two or more races (2%). Fifty-five percent of the students in the sample identified as female and 45% identified as male. There were also 73% of students who were designated as low socioeconomic status, 38% as emergent bilingual, and 8% as special education (SPED). Detailed demographics information by grade level is included in the Appendix (Table B1).

### Measures

This study included multiple measures to provide insights into *Connections* implementation and evidence about the potential impacts of the learning solution on literacy achievement.

**STAAR English 1 Assessment.** The State of Texas Assessments of Academic Readiness (STAAR) English 1 assessment was used to measure students’ literacy achievement as the primary outcome of interest. The STAAR assessment was developed by the Texas Education Agency to assess what students have learned as part of the English 1 course required for all grade 9 students. The STAAR assessment was found to be a reliable and valid measure by an independent evaluator (Texas Education Agency, 2022). The STAAR assessment includes students’ performance level indicators and raw test scores; researchers used raw scores for analysis.

**Connections Usage Metrics.** *Connections* usage at the student-level could not be captured at this study site due to logistical constraints, therefore researchers inferred that a student’s use was aligned with the teacher’s reported use. Teachers completed brief surveys to provide reports of their level of *Connections* usage. The survey included items to assess the average daily minutes using *Connections* (scale: 0 – 60+ minutes) and a rating of how frequently different *Connections* resources were used

(scale: never to always). These measures were used to examine whether increased use of *Connections* was significantly associated with greater end-of-year literacy outcomes. It was inferred that if a students' primary ELA teacher was using *Connections* at higher levels, their *Connections* use was higher as well.

## Data Analysis

Researchers used a variety of quantitative analytic approaches to answer the research questions. First, researchers used descriptive statistics to examine student characteristics and implementation of the program. Next, researchers used linear regression models for the outcomes analysis. All regression models included days absent, gender, and socioeconomic, special education, and emergent bilingual designations as covariates to control potential selection bias. All findings were interpreted as statistically significant at the  $p < .05$  level and improvement index conversions are included to assist with interpretation.

## Program Implementation

### Implementation Results

On average, 86% of grade 9 students received 30–45 minutes per day of *Connections* instruction during the 2022–23 school year. Teachers also reported that they used *Connections* for instruction more than other resources and that they used a variety of *Connections* resources to support their instruction. The charts below highlight *Connections* use during the 2022–23 school year based on self-reported usage data (see Figures 1–3).

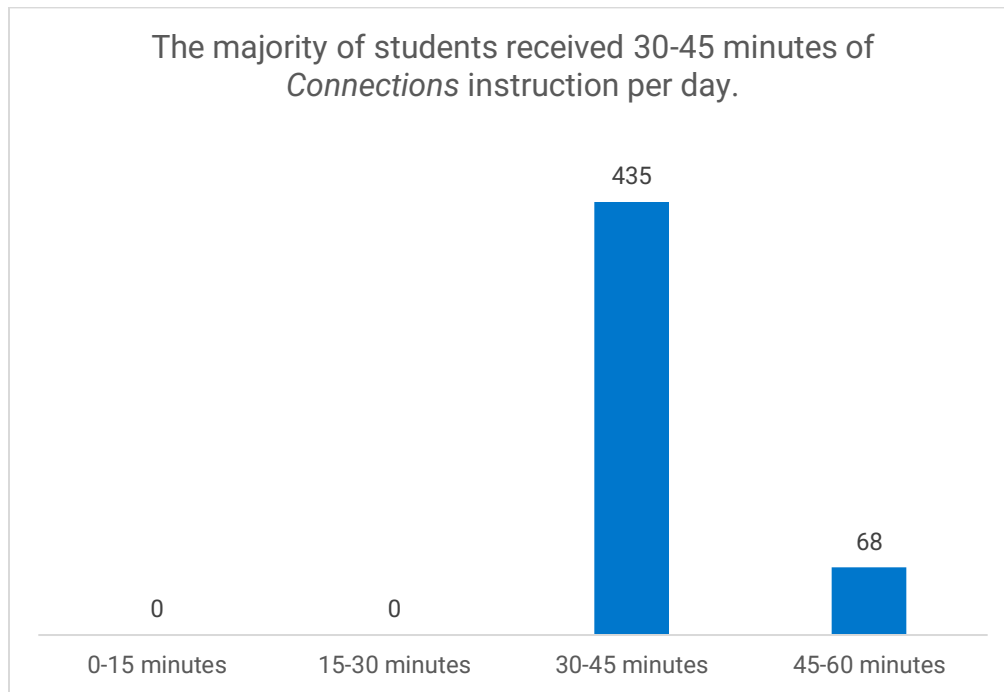


Figure 1. On average, 435 (86%) grade 9 students received 30–45 minutes of *Connections* instruction per day.



