



**THE EDTECH COLLECTIVE**

Instructure Partner Ecosystem

# THINKCERCA IN TEXAS MIDDLE SCHOOLS

## ESSA Level II Study (2023–24)

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ThinkCERCA

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# EXECUTIVE SUMMARY

*ThinkCERCA* contracted with Instructure to examine the impact of *ThinkCERCA* on middle school students’ literacy outcomes. Using the Every Student Succeeds Act (ESSA) standards as guidance in developing a study design, findings in this report align with Level II requirements (Moderate Evidence).

## Study Sample and Methodology

This study used a quasi-experimental design to align with ESSA Level II evidence standards. It included a weighted sample with 3,616 middle school students (grades 7–8), with the treatment group totaling 2,744 students (1,358 in grade 7 and 1,386 in grade 8) and the comparison group totaling 872 students (418 in grade 7 and 454 in grade 8).

Researchers analyzed *ThinkCERCA*’s implementation data and demographic data from the 2023–24 school year and standardized assessment results to assess *ThinkCERCA*’s impact on student literacy outcomes. The analysis included the State of Texas Assessments of Academic Readiness (STAAR®) reading language arts (RLA) composite scores from spring 2023 and spring 2024.

In addition to descriptive statistics, researchers used linear regressions to examine how *ThinkCERCA* impacts student literacy outcomes. The analyses included student-level covariates to control for potential selection bias. For impact analyses, researchers conducted baseline equivalence testing. All analyses met What Works Clearinghouse (WWC) Version 5.0 baseline equivalence standards (What Works Clearinghouse, 2022).

### Research Findings



Grade 7–8 students who used *ThinkCERCA* had higher spring 2024 STAAR® RLA scores when compared to non-users.

## Conclusions

Given the positive findings, this study provides results to satisfy ESSA evidence requirements for Level II (Moderate Evidence).



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# INTRODUCTION

*ThinkCERCA* is a comprehensive, online literacy platform designed to help educators teach 21<sup>st</sup> century skills (e.g., critical thinking) through reading and writing to students in grades 3–12.

As part of their ongoing efforts to demonstrate the effectiveness of their solution, *ThinkCERCA* contracted with Instructure to examine the impact of *ThinkCERCA* on middle school students' literacy outcomes. Using the Every Student Succeeds Act (ESSA) standards as guidance in developing a study design, findings in this report align with Level II requirements (Moderate Evidence). The following research questions guided this study:

## Implementation

1. What was the average number of *ThinkCERCA* lessons completed by grade 7–8 students during the 2023–24 school year?
  - a. How did the average differ between Writing<sup>1</sup> and Non-Writing lessons?<sup>2</sup>

## Student Outcomes

2. What was the difference in spring 2024 STAAR® RLA scores between students who used *ThinkCERCA* and students who did not?

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

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<sup>1</sup> Writing lessons include all genres of writing such as argumentative, informational, and narrative, in addition to custom lessons.

<sup>2</sup> Non-Writing lessons include all other types of supplementary lessons included in Reading Practices, Skills Lessons, and Direct Instruction.



## STUDY DESIGN AND METHODS

This section of the report briefly describes the study participants, measures, and analysis methods.

### Study Design

This study used a quasi-experimental design to align with ESSA Level II evidence standards. It included students who participated in *ThinkCERCA* during the 2023–24 school year and a weighted sample of students who did not use *ThinkCERCA*, utilizing propensity score weighting to account for potential pre-existing differences.

### Setting and Participants

This study included a weighted sample with 3,616 middle school students (grades 7–8), with the treatment group totaling 2,744 students (1,358 in grade 7 and 1,386 in grade 8) and the comparison group totaling 872 students (418 in grade 7 and 454 in grade 8) from across two school districts in Texas.<sup>3,4</sup> Table 1 shows the demographic breakdown of the study’s participants.

Table 1. Overview of study participants

| Demographic                      | <i>ThinkCERCA</i> students | Comparison Students |
|----------------------------------|----------------------------|---------------------|
| Hispanic                         | 79%                        | 54%                 |
| Black or African American        | 17%                        | 10%                 |
| White                            | 2%                         | 33%                 |
| American Indian/Alaska Native    | <1%                        | <1%                 |
| Asian                            | <1%                        | <1%                 |
| Two or more races                | <1%                        | 2%                  |
| Native Hawaiian/Pacific Islander | –                          | <1%                 |
| Economically disadvantaged       | 80%                        | 56%                 |

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<sup>3</sup> “Weighted” indicates that the students in the sample were not all counted equally in the analysis. Instead, statistical weights were applied to individual student data to create treatment and comparison groups that were more balanced on pre-existing characteristics.

