



# How IXL Math Impacts Learning

## An Examination of the Efficacy of IXL Math Based on Two Independent Studies

### Introduction

More than five million students around the world count on IXL Math for math practice and instruction—including 1 in every 10 students in U.S. schools. IXL has been implemented as a formal part of the curriculum in more than 200,000 classrooms nationwide. What keeps these students and teachers coming back? Evidence shows that the program produces results.

Independent research studies, IXL's internal research, and thousands of anecdotal stories from teachers, parents, and students have generated a body of evidence that demonstrates that IXL Math positively impacts math achievement for students across all grade levels and in a broad range of instructional models. In this paper, we examine two independent studies in detail:

- an RTI model in a rural Kentucky high school; and
- a before-school math lab in a California elementary school

The results? Students in these two models demonstrated higher performance on objective tests of math achievement compared to peers not using the program. These studies validate what IXL's internal research shows and what thousands of teachers already know: IXL Math really works.

### IXL Math in the Classroom

IXL Math is the web's most comprehensive online mathematics platform, offering more than 3,500 skills from pre-K to calculus. Every math topic is broken down into manageable MicroSkills, and an adaptive engine delivers questions at the right level of rigor for each learner. With this personalized approach, students can confidently build foundational fluency as they progress toward mastery of more complex concepts. Math problems at every level have been thoughtfully crafted by IXL's team of PhDs, educators and technologists, and the result is a litany of questions that are vibrant, interactive, and draw out students' intrinsic curiosity and desire to learn.

In the classroom, IXL Math provides teachers with the ultimate solution for differentiating instruction and driving individual achievement. IXL Analytics offers unprecedented insight into student performance, in a format that is not only intuitive, but fun to use. Teachers can easily pinpoint items to target for improvement, track activity in real time, and identify strategies for meeting state standards goals.

## From “Needs Improvement” to “Distinguished” in a Kentucky High School

*Educators employ IXL in their RTI strategy, resulting in a dramatic climb from the bottom 5% of school rankings to the 97th percentile.*

Stobaugh, Chandler, and White (2015) conducted a case study at a high school in a rural Kentucky community where IXL Math was implemented as one part of a comprehensive school turnaround program. The school had been designated as “Needs Improvement” based on low test scores in math, science, and writing compared to state averages; in 2011, the school was ranked in the bottom 5% of schools statewide and selected for intense, targeted intervention.

The two-year turnaround program included a number of systemic changes, including a complete overhaul of the school’s Response to Intervention (RTI) program. IXL Math was the only program provided for additional math support. All students in the school had access to IXL Math for individualized practice and instruction. Students identified for Tier 2 and Tier 3 interventions received additional math support using IXL during designated class periods four times per week. For Tier 2 interventions, this included all students who scored 25% or below on a standardized math assessment, STAR K12 Enterprise. Students not making sufficient progress after nine weeks of Tier 2 intervention were considered for referral to more intensive Tier 3 intervention, which included additional practice on IXL as well as one-on-one monitoring time with their caseload teacher. Special Education students received additional time to work on the program in their SPED classrooms.

As a result of their changes, the school made a dramatic two-year turnaround, rocketing from the bottom 5% of state rankings to the 97th percentile. By the second transformation year (2012-2013), 30% of the high school Individualized Education Plan (IEP) students passed the state end-of-course assessment for Algebra I, compared to 15% statewide. In 2014, the school was designated a “School of Distinction” by the state commissioner of education, becoming a state hub school that serves as an example for school improvement for the rest of the state.

The study authors point to the use of a committed RTI approach and differentiated instructional support for students as key factors in the turnaround. In this model, IXL Math provided this differentiated support in math for RTI and Special Education students. The study concluded that the interventions, which included the use of IXL Math, helped the high school show “widespread improvement at the school level and in individual student gains.”

## Improving Outcomes in a 4th Grade Before-School Math Lab

***Over the course of two years using IXL in the math lab, students show a 23-point increase on the math portion of the California Standardized Test.***

In a recent study (Donawerth, 2015), 4th graders using IXL Math in a before-school math lab demonstrated significant gains on the math portion of the California Standardized Test (CST). The math lab was implemented at San Joaquin Elementary School in California as part of a school turnaround program paid for with Title I funds. The program, which ran from January through April in both 2011 and 2012, was targeted to 4th grade students who had not yet successfully passed the district’s math benchmark test for multiplication. Students were allowed to work independently on IXL Math for up to 30 minutes prior to the start of school each day, with a focus on multiplication facts. Students continued to work on IXL until they were able to achieve a 90% or higher score on the district benchmark test for multiplication.

Donawerth examined the impact of the program by analyzing test results of student cohorts for the two years before the implementation of the lab, the two years during which the lab was in place, and one year after the lab was discontinued. The researcher analyzed three different conditions among the cohorts: students who had access to a Title I teacher without the math lab (2010 cohort), students who had access to the math lab without a Title I teacher (2011 and 2012 cohorts), and students who had access to neither (2009 and 2013 cohorts). In 2011, the year the math lab was put in place, there was a 10-point increase on the math portion of the CST compared to 2010 scores. In 2012, CST results went up another 13 points, for a total increase of 23 points compared to pre-math lab results. In 2013, when the math lab was discontinued, the school saw a 24-point drop on 4th grade CST scores in math.

These results demonstrate a dramatic and statistically significant positive change correlated to the use of IXL Math in the before-school math lab. The researcher concluded, “this data showed the clearest evidence that students scored significantly higher when the lab was available to them.” As IXL Math was the only intervention provided during the math lab, the study provides strong evidence that IXL Math has a positive impact on standardized test scores, even when used for a limited time.

## Conclusions

Since 2007, millions of students have found improved confidence and success with IXL Math. These studies validate their experiences with empirical data that demonstrates that IXL Math has significant and measurable positive impacts on academic achievement.

The studies examined here span elementary to high school and represent very different utilization models for IXL. Of particular interest is how much impact even small doses of IXL Math had; in the before-school model, significant results were demonstrated with use of the program for just a few months out of the school year. The RTI model at the high school level shows how powerful IXL can be as part of a systematic whole-school reform initiative.

Thousands of other schools have their own IXL success stories, using many other instructional models. IXL will continue to gather independent research and case studies in order to document the positive impact the program has for the millions of students who utilize the program.

## Works Cited

Donawerth, A. N. (2013). *Bridging the Gap: Fourth Grade Before-School Computer Math Lab and Its Impact on California Standardized Test Scores*. Unpublished Dissertation at Biola University, 2013. Retrieved from [http://media.proquest.com/media/pq/classic/doc/3698849211/fmt/ai/rep/SPDF?\\_s=kNeGdziXKmk12YORLWlgw7DL%2Be4%3D](http://media.proquest.com/media/pq/classic/doc/3698849211/fmt/ai/rep/SPDF?_s=kNeGdziXKmk12YORLWlgw7DL%2Be4%3D)

Stobaugh, R., Chandler, W. G., & White, C. (2015). High School Turnaround: A Case Study. In P. Epler (Ed.), *Examining Response to Intervention (RTI) Models in Secondary Education* (pp. 223-249). Pennsylvania: IGI Global.