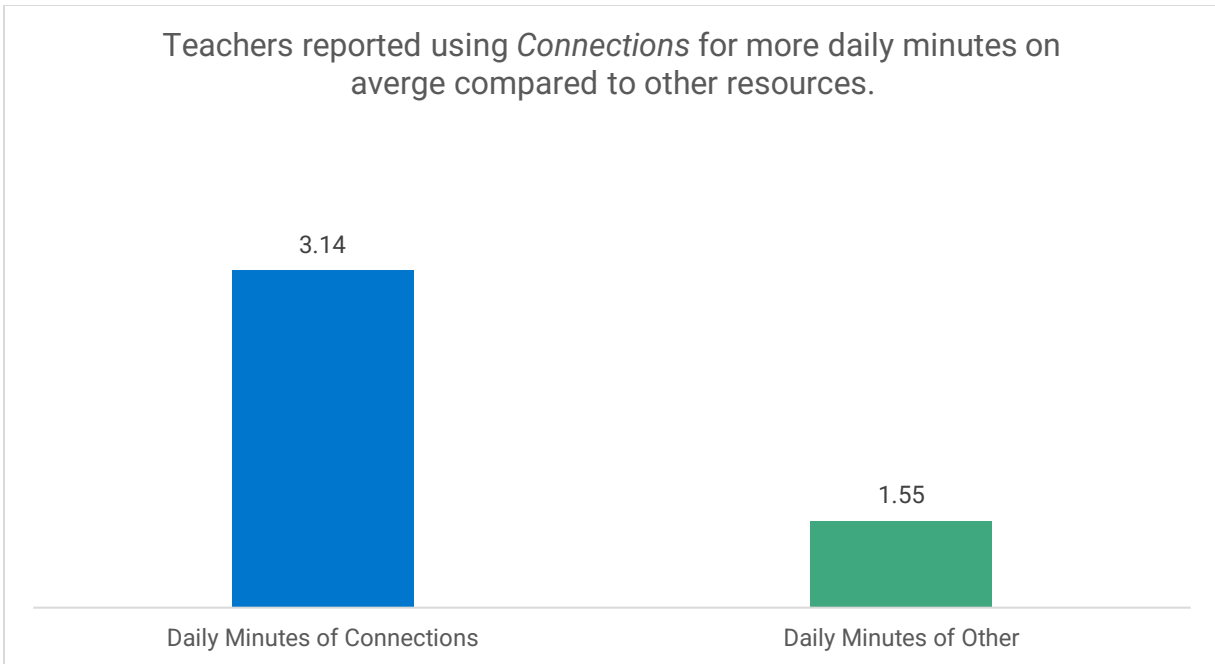


Figure 2. On average, teachers reported using *Connections* roughly 35 minutes per day (mean = 3.14) and other resources for roughly 22 minutes per day (mean = 1.55) on a scale of 1 = 0–15 minutes per day, 2 = 15–30 minutes per day, 3 = 30–45 minutes per day, 4 = 45–60 minutes per day, and 5 = 60 or more minutes per day.