<sup>4</sup> The treatment group consisted of students from one school district. The comparison group was comprised of students from a separate school district.

## Measures

**ThinkCERCA Implementation.** Researchers measured *ThinkCERCA*'s implementation using the number of Writing and Non-Writing lessons completed throughout the school year.

**Student Outcomes.** Researchers used standardized assessment results to assess *ThinkCERCA*'s impact on student literacy outcomes. The analysis included the State of Texas Assessments of Academic Readiness (STAAR®) RLA composite scores from spring 2023 and spring 2024. The STAAR® assessment includes a combination of multiple-choice items and constructed-response questions that evaluate students' reading comprehension, analytical thinking, and written expression. Since assessment scores are not vertically scaled, researchers conducted the analysis separately by grade-level.

## Data Analysis

*ThinkCERCA* uploaded data from the 2023–24 school year through a secure file transfer protocol. Researchers characterized usage using descriptive statistics (e.g., mean, standard deviation, minimum, maximum).

Researchers used linear regressions to examine how *ThinkCERCA* impacts student literacy outcomes. The analyses included student-level covariates to control for potential selection bias (i.e., baseline achievement, limited English proficiency, and economically disadvantaged status). In addition, researchers calculated standardized effect sizes to determine the magnitude of changes in treatment students' literacy outcomes.

## Propensity Score Weighting and Baseline Equivalence

To balance the treatment and comparison groups on key covariates, researchers applied propensity score weighting using students' spring 2023 STAAR® RLA composite scores (baseline achievement) and economically disadvantaged status. A weighted sample was generated, and the resulting weights were incorporated into the linear regression models.

To ensure the validity of the study's findings and adhere to ESSA Level II standards, researchers assessed the baseline equivalence of assessment scores between the treatment and comparison groups. Baseline equivalence met the What Works Clearinghouse (WWC) standards for acceptable differences, with Hedges' *g* effect sizes of -0.00 for both grade 7 and 8 students. The appendices include additional baseline equivalence details for each grade-level sample.

# IMPLEMENTATION

This section examines how students used *ThinkCERCA* during the 2023–24 school year to better understand the extent of student engagement with the platform.

1

**What was the average number of *ThinkCERCA* lessons completed by grade 7–8 students during the 2023–24 school year?**

**a. How did the average differ between Writing and Non-Writing lessons?**

Table 1 shows the descriptive statistics (e.g., number of students (*n*), average number of completed activities, standard deviation (SD), minimum, and maximum) of *ThinkCERCA* lesson types by grade level. As a reminder, Writing lessons encompass all genres—including argumentative, informational, and narrative writing—as well as custom lessons. Non-Writing lessons include supplementary instruction found in Reading Practices, Skills Lessons, and Direct Instruction.

Table 1. Average *ThinkCERCA* usage by lesson type and grade level

| Usage by Grade                          | Average | SD | Minimum | Maximum |
|-----------------------------------------|---------|----|---------|---------|
| <b>Grade 7 (<i>n</i> = 1,358)</b>       |         |    |         |         |
| Number of Writing lessons completed     | 20      | 12 | 2       | 48      |
| Number of Non-Writing lessons completed | 11      | 9  | 0       | 40      |
| Total number of Lessons completed       | 30      | 16 | 7       | 82      |
| <b>Grade 8 (<i>n</i> = 1,386)</b>       |         |    |         |         |
| Number of Writing lessons completed     | 27      | 20 | 2       | 116     |
| Number of Non-Writing lessons completed | 9       | 14 | 0       | 65      |
| Total number of Lessons completed       | 35      | 26 | 3       | 179     |

