

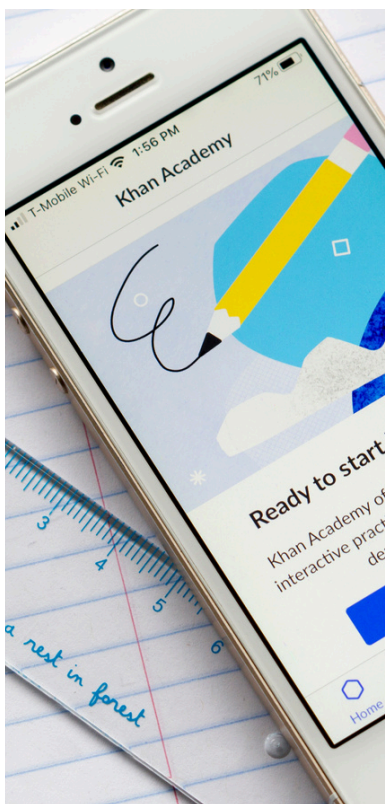
# Teaching Teachers to Use Computer Assisted Learning Effectively: Experimental and Quasi-Experimental Evidence

## AUTHORS

Philip Oreopoulos\*  
Chloe Gibbs\*\*  
Michael Jensen\*\*  
Joseph Price\*\*\*

## AFFILIATION

\*University of Toronto  
\*\*University of Notre Dame  
\*\*\*Brigham Young University



# PERSONALIZED LEARNING SCALED: WEEKLY TEACHER COACHING WITH COMPUTER ASSISTED LEARNING DRIVES MATH IMPROVEMENTS COMPARABLE TO INTENSIVE TUTORING

NBER WORKING PAPER April 2024



## Summary

Computer Assisted Learning (CAL) has the potential to help scale personalized learning. This study examines the Khoaching with Khan Academy (KWiK) program, a weekly coaching CAL tool aimed at elementary and middle school mathematics teachers to help students follow a customized roadmap of incremental progress. Results reveal that classrooms, where teachers facilitated at least 25 minutes of CAL practice per week, saw math performance gains of 0.12 to 0.22 standard deviations, comparable to high-dosage tutoring programs.

## Objective

Evaluate the effectiveness of a structured coaching program for teachers to enhance their use of CAL in improving student learning outcomes.

## Methodology

Experimental and quasi-experimental designs across two school districts: 1) An experimental design in the Metro Nashville Public Schools, where students were randomly assigned to work on specific math topics using Khan Academy; 2) An experimental design in the Arlington Independent School District, where teachers were randomly assigned a Khan Academy coach supporting teachers with CAL practice; 3) A quasi-experimental design exploring the relationship between average classroom practice time and student performance.

## Results

- Results from two field experiments indicate significant effects on students' math performance of 0.12 - 0.22 standard deviations.
- Classrooms with an average of 35 minutes of CAL practice per week mainly drive these gains.
- Classrooms with less than 5 minutes of CAL practice showed no significant gains, highlighting the importance of practice time.
- Teachers who actively monitored student progress and treated CAL as integral to their curriculum achieved better outcomes.

Significant math improvements driven by students with at least **35 min.** of CAL per week.

Students with less than **5 min.** show no significant gains.