

DIGITAL PROMISE STUDY

Individual tutoring

A randomized evaluation of virtual fifth-grade fractions tutoring

0.46

EFFECT SIZE

12 percentage points higher on the post-assessment

Students offered individual tutoring plus access to the FogStone Isle fractions game scored 12 percentage points higher on the post-assessment than students offered access to the game alone.

POPULATION

144 fifth-grade completers

SETTING

Four schools serving students with low prior math achievement

SCHEDULE

Twice weekly over approximately 10 weeks

SESSION LENGTH

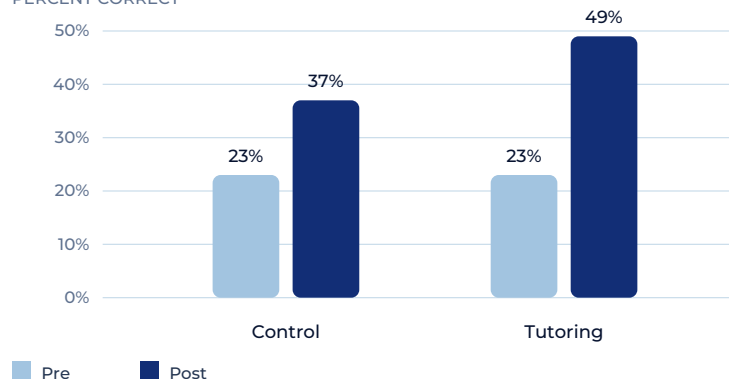
20-25 minutes; 18 sessions on average

WHAT WAS TESTED The treatment combined live 1:1 tutoring with a related fractions game. The comparison group could use the game but did not receive tutoring. Both groups continued their regular classroom fractions instruction.

WHAT THE STUDY FOUND

RAW PRE- AND POST-ASSESSMENT SCORES

PERCENT CORRECT



Source: Roschelle et al. (2020); group means reproduced from Cognition's prior study summary (n = 144).

12

percentage points higher on the post-assessment

The planned analysis found a statistically significant difference in gain scores between conditions ($p < .001$), with a corrected effect size of approximately 0.46.

Additional context: The study focused on fraction equivalence, fraction comparison, and addition of fractions with like and unlike denominators.

STUDY DESIGN

RANDOMIZATION

Students were matched on pretest scores, then assigned within pairs to treatment or comparison.

INTERVENTION

Treatment students received the same tutor consistently and also used the fractions game.

MEASURE

The same 18-item fractions diagnostic was administered before and after the program.

ANALYSIS

Researchers compared gain scores and treated each analytic site as a study in a meta-analysis.

INTERPRETING THE RESULT

This randomized study supports a causal conclusion for the combined tutoring-and-game intervention within the study context. It does not isolate the effect of tutoring from the game, because the two components were intentionally designed to reinforce one another.

WHAT TO KEEP IN VIEW

- The assessment targeted the fractions content addressed during the intervention; it was not a standardized, broad mathematics test.
- The sample was modest and drawn from four schools serving a specific fifth-grade population.
- The study evaluated an early version of the intervention, and results may change with refinement or scale.

INDEPENDENT SOURCE

Roschelle, J., Cheng, B. H., Hodkowski, N., Neisler, J., & Haldar, L. (2020). Evaluation of an online tutoring program in elementary mathematics [Project Report]. San Mateo, CA: Digital Promise. <http://hdl.handle.net/20.500.12265/95>

Unless otherwise noted, all study descriptions and statistics in this brief are summarized from this independent report.

[READ THE INDEPENDENT REPORT](#) »

files.eric.ed.gov/fulltext/ED604743.pdf