



Fantasy Sports Math League

Phase I Feasibility Pilot | October–November 2023 | Foundational Findings

PROVING THE CONCEPT: FSML's first classroom pilot tested whether a fantasy-sports-based game could feasibly teach math skills in real classrooms. Results were strong enough to help secure U.S. Department of Education Institute for Education Sciences SBIR Phase II funding for a larger, multi-state study.

97

Students, 3 middle schools (Oct–Nov 2023)

Equations



Equation-solving scores significantly improved
 $p = .004$, Cohen's $d = 1.68$

Anxiety ↓

Math anxiety scale significantly reduced
 $p = .013$, Cohen's $d = 6.09$

Confidence



Math confidence scale significantly increased
 $p = .052$, Cohen's $d = 2.51$

Feasibility Study Design & Sample

Design: Single-group pre/post pilot with no comparison group — the first classroom test of the FSML concept, run over roughly 4 weeks.

Sample: $N = 97$ students across 3 middle schools, October–November 2023. 77% were in 6th grade. 51% identified as girls, 45% as boys, 4% as another gender identity. 47% identified as Hispanic; 40% reported White as a primary race, 17% Asian, 9% Black, and 41% reported an additional race (categories not mutually exclusive as collected).

Measures: Paired t-tests on math equation and graph items, plus Likert scales measuring math confidence, math anxiety, and perceived relevance of math, administered before and after the pilot.

What We Found: Math Skill Gains

Equation-solving scores improved significantly (equation scale, $p = .004$, Cohen's $d = 1.68$); 4 of 6 individual equation items reached significance on their own ($p = .002$ – $.02$).

The combined math scale (equations + graphs) approached significance ($p = .058$) — driven almost entirely by the equation items rather than the graphing items, suggesting the equation-heavy weekly scoring mechanic was doing most of the instructional work.

What We Found: Confidence & Anxiety

The Math Anxiety Scale dropped significantly ($p = .013$) and the Math Confidence Scale rose ($p = .052$, borderline significant); confidence specifically in “finding solutions to math problems” improved on its own ($p = .02$).

Equity Signals Worth Following Up

FSML significantly increased math confidence for non-White participants ($p = .01$) but showed no significant confidence change for White participants.

Hispanic participants showed significant reductions in homework stress and math anxiety; non-Hispanic participants showed significant gains in equation scores instead. Boys drove most of the sample-level confidence/anxiety improvement, while girls showed no significant change on those items in this pilot. Students with self-reported A grades were the only group to show a significant equation-score gain; students with other reported grades showed a significant reduction in test anxiety.

Why This Justified Phase II Investment

In a single 4-week pilot with no comparison group, FSML produced significant improvements in math skill, confidence, and anxiety — with the strongest signal on the outcomes the program was designed to move. The equity findings hinted that FSML could benefit different groups of students in different, complementary ways. Together, these results supported the case for U.S. Department of Education Institute Education Science SBIR Phase II funding, which went on to fund the full development and testing of Fantasy Sports Math League.