**DISCOVERY EDUCATION**™

# Research Finds DreamBox Math **Accelerates Learning** for All K-6 Students in William Penn School District

**Results suggest that DreamBox Math is**

# 4x

more effective than the average elementary school math intervention.

> DreamBox provides invaluable strategies for addressing our greatest academic needs, showing educators where best to intervene, and helping each student reach their full potential.

**"**

**Edward Dunn**
Curriculum Supervisor of Mathematics,
William Penn School District, PA

## Study Background

In 2022, DreamBox Learning partnered with LearnPlatform, a third-party edtech research company, to explore the extent to which DreamBox Math helps accelerate learning for all students at William Penn School District in Pennsylvania.

This study examines the relationship between usage of DreamBox Math and student math outcomes. LearnPlatform designed the study to satisfy Level III requirements (Promising Evidence) according to the Every Student Succeeds Act (ESSA).

## Methodology and Design

- Regressions and partial correlations to examine how DreamBox Math use related to student math outcomes

- Student-level covariates to control for potential selection bias

- Standardized effect sizes (Hedge's g) to determine the magnitude of changes in student outcomes

## Who Was Included in the Study?

This study included 1,851 K-6 students across eight elementary schools in William Penn School District.

### Researchers Asked:

1. How were different DreamBox Math usage patterns related to grade K-6 students' spring 2022 math achievement?

2. Which usage pattern(s) of DreamBox Math had the greatest impact on grade K-6 students' spring 2022 math achievement?

3. What was the overall impact of DreamBox Math on grade K-6 students' spring 2022 math achievement?

4. How did the impact of DreamBox Math vary by student grade and racial identity?

5. What was the impact for students who had free or reduced-price lunch (FRL) status?

## Student Data At-a-Glance

**WPSD Sample Data**

- 1,851 K-6 students

- 8 Schools

**Sample Demographics**

- 88% African American students

- 5% White students

- 3% Hispanic students

- 1.8% Asian students

- 1.5% Native American and Alaskan students

- 15.8% Students with IEPs

- 98.9% Students qualify for FRL

- 4.2% English language learners

## What Data Were Evaluated?

Researchers investigated differential rates of learning acceleration for K-6 students who had access to DreamBox Math during the 2021-22 academic year and completed the Savvas MSDA math test in fall of 2021 and spring of 2022. Analysts used 2021-22 student-level DreamBox Math usage (i.e., average weekly lessons and weekly minutes). This usage data informed the extent to which students used the program during the school year and whether students' use of DreamBox Math related to math learning outcomes on Savvas™ MSDA (the district's end-of-year assessment).



### Study Inclusion Requirements

**Students in grades K-6 who completed both:**

- ☑ Fall 2021 Savvas MSDA math pretest
- ☑ Spring 2022 Savvas MSDA math post test

### DreamBox Math Usage Groups

- ☑ Low usage = 0 to 3.4 weekly lessons
- ☑ Moderate usage = 3.5 to 6.7 weekly lessons
- ☑ High usage = More than 6.8 weekly lessons

### DreamBox Math Implementation

**4.2**
Average number of weekly lessons completed

**59%**
of students completed 3.5+ weekly lessons
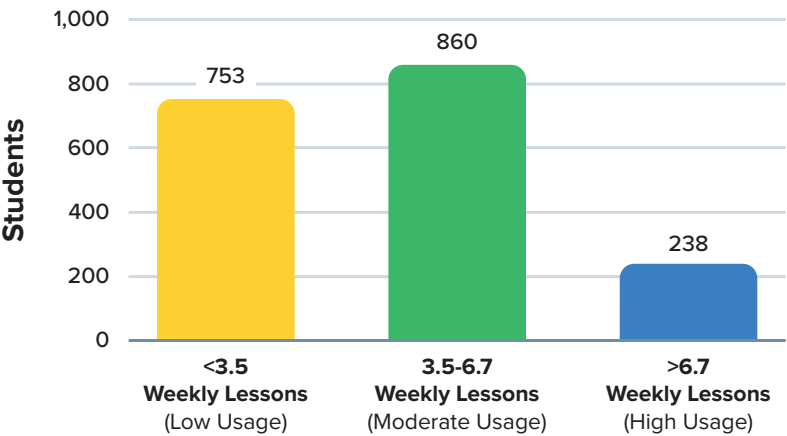
**33%**
of students completed the recommended 5 weekly lessons

## How Much Time Did Students Use Dreambox Math Each Week?

DreamBox Learning recommends students complete five lessons per week (about one hour). Overall, students at William Penn School District demonstrated strong usage.