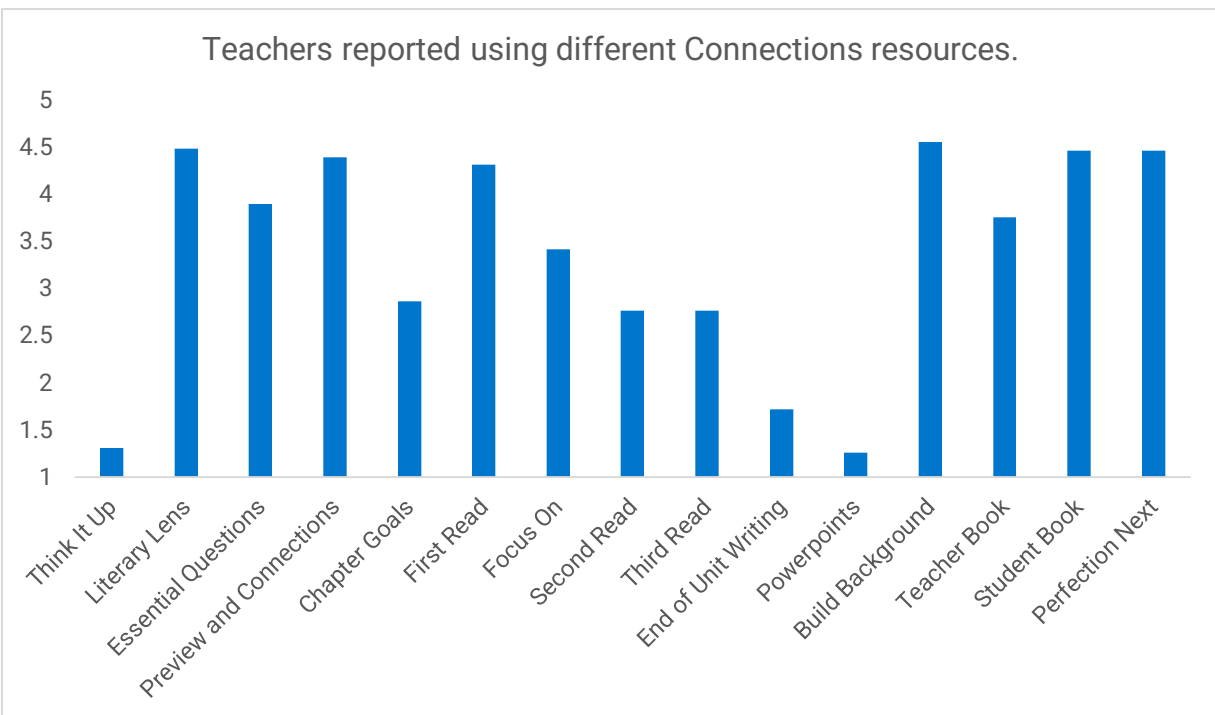


Figure 3. Teachers reported using various *Connections* resources to support their instruction on a scale of 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, and 5 = always. The most used *Connections* resources included Literary Lens, Preview and Connections, First Read, Build Background, Student Book, and Perfection Next.

## Program Impacts

To answer the outcomes question, researchers used regression analysis. In addition to examining the statistical significance of the test used, researchers used the improvement index to determine the magnitude of the relationship between *Connections* usage and student literacy outcomes. The key study findings are included below, and the full set of results can be found in Appendix C.

### Greater Use of *Connections* was Significantly Associated with Increased Literacy Outcomes for Grade 9 Students

The results of regression analyses showed that using *Connections* for more minutes per day on average was significantly associated with increased end-of-year literacy outcomes for grade 9 students controlling for days absent, gender, and socioeconomic, special education, and emergent bilingual designations. In other words, the regression results showed that there was a statistically significant, positive effect of using *Connections* on students' English 1 scores above and beyond differences observed due to absences, gender, socioeconomic, special education, and emergent bilingual designations.

**Key Finding.** Having a teacher who used *Connections* for more minutes per day on average was significantly associated with higher STAAR English 1 scores at the end of the year (Figure 4). The results showed that a student at the 50<sup>th</sup> percentile whose ELA teacher used *Connections* for an additional 15 minutes per day would be expected to move up to the 61<sup>st</sup> percentile (i.e., 11 p.p. improvement). This effect was statistically significant ( $p = .006$ ).

