



National Quantile Analysis

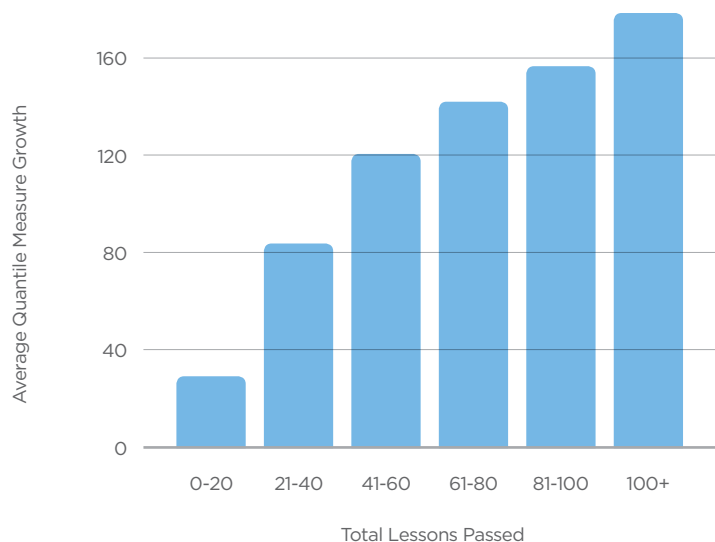
English Learners

Imagine Math is a digital learning tool designed to improve mathematics proficiency. The program is utilized in several school districts throughout the nation. Data for English learner (EL) students who used the Imagine Math program during the 2017–2018 school year was analyzed to determine the efficacy of the program. In total, data was analyzed for approximately 3,000 students who had beginning-of-year and end-of-year benchmark assessment scores.

Imagine Math administers three benchmark assessments throughout the school year to measure growth and provide educators with a snapshot of each student’s achievement level. The Imagine Math benchmark assessments are reported using The Quantile Framework® for Mathematics. As such, Quantile® measures were used to gauge student achievement and growth.

Figure 1 depicts the average Quantile® measure growth of Imagine Math students disaggregated by the number of lessons that students passed while using the program. The figure demonstrates that greater growth in Quantile® measures was observed for students who passed more Imagine Math lessons.

Figure 1. Average Quantile® Measure Growth by Average Imagine Math Lessons Passed



140Q

OVERALL AVERAGE NATIONAL
QUANTILE® GROWTH FOR ELs

Figure 2 demonstrates the effect of ELs using Imagine Math on Quantile® score growth disaggregated by grade and by program usage. On average, growth was observed for all grade levels. However, students who used the program with fidelity were more likely to enjoy significantly greater Quantile® score growth. Importantly, EL students in grades 4–6 who used the program with fidelity exceeded the levels of growth typically expected of non-ELs in a school year.