During the 2021-22 school year, students at WPSD completed an average of 4.2 DreamBox Math lessons per week and spent an average of 70 minutes in DreamBox Math per week.

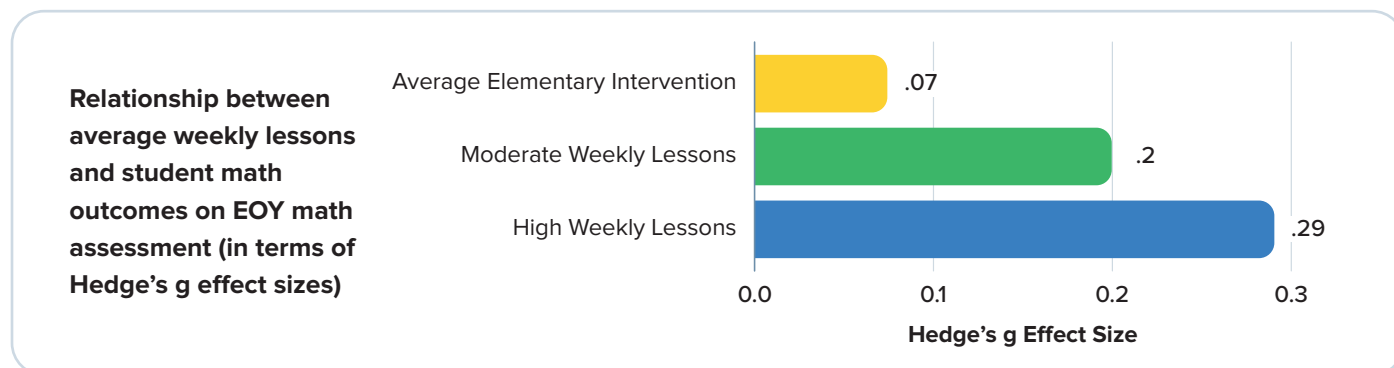### Overall Distribution of DreamBox Math User Groups



Bar chart showing number of Students by usage group:
- <3.5 Weekly Lessons (Low Usage): 753
- 3.5-6.7 Weekly Lessons (Moderate Usage): 860
- >6.7 Weekly Lessons (High Usage): 238

# What Were Some Key Takeaways from the Study?

## Overall, students who completed more lessons and spent more time in DreamBox Math had higher math achievement at the end of the study.

- Students who completed **at least 3.5 lessons (55 minutes)** in DreamBox Math had higher end-of-year math achievement scores.
- This study controlled for students' beginning-of-year math achievement and demographics.

## DreamBox Math was equally impactful for students regardless of grade, race, and FRL status.

- **Across all grades**, students who completed more DreamBox Math weekly lessons had higher spring Savvas MSDA achievement scores.
- **Black (African American)** and completed more weekly lessons had higher end-of-year math achievement than those students who used the program less.
- **Among students who had FRL status, there was a positive, statistically significant relationship** that suggests students who completed more weekly lessons had higher end-of-year math achievement than those who didn't use the program.

**Relationship between average weekly lessons and student math outcomes on EOY math assessment (in terms of Hedge's g effect sizes)**



Bar chart — Hedge's g Effect Size:
- Average Elementary Intervention: .07
- Moderate Weekly Lessons: .2
- High Weekly Lessons: .29

## Education Intervention Impact

LearnPlatform researchers calculated standardized effect sizes (Hedge's g) to determine the magnitude of changes in student outcomes. The effect size for students who used DreamBox Math more than 6.8 lessons per week was 0.29. This result suggests that **DreamBox Math is 4Xs more effective than the average elementary school math intervention.***

* Lipsey, M. W., Puzio, K., Yun, C., Hebert, M. A., Steinka-Fry, K., Cole, M. W., Roberts, M., Anthony, K. S., & Busick, M. D. (2012). Translating the statistical representation of the effects of education interventions into more readily interpretable forms (NCSER 2013-3000). Washington, DC: National Center for Special Education Research, Institute of Educational Sciences, US Department of Education.

## Learn More
### DiscoveryEducation.com/DreamBox-Math-William-Penn