INSIGHTS BRIEF

Impact of Zearn Math Curricular Materials on Student Outcomes

BY SHALINEE SHARMA & SHIRIN HASHIM | JANUARY 2018

We believe all children can love learning math. This simple vision is Zearn's North Star, and our motivation to relentlessly improve Zearn Math through data analytics and field research. An analysis of state test results for 8,000 students that completed an average of at least three lessons per week on Zearn Math K–5 in the 2016–17 academic year is found below.

Zearn Math is a top-rated K–5 curriculum, classroom model, and suite of implementation tools designed to create daily differentiation and engagement for all students.

To transform students' understanding of math, and their attitudes toward it, we created Zearn Math—a top-rated K–5 curriculum, a classroom model, and administrative implementation tools—to create daily differentiation and engagement for all students. Zearn Math is designed so that each day, students work through engaging digital content at their own pace and learn targeted lessons with their teacher and peers.

Zearn Math is built on the Universal Design for Learning (UDL) framework, a set of research-based guidelines for developing flexible learning environments that accommodate individual learning differences. Zearn Math aligns with UDL principles by providing students with multiple ways of acquiring knowledge, showing understanding, and engaging in learning. Students learn by demonstrating their math thinking with concrete and virtual manipulatives, explaining their reasoning aloud and on paper, and receiving personalized support throughout their learning.

Zearn Math has received a **full "green-light" rating on Focus & Coherence, Rigor & Mathematical Practice, and Usability by EdReports**, the *Consumer Reports* of curricula. Zearn Math is also rated a **Tier 1 curricular resource by the Louisiana Department of Education**. Zearn Math curricular materials include Independent Digital Lessons, Small Group Lessons, Whole Group Materials, and Assessments. To support districts and schools with implementation, Zearn offers School Accounts,

Professional Development, and Printed Materials. For an in-depth overview of Zearn Math, please **read Zearn Math Teaching & Learning Approach**.

To measure Zearn Math results, we analyzed high-stakes test scores across states and measured how schools and grades using Zearn Math performed relative to their state.

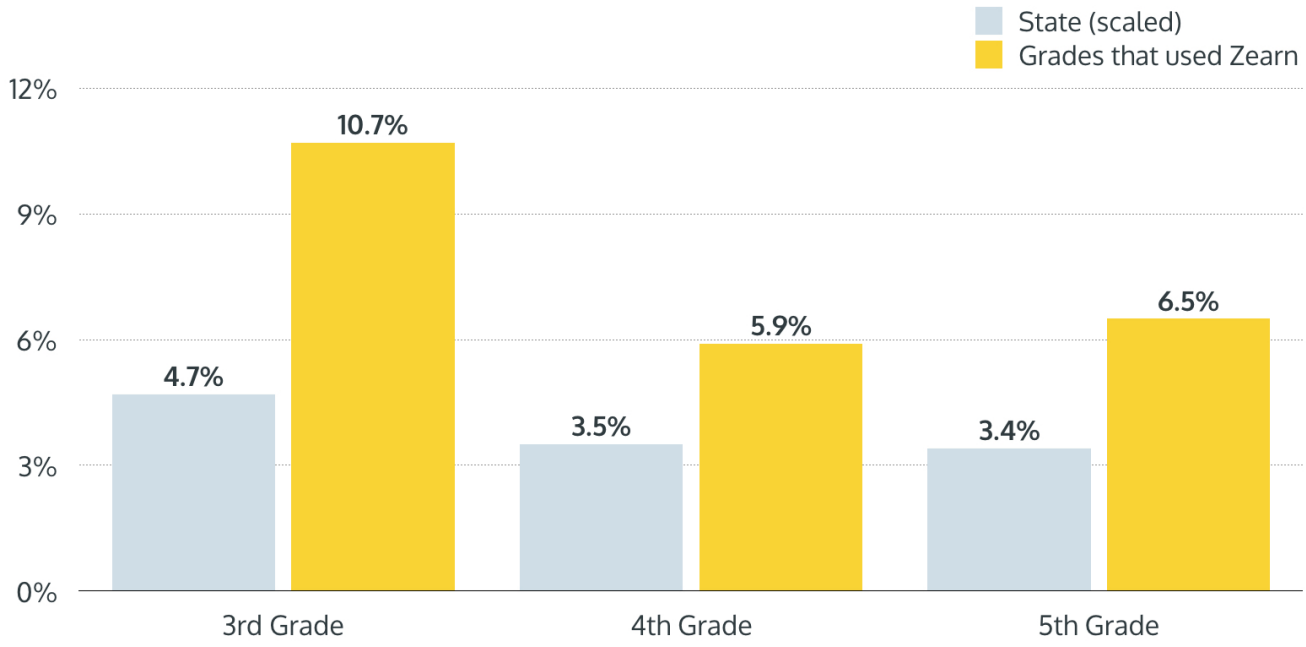
With our North Star in mind, that *all children can love learning math*, we examined the state test results of students who used Zearn Math. Each state administers a high-stakes test in the spring for students in 3rd grade and up and publishes results publicly. The tests are different state by state, and in general, tests were revised during the 2014–16 academic years to respond to new standards.