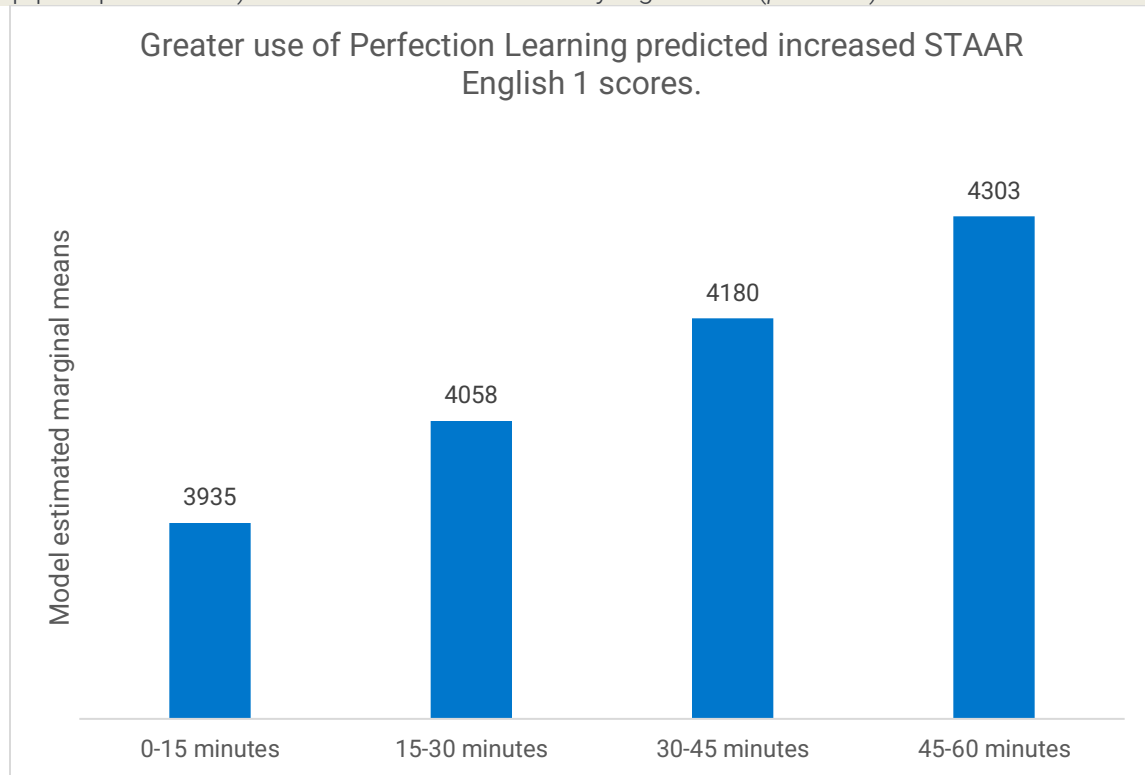


Figure 4. Model estimated English 1 scores predicted by minutes per day of *Connections* instruction.

## Conclusions & Recommendations

Given positive outcome findings, this study provides results to satisfy ESSA evidence requirements for Level III (*Promising Evidence*). Specifically, this study met the following criteria for Level III:

- ✓ Correlative study with non-independent outcome measure
- ✓ Proper design and implementation
- ✓ Statistical controls through covariates
- ✓ At least one statistically significant, positive correlation with statistical controls for selection bias

Given positive outcome findings, this study provides results to satisfy ESSA evidence requirements for Level III (*Promising Evidence*).

Researchers recommend the following next steps:

- Conduct an evaluation of the tool by including a matched comparison group of students who are not using the product (i.e., quasi-experimental design) (ESSA Level II).
- Gather student-level usage data using classroom observations, student surveys, or information captured via Perfection Next to understand usage more precisely.

## References

Lee, A. & Shah, M. 2023. *Perfection Learning: Connections and Literature Logic Model*. Study Type: ESSA Evidence Level IV. LearnPlatform.