Figure 2. Average Quantile® Measure Growth by Grade and Imagine Math Usage Level

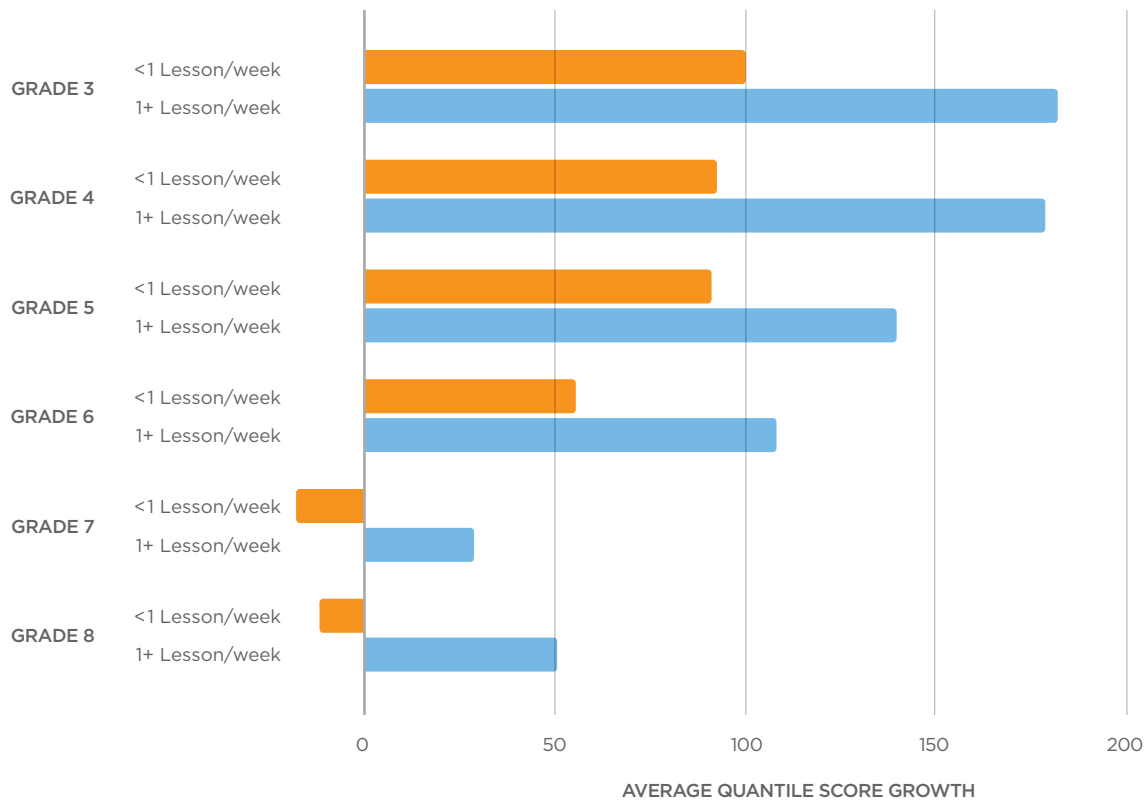


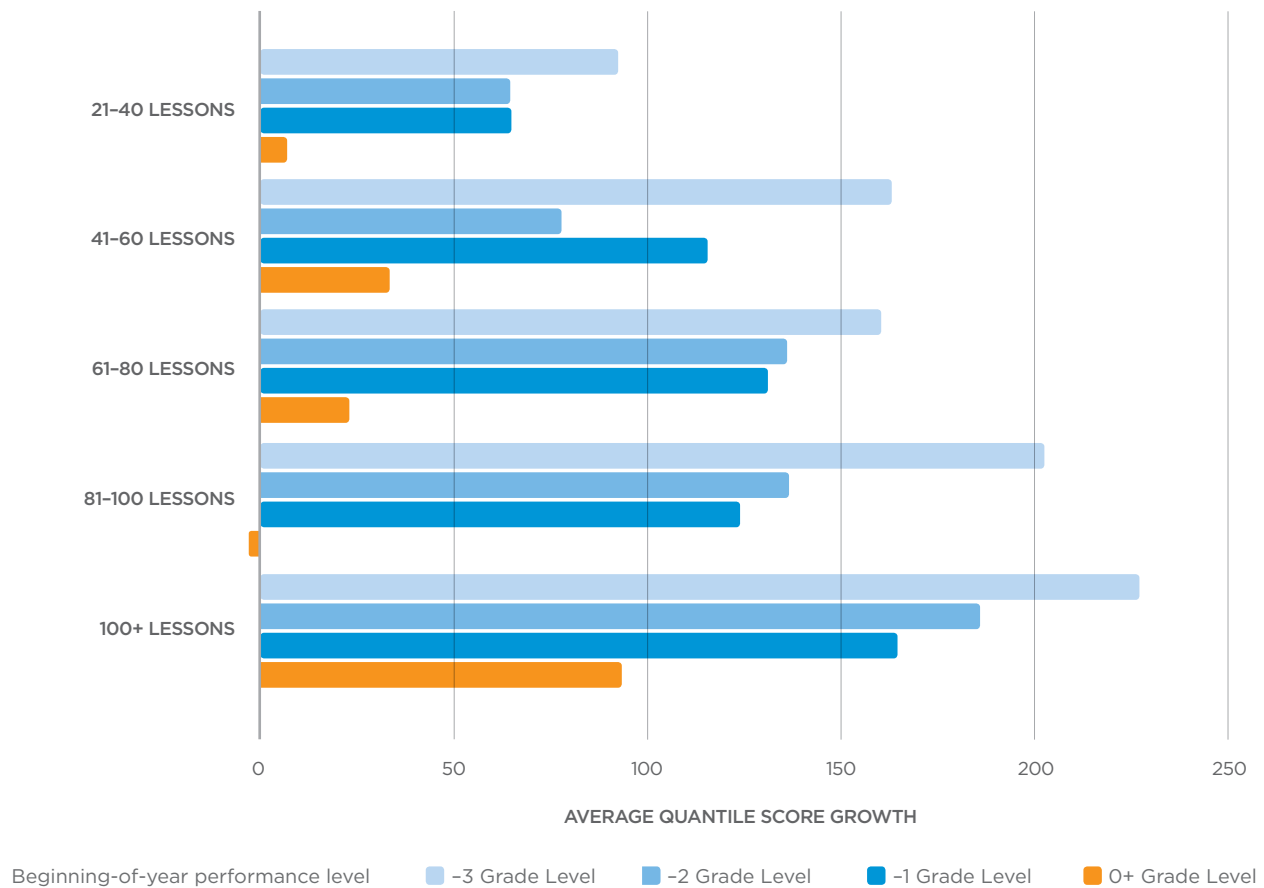
Table 1. Average expected and observed Quantile® Score Growth by grade for EL students who completed 1+ lessons/week

Grade	N	MetaMetrics Expected Growth per Year	Imagine Math Observed Growth per Year	MetaMetrics Expected Growth per week (36 weeks)	Imagine Math Observed Growth per week (36 weeks)
4th	790	98Q	179Q	2.7Q	5.0Q
5th	286	92Q	140Q	2.6Q	3.9Q
6th	206	86Q	108Q	2.4Q	3.0Q
7th	124	80Q	28Q	2.2Q	0.8Q
8th	117	74Q	51Q	2.1Q	1.4Q

Expected growth values retrieved from: Williamson (2016). Novel Interpretations of Academic Growth. Journal of Applied Educational and Policy Research 2(2), 15-35

Figure 3 demonstrates the effect of using Imagine Math on Quantile® score growth disaggregated by grade level placement as determined by beginning-of-year benchmark assessment performance. While the most substantial gains were realized for students who tested at three levels below grade level, positive gains were ultimately achieved for all users of the Imagine Math program.

Figure 3. Average Quantile® Measure Growth by beginning-of-year grade level placement and Imagine Math usage level



In conclusion, regular use of the Imagine Math program appears to be associated with substantial increases in math proficiency for ELs as measured by increases in Quantile® measures between Imagine Math benchmark administrations. Increased use of the program was associated with respective increases in Quantile® measure growth. Further, the benefits of the Imagine Math program appear to be particularly relevant for EL students who are performing below grade level at the beginning of the school year.