*Note: Sums may not equal totals due to rounding.*

## STUDENT OUTCOMES

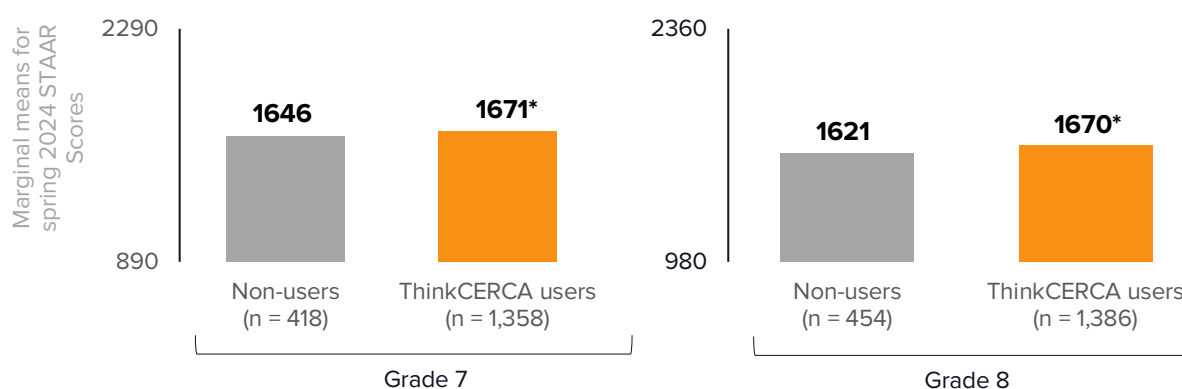
To address student outcome questions, researchers completed comparative analyses that included linear regressions controlling for spring 2023 STAAR® scores (prior achievement) and economically disadvantaged status. Additional information on these analyses and findings can be found in Appendices A and B.

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### What was the difference in spring 2024 STAAR® RLA scores between students who used *ThinkCERCA* and students who did not?

*ThinkCERCA* users had higher spring 2024 STAAR® RLA scores compared to non-users in both grade 7 and 8 (Figure 1).<sup>5</sup> Specifically, grade 7 *ThinkCERCA* users scored 25 points higher, and grade 8 users scored 49 points higher than non-users. This difference was statistically significant ( $g = 0.03$ ;  $p < .00$ ;  $g = 0.03$ ;  $p = .03$ , respectively). In grade 7 and 8, this means that the average non-user student (one who scores right in the middle, at the 50<sup>th</sup> percentile) would be expected to perform at the **51<sup>st</sup> percentile** had they used *ThinkCERCA*.

### *ThinkCERCA* users had higher end-of-year STAAR® scores compared to non-users



Note: Statistically significant findings ( $p < 0.05$ ) are marked with an asterisk (\*). STAAR RLA scores range from 890 to 2290 for grade 7 and 980 to 2360 for grade 8.

Figure 1. Adjusted mean spring 2024 STAAR® scores for grades 7 and 8 non-users and *ThinkCERCA* users.

<sup>5</sup> An adjusted mean is a statistical estimate of a group's average score after statistically controlling for the influence of other variables that might affect the outcome, such as students' prior knowledge or socioeconomic status. This helps to provide a more accurate comparison between groups by minimizing the impact of pre-existing differences.

## CONCLUSIONS

*ThinkCERCA* implementation among grade 7 and 8 students during the 2023–24 school year reveals meaningful patterns in engagement and academic outcomes. On average, students in grade 8 completed more *ThinkCERCA* lessons than those in grade 7, with a notable emphasis on Writing lessons across both grades.

*ThinkCERCA* usage was associated with improved academic performance in literacy. After controlling for prior achievement and economic disadvantage, *ThinkCERCA* users scored significantly higher on the spring 2024 STAAR® RLA assessments—25 points higher in grade 7 and 49 points higher in grade 8—compared to non-users. Overall, these findings highlight the potential of *ThinkCERCA* to support literacy development, particularly through Writing lessons, and shows how it helps improve standardized test scores.

Given the positive findings, this study provides results to satisfy ESSA evidence requirements for Level II (Moderate Evidence). Specifically, this study met the following, minimum 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 effect of the intervention on outcomes



## REFERENCES

Every Student Succeeds Act, Pub. L. No. 114-95 (2015).

<https://www.govinfo.gov/app/details/PLAW-114publ95>.

What Works Clearinghouse (2022). *What Works Clearinghouse procedures and standards handbook, version 5.0*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance (NCEE). This report is available on the What Works Clearinghouse website at

<https://ies.ed.gov/ncee/wwc/Handbooks>.



## APPENDIX A. GRADE 7: ADDITIONAL INFORMATION ON STUDY DESIGN AND METHODS

This appendix provides more in-depth information specifically about the grade 7 demographic characteristics of the weighted sample, baseline equivalence analyses and the linear regression analysis.