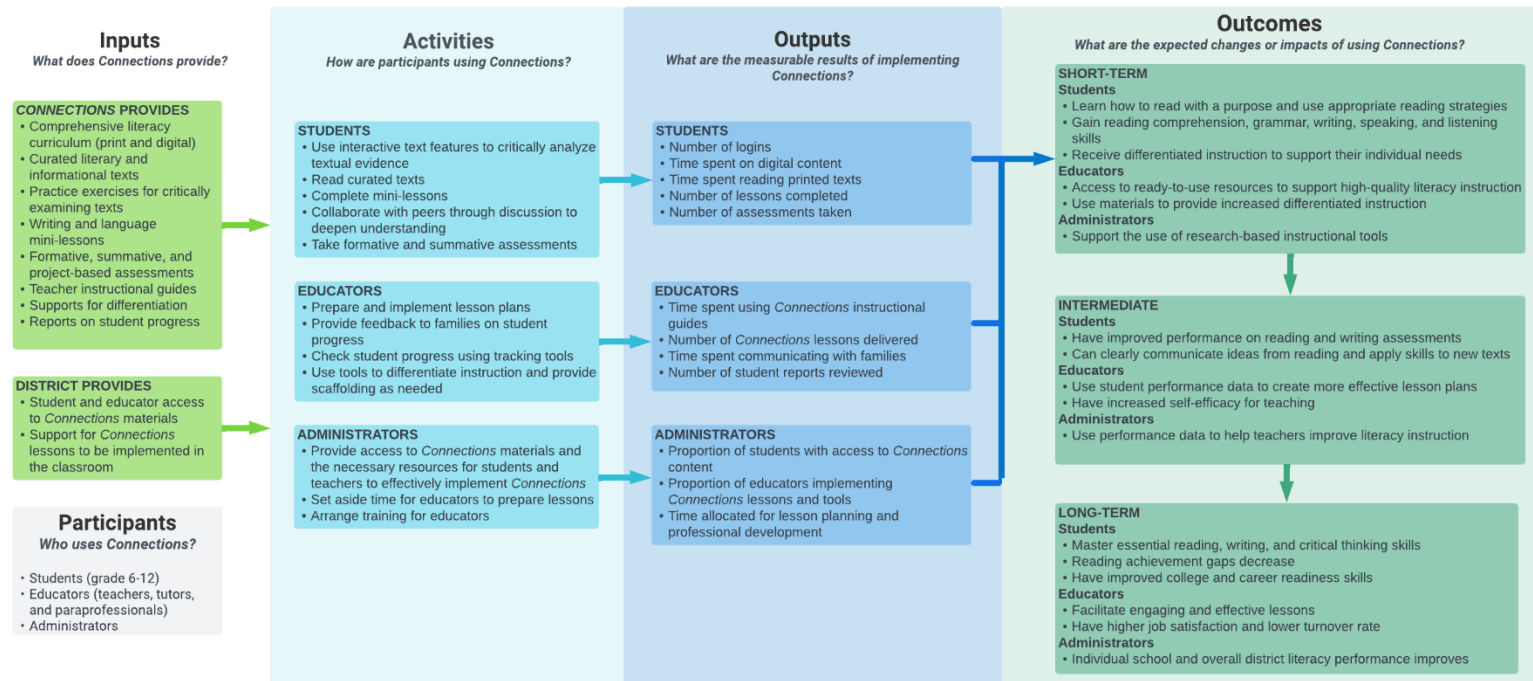
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## Appendix A. Perfection Learning Logic Model for Connections

# PERFECTION LEARNING<sup>®</sup> Connections English Language Arts & Literature Logic Model

**Problem Statement:** Clear communication and critical thinking skills are essential for success in higher education and the workplace. However, K-12 students often lack the opportunities to develop these skills i.e., the ability to comprehend, analyze, and discuss complex texts and ideas. Perfection Learning provides a set of learning resources (*Connections*) based in the sciences of learning and reading that enable teachers to incorporate research-based content and instructional strategies into their lessons and in turn help students develop a deep understanding of reading and writing.



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## Appendix B. Additional Information on Student Demographics

Table B1. Participant demographics (Total  $n = 503$ )

	<i>N</i>	%
Hispanic	303	60%
Black/African American	102	20%
White	63	13%
Asian	21	4%
Two or more races	12	2%
Other race	2	1%
Female	275	55%
Male	228	45%
Special education (SPED)	40	8%
Not SPED	463	92%
Emergent bilingual	193	38%
Not emergent bilingual	310	62%
Low socioeconomic status (SES)	368	73%
Not low SES	135	27%

## Appendix C. Additional Information on Outcome Analysis

### Association of Minutes per Day using *Connections* with English 1 Score

Table C1. STAAR English 1 scores predicted by *Connections* usage

Outcome	Predictor	Unstandardized Beta Coefficient	Standardized Beta Coefficient of Y	Standard Error	t-statistic	p-value
English 1 Score	Daily minutes of use	122.51	0.30	44.41	2.76	.006
	Days absent semester 1	4.71	0.01	1.91	2.47	.014
	Days absent semester 2	-9.93	-0.02	1.45	-6.84	<.001
	Low SES	-85.75	-0.21	35.70	-2.40	.017
	SPED	-380.36	-0.93	56.18	-6.77	<.001
	Emergent bilingual	-239.60	-0.58	32.59	-7.35	<.001
	Female	129.13	0.31	30.51	4.23	<.001