



ESSA-QUALIFYING EFFICACY RESEARCH

Across student subgroups and all levels of proficiency, Nebraska students experience large gains in math learning with Zearn

2022 Nebraska State Assessment Results

A new, statewide study analyzing the impact of the Nebraska Department of Education's statewide partnership with Zearn Math offers research-backed evidence that Zearn Math accelerates math learning.

For the 2020–21 and 2021–22 academic years, the Nebraska Department of Education offered Zearn Math to all public and non-public schools at no cost with support from Elementary and Secondary School Emergency Relief Funds. As a result, over 9,000 educators in nearly 500 schools flexibly used Zearn Math to accelerate learning across core instruction, tutoring, and summer learning.

Researchers looked at how elementary- and middle-school students across six Nebraska districts performed on the 2022 Nebraska Student-Centered Assessment System (NSCAS) math assessment. The research, which uses quasi-experimental matching techniques to isolate the impact of Zearn Math on student achievement, compares students who consistently completed three or more Zearn lessons each week with similarly matched students who did not consistently use Zearn¹. Unlike a standard correlational analysis, this method allows differences in outcomes to be more confidently attributed to Zearn Math and not to other variables.

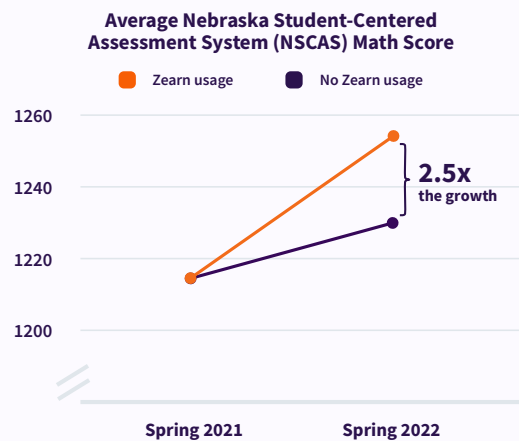
Researchers found that when a student consistently used Zearn Math, they experienced significant growth on state assessment scores. Specifically, researchers found:

- Elementary- and middle-school students who consistently used Zearn Math had **2.5 times the growth in their state math assessment scores** than students who did not use Zearn.
- Consistent Zearn usage resulted in **double-digit increase in proficiency for Black and Latino students, students eligible for free/reduced lunch (FRL), and English learners, compared to declines** in proficiency for matched students who did not use Zearn².
- **Across all starting NSCAS proficiency levels**, students with consistent Zearn Math usage were more likely to improve their proficiency level.
- Students at the **lowest level of math proficiency were two times more likely to improve** their NSCAS proficiency level when they consistently used Zearn Math compared to students who did not use Zearn.

While many factors influence student achievement, one factor is clear: consistent Zearn usage is strongly associated with statewide achievement gains—for students across subgroups and starting proficiency levels. As the nation works collectively to help all students catch up and move forward in math learning, this statewide research study, which meets ESSA Level 2 (Moderate) criteria, provides evidence that Zearn helps accelerate student learning at scale.

FIGURE 1

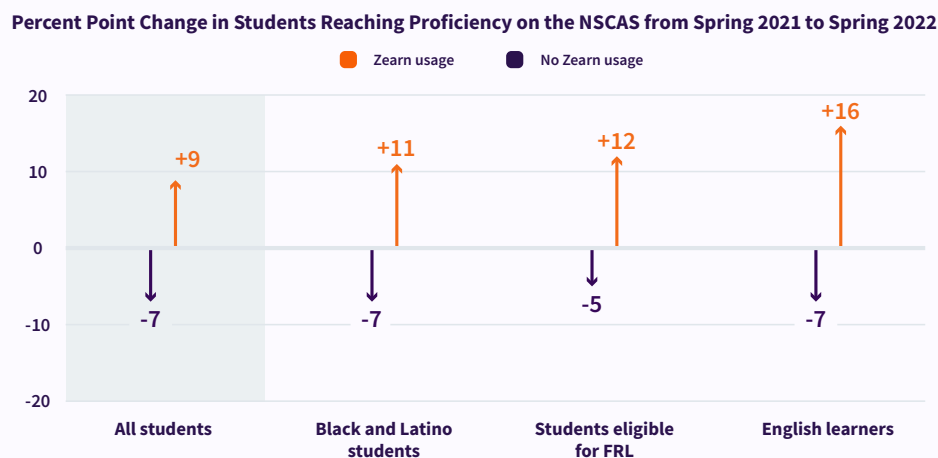
Students who consistently used Zearn had 2.5 times the growth on the 2022 state assessment than students who did not use Zearn.



Based on data from 2022 state assessment scores, Nebraska elementary- and middle-school students who consistently used Zearn during the 2021–2022 school year experienced large gains in their math learning. These students had 2.5 times the growth in their state math assessment scores than students who did not use Zearn.

FIGURE 2

Consistent Zearn usage resulted in double-digit increase in proficiency for each student subgroup, while similarly matched students experienced declines.