Table A1. Student demographics by group for weighted sample

| Characteristic                    | ThinkCERCA students |          | Non-users |          |
|-----------------------------------|---------------------|----------|-----------|----------|
|                                   | Percent             | <i>n</i> | Percent   | <i>n</i> |
| Race                              |                     |          |           |          |
| American Indian/Alaska Native     | <1%                 | <10      | <1%       | <10      |
| Asian                             | <1%                 | <10      | <1%       | <10      |
| Black or African American         | 17%                 | 155      | 10%       | 42       |
| Hispanic                          | 81%                 | 719      | 55%       | 231      |
| Native Hawaiian/Pacific Islander  | <1%                 | <10      | <1%       | <10      |
| Two or more races                 | <1%                 | <10      | 2%        | 9        |
| White                             | 2%                  | 19       | 33%       | 136      |
| Economically disadvantaged status |                     |          |           |          |
| Yes                               | 80%                 | 724      | 57%       | 240      |
| No                                | 20%                 | 184      | 43%       | 178      |

Table A2. Baseline equivalence analysis of spring 2023 STAAR® RLA scores

| Predictor                                 | Unstandardized Beta Coefficient | Standard Error | Test statistic | <i>p</i> -value |
|-------------------------------------------|---------------------------------|----------------|----------------|-----------------|
| Treatment Condition (Hedges' $g = 0.00$ ) | -0.52                           | 6.72           | -0.08          | .937            |
| Economically disadvantaged status         | -49.75                          | 7.57           | -6.57          | <.001           |

What was the difference in spring 2024 STAAR® RLA scores between students who used *ThinkCERCA* and students who did not?

**Table A3. Differences between spring 2024 STAAR® RLA scores by condition ( $n = 1,326$ )**

| Predictor                                                                                         | Estimate | Standard Error | Test statistic | $p$ -value |
|---------------------------------------------------------------------------------------------------|----------|----------------|----------------|------------|
| Students who used <i>ThinkCERCA</i> vs. Non-users (Hedges' $g = 0.03$ ; improvement index = 1.23) | 24.31    | 4.91           | 4.95           | <0.00*     |
| Spring 2023 STAAR® scores                                                                         | 0.99     | 0.02           | 49.45          | <0.00      |
| Economically disadvantaged status                                                                 | -13.12   | 5.61           | -2.34          | 0.02       |

Note: Statistically significant findings ( $p < 0.05$ ) are marked with an asterisk (\*).

## APPENDIX B. GRADE 8: ADDITIONAL INFORMATION ON STUDY DESIGN AND METHODS

This appendix offers further details regarding grade 8 demographic characteristics of the weighted sample, analyses conducted to assess baseline equivalence and linear regression analysis

Table B1. Student demographics by group for weighted sample

| Characteristic                    | ThinkCERCA students |          | Non-users |          |
|-----------------------------------|---------------------|----------|-----------|----------|
|                                   | Percent             | <i>n</i> | Percent   | <i>n</i> |
| Race                              |                     |          |           |          |
| American Indian/Alaska Native     | <1%                 | <10      | <1%       | <10      |
| Asian                             | <1%                 | <10      | <1%       | <10      |
| Black or African American         | 19%                 | 171      | 11%       | 51       |
| Hispanic                          | 78%                 | 720      | 52%       | 238      |
| Native Hawaiian/Pacific Islander  | <1%                 | <10      | <1%       | <10      |
| Two or more races                 | <1%                 | <10      | 4%        | 19       |
| White                             | 2%                  | 21       | 32%       | 144      |
| Economically disadvantaged status |                     |          |           |          |
| Yes                               | 80%                 | 740      | 55%       | 249      |
| No                                | 20%                 | 180      | 45%       | 205      |

Table B2. Baseline equivalence analysis of spring 2023 STAAR® RLA scores

| Predictor                                 | Unstandardized Beta Coefficient | Standard Error | Test statistic | <i>p</i> -value |
|-------------------------------------------|---------------------------------|----------------|----------------|-----------------|
| Treatment Condition (Hedges' $g = 0.03$ ) | -0.81                           | 7.73           | -.010          | .917            |
| Economically disadvantaged status         | -43.00                          | 8.66           | -4.97          | <.001           |

**What was the difference in spring 2024 STAAR® RLA scores between students who used *ThinkCERCA* and students who did not?**

Table B3. Differences between spring 2024 STAAR® reading scores by condition ( $n = 1,372$ )

| Predictor                                                                                                          | Estimate    | Standard Error | Test statistic | $p$ -value   |
|--------------------------------------------------------------------------------------------------------------------|-------------|----------------|----------------|--------------|
| <b>Students who used <i>ThinkCERCA</i> vs. Non-users (Hedges' <math>g = 0.03</math>; improvement index = 1.26)</b> | <b>9.23</b> | <b>4.31</b>    | <b>2.14</b>    | <b>0.03*</b> |
| Spring 2023 STAAR® scores                                                                                          | 0.74        | 0.02           | 49.11          | <0.00        |
| Economically disadvantaged status                                                                                  | -8.70       | 4.87           | -1.79          | 0.07         |

*Note: Statistically significant findings ( $p < 0.05$ ) are marked with an asterisk (\*).*