Game-Based Learning and Math Interest

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INTRODUCTION

How can schools make learning math more fun for young students? This hypothesis-generating qualitative research study introduces a math program to sixth grade students that focuses on teamwork and friendly competition on math learning tasks to see how math interest changes with changes in learning structure. Preliminary data from two students serve to inform advanced data collection in the future.

BACKGROUND AND SIGNIFICANCE

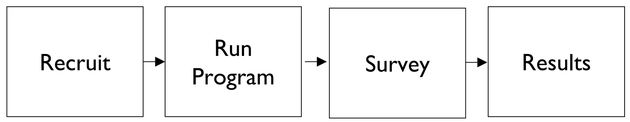
According to data collected by Waterman (2010), it less common for pupils of color, even high-achieving pupils of color, to reach calculus by grade 12 compared to their white and Asian peers, due to placement in algebra classes starting in grade 9. This research emphasizes that students of color who come from low-income families are disproportionately affected by the math achievement gap. This may be largely due to the fact that current teaching practices fail to engage students by portraying mathematics as uninteresting and cold. Students need to cultivate precise skills, but they also need to be exposed to the practice of problem solving in order to maintain an interest in mathematics (Boaler, 2015).

In the PAUSD school district as well as in the U.S. as a whole, there exists a rift in achievement between privileged students and historically underrepresented students. Based on research sourced in the Minority Achievement and Talent Development Advisory Committee report, black and Latino youth in the United States perform below the international average, at almost the same rate as black and Latino youth in countries with transitioning economies. The same pattern was found in PAUSD, one of the best school districts in the state (McKinsey & Company, 2009, as cited in the MATD Report, 2015).

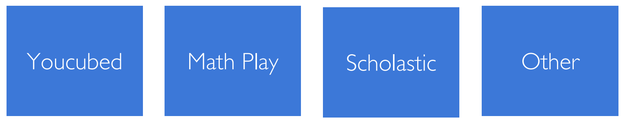
RESEARCH METHODOLOGIES

1. Project Outline

- After school math program held once a week
- Students work together on math-based games and activities
- Reflective survey questions inform math interest



2. Materials



3. Data Collection Methods

- Preliminary survey administered to the program's students
- Video footage of behavior on worksheet math task

REFERENCES

Boaler, J. (2015). What's math got to do with it?: How teachers and parents can transform mathematics learning and inspire success (Revised edition. ed.). New York, NY: Penguin Books.

Minority Achievement and Talent Development Advisory Committee Report to the Board of Education (2015). Palo Alto Unified School District. https://www.pausd.org/sites/default/files/pdf-faqs/attachments/MATD%20Report%205.26.15.pdf

Waterman, S. (2010, April). Pathways report: Dead ends and wrong turns on the path through algebra. Noyce Foundation.

DATA ANALYSIS AND RESULTS

Survey Results (Students 1 & 2)

Strongly agreed w/ positive statements about program	Strongly disagreed w/ negative statements about program	Hesitant about "working on math in groups"

Video Footage Observations

Student 1	Student 2
Resisted working together Wary of cheating behavior	Occasionally asked questions Answered questions posed

Hypotheses

ACKNOWLEDGEMENTS

Special thanks to Martha Castellon, Dr. Jeong Choe, Erin Angell, Lionel Argumedo, Judy Argumedo, Sharon Ofek, and Dr. Suzanne Antink for helping make this project possible.