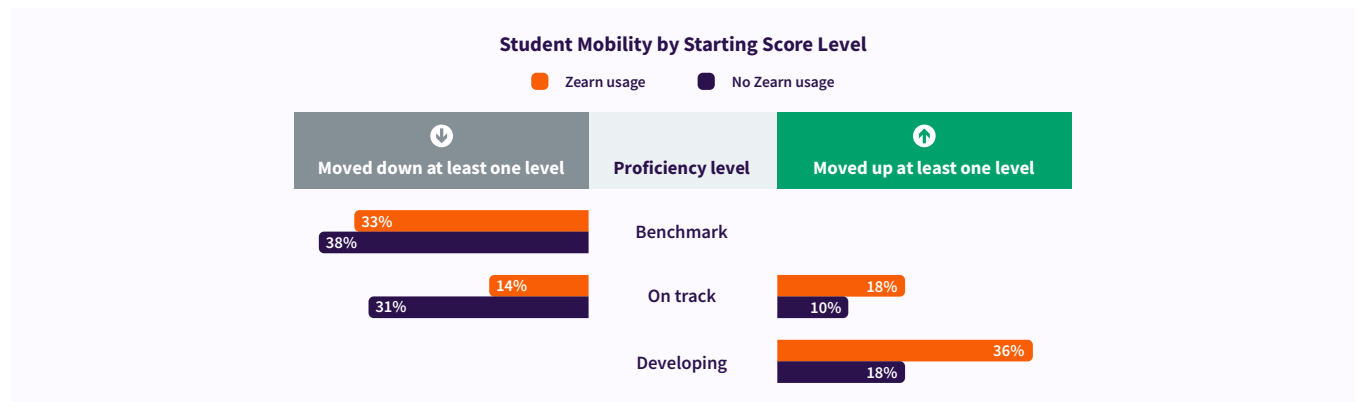


Nebraska districts also saw a significant increase in the percentage of students meeting proficiency on the state assessment: a nine percent increase in the number of Nebraska students meeting proficiency. By contrast, among students who did not use Zearn, there was a seven percent decrease in students reaching proficiency.

This increase in students meeting proficiency was even greater for students in historically marginalized subgroups. Across Nebraska, there was a double-digit increase in the number of Black or Latino students, English learners, and students eligible for FRL meeting proficiency. Consistent Zearn usage over the 2021–2022 school year was particularly effective for English learners—these students experienced a sixteen percent point increase in students reaching proficiency on the 2022 state assessment.

FIGURE 3

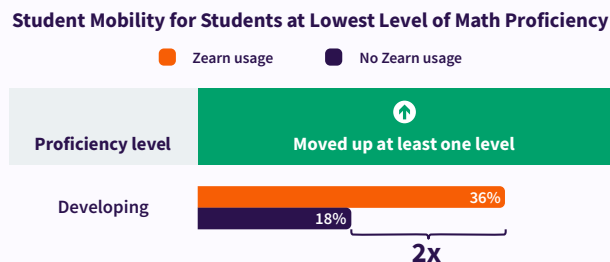
Across all starting NSCAS proficiency levels, students with consistent Zearn usage were more likely to improve their proficiency level.



The gains in math learning from consistent Zearn usage held true for students at every starting level of NSCAS proficiency. Across all three starting proficiency levels, students with consistent Zearn usage were not only more likely than their similarly matched peers to move up a level on the state assessment, but also less likely to move down. Specifically, thirty-one percent of students who started at “On track” in 2021 and did not use Zearn during the school year moved down a level on the spring 2022 state assessment, compared to only fourteen percent of students who had consistent Zearn usage.

FIGURE 4

Students at the lowest level of math achievement who used Zearn were two times more likely to improve their proficiency level compared to students who did not use Zearn.



Zooming in to students who started the school year below proficiency, students who scored at the lowest level of math achievement in 2021 who consistently used Zearn during the 2021–2022 school year were two times more likely to score at a higher proficiency level in spring 2022 compared to their similarly matched peers who did not use Zearn. Specifically, thirty six percent of students who scored at the Developing level on the spring 2021 state assessment moved up to meet proficiency (“On track” or “Benchmark”) in spring 2022, compared to only eighteen percent of students at the same starting level who did not use Zearn.

Across student subgroups and all levels of proficiency, Nebraska students in six districts experienced outsized gains in math learning with consistent Zearn usage. As we strive to help students across the nation catch up and move forward in math learning, the scale and rigorous quasi-experimental design of this study provide promising evidence that Zearn Math can support statewide math learning acceleration.

Endnotes

¹ This efficacy analysis used a two-step Coarsened Exact Matching (CEM) method with optimal matching to create a control group that was as similar as possible to the treatment group of consistent Zearn users. The treatment group was composed of students who completed three or more Zearn digital lessons each week during the 2021-22 school year. The control group was selected from other students in the district who completed an average of less than one digital lesson per week. Using CEM, treatment students were put into matching strata with control students that were in the same grade and within five scale score points on math and ten points on ELA on the NSCAS Spring 2021 assessment. Then, within strata, treatment students were matched to control students with whom they shared at least 4 of 7 other student characteristics: district, gender, race, ethnicity, special education status, English-learner status, and free/reduced lunch eligibility. This analysis looked across 850+ students in 100 schools across 6 Nebraska districts.

² Zearn uses only de-identified data to identify insights and improve students' learning experiences. For more information on how we protect student privacy, visit about.zearn.org/privacy.

Technical Appendix

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Zearn is the 501(c)(3) nonprofit educational organization behind Zearn Math, the top-rated math learning platform used by 1 in 4 elementary-school and 1 million middle-school students nationwide. Everything we do is driven by the belief that every kid is a math kid. Learn more at about.zearn.org.