

RESEARCH BRIEF

DreamBox Math Drives Higher Achievement for K-8 Students in Large Arizona District

Data shows that DreamBox Math has a positive impact on end-of-year assessments across grades, races, and ELL status

Study Background

A number of students, particularly those entering algebra courses, do not have sufficient math proficiency to succeed in middle school and beyond. DreamBox Math aims to solve this problem and ensure all students are prepared for high school math, as well as STEM college and career standards.

To show the efficacy of DreamBox Math, Discovery Education partnered with LearnPlatform, a third-party research company, in 2023 to study the impact of DreamBox Math on student outcomes in a large urban school district in Arizona.

LearnPlatform designed the study to satisfy Level II requirements (Moderate Evidence) according to the Every Student Succeeds Act (ESSA).

Researchers Asked:

- How were different DreamBox Math usage patterns related to K-8 students' spring 2022 math achievement and which pattern had the greatest impact?
- What was the overall impact of DreamBox Math on K-8 students' spring 2022 math achievement and how did it vary by grade, race, ELL status, and IEP status?
- How did end-of-year math outcomes for G7-8 students who used DreamBox Math compare to outcomes for students who did not use the program at all?

Key Findings

K-8 students with greater DreamBox Math usage had higher spring math assessment scores than students with less usage.

G7-8 students who used DreamBox Math had higher spring math assessment scores than students who did not use it at all.

Students in certain subgroups, such as ELL, with greater DreamBox Math usage had higher spring math assessment scores than peers in the same subgroups.

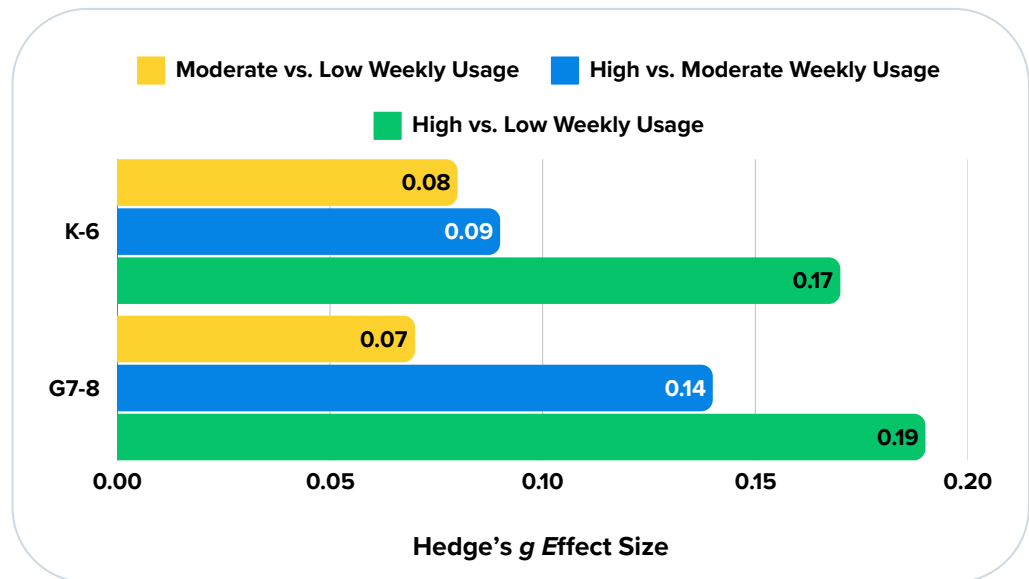
The differences in these key findings are statistically significant and show that DreamBox Math can be an effective supplement for accelerating learning.

Key Findings

Students in grades K-8 who completed more DreamBox Math lessons per week had higher achievement on their end-of-year math assessments compared to students who completed fewer weekly lessons.

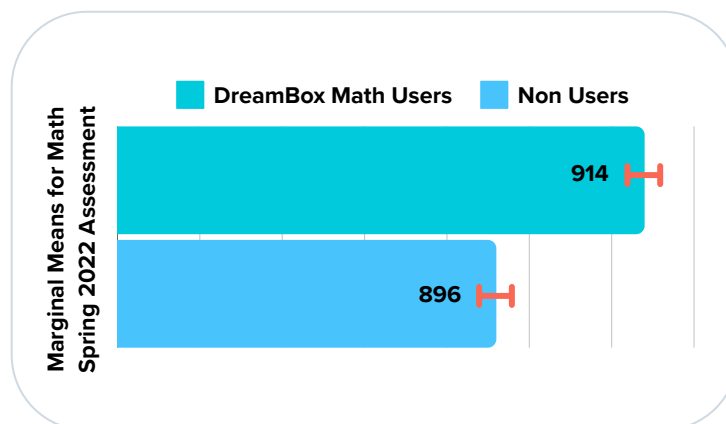
- **K-6 students who completed more than 5.5 weekly DreamBox Math lessons** had statistically significantly higher math achievement compared to students who completed fewer weekly lessons.
- **Students in grades 7-8 who completed more than 4.2 weekly DreamBox Math lessons** had statistically significantly higher math achievement compared to students who completed fewer weekly lessons.

Relationship between Average Weekly Lessons and Student Math Outcomes on EOY Math Assessment (in terms of Hedge's g effect sizes)



Note: Each bar represents a statistically significant difference between groups.

Students in grades 7-8 who had low, moderate, and high usage of DreamBox Math achieved higher scores on their spring math assessments than students who did not use the program at all.



Note: The orange lines on each bar represent a 95% confidence interval.

Key Findings (cont.)

Students in certain subgroups who completed more DreamBox Math weekly lessons achieved higher spring math assessment scores than peers in the same subgroups who completed fewer weekly lessons. These differences were statistically significant.



- Students in grades 1-5, and 7
- Black and Hispanic students in grades 1-5
- Students with ELL status in grades 1-5, and 7
- Students with IEP status in grades 1-5

Research Sample Data

- School Year 2021-2022
- 13,589 K-8 Students in 30 Schools in Large Arizona School District
 - 2% Asian
 - 3% Black
 - 13% Hispanic
 - 81% White
 - 1% Other
 - 15% IEP status
 - 6% ELL status

Measures

- Houghton Mifflin Harcourt's (HMH) Math Inventory™ Quantile® scores for Fall 2021 and Spring 2022, grades K-8
- K-6 DreamBox Math Usage Groups:
 - Low Usage = < 2.4 weekly lessons
 - Moderate Usage = > 2.4 and < 5.5 weekly lessons
 - High Usage = > 5.5 weekly lessons
- G7-8 DreamBox Math Usage Groups:
 - Low Usage = < 1.5 weekly lessons
 - Moderate Usage = > 1.5 and < 4.2 weekly lessons
 - High Usage = > 4.2 weekly lessons

Usage Patterns

K-6 students completed an average of 2.7 DreamBox Math lessons per week, while G7-8 students completed an average of 1.3 DreamBox lessons per week. Based on these averages, researchers could group students by similar levels of DreamBox Math usage to conduct the study.

Distribution of Average Weekly DreamBox Math Lessons:

- | | |
|--------------------------|------------------------|
| • # of K-6 Students | • # of G7-8 Students |
| ◦ Low Usage = 5,063 | ◦ Low Usage = 1,729 |
| ◦ Moderate Usage = 3,398 | ◦ Moderate Usage = 567 |
| ◦ High Usage = 1,094 | ◦ High Usage = 154 |