States do not administer the same high-stakes assessments. The tests are based on different state standards, have different questions, and utilize different benchmarks for proficiency. Therefore, results cannot be directly compared. For example, in 2014–15, 4th graders in Illinois outperformed California on the National Assessment of Educational Progress (NAEP), the only nationally represented assessment, taken by a sample of 4th and 8th graders. In Illinois, 37% of 4th grade students were proficient versus 29% in California. However, if we look at the states' high-stakes testing, 28% of Illinois 4th grade students were proficient versus 35% in California. It appears that California performed better than Illinois, but these are not comparable results. California administers the Smarter Balance Assessment Consortium (SBAC) and Illinois administers the Partnership for Assessment of Readiness for College and Careers (PARCC) assessment as their high-stakes tests. In order to look at results accurately across states, we look at how schools and grades performed relative to their state.

While analyzing our results, we considered the change in the percentage of students demonstrating proficiency or higher from 2016 to 2017 in a particular school and grade that used Zearn Math, and compare that to the corresponding change in the results of that grade statewide to understand relative growth in achievement. For example, in 2016, 35% of 4th graders at School A, a school in North Carolina that used Zearn Math, were proficient or higher on the state's high-stakes test, the End-of-Grade Test. In 2017, 73% of 4th graders at School A reached proficiency, an increase of 38 percentage points. Across the state, 57% of 4th graders in North Carolina were proficient or higher in 2016, and just under 59% in 2017, an increase of only about one percentage point. To quantify the fact that not only did the 4th grade proficiency rate at School A beat the state's in 2017, but also that the increase in the proficiency rate from 2016 to 2017 was substantially higher (38 percentage points versus 1), we take the difference between the 2016 to 2017 changes in the school and in the state, or the difference between 38 and just over 1, which is just over 36. By employing this difference-in- differences technique, we can compare the relative growth in achievement from 2016 to 2017 in the grades that used Zearn Math while accounting for the differences in tests and standards across their states.

From 2015 to 2017, the average two-year change in the percentage of students proficient or higher in 3rd–5th grades that used Zearn Math for an average of 3+ lessons per week was greater than the average change seen across states.

2014-15 to 2016-17 change in the average percentage of students meeting proficiency compared to the state averages in grades that averaged 3+ Digital Lessons per week



We examined the results for 8,000 3rd–5th grade students who completed at least three Zearn Math lessons per week on average over the 2016–17 school year. These 8,000 students spanned 89 schools in 21 states. We found that the difference in the average two-year change in the percentage of students who reached proficiency or higher was greater between the grades that used Zearn Math than their corresponding states' two-year change. For example, among the 3rd grades that averaged over three lessons per week, the change in the percentage of students who reached proficiency or higher between 2015 and 2017 was 10.7%. The average two-year change for the 3rd grades across the 21 states represented was 4.7%.

As we continue toward our North Star—*all children can love learning math*—we are committed to relentlessly improving Zearn Math through data analytics and field research. We look forward to sharing future Zearn Insights Briefs as part of this work.

ABOUT THE AUTHORS
Shalinee Sharma is the CEO and co-Founder of Zearn. Shirin Hashim is Zearn's Data & Analytics Manager. Learn more at **www.zearn.org**.