CAN STUDENTS SUCCESSFULLY LEARN AT HOME?

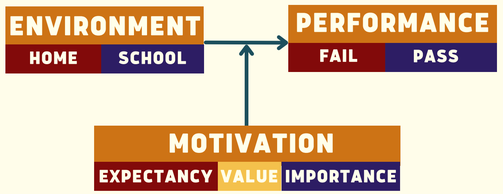
LEARNING ENVIRONMENT PREDICTS MATH PERFORMANCE

INTRODUCTION

- Students benefit from engagement in math at home
- The merits of remote learning are in question
- Differences in performance may vary depending on motivation
- Pre-pandemic data may be insightful

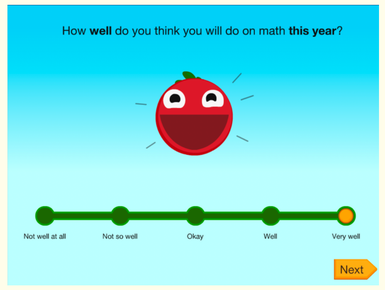
QUESTIONS

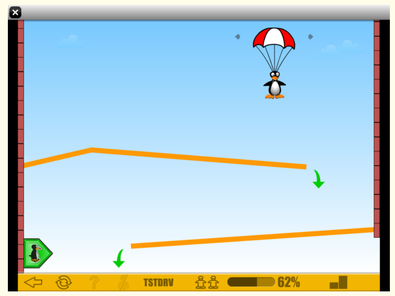
1. Does students' play environment predict their level performance in a math game?
2. Does student motivation moderate this relationship?



DATASET

Spatial Temporal (ST) Math provided gameplay data and motivational surveys from 3,967 5th graders





After cleaning for missing data and inclusion criteria, the dataset included 1,666 5th graders

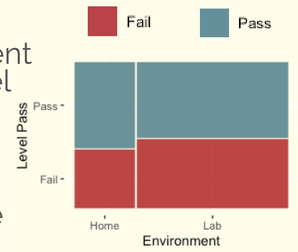
These 5th graders were nested within 146 teachers and averaged 155.7 level plays over a year

METHODS

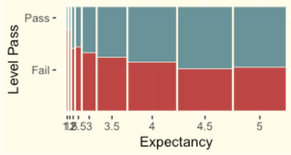
- Data were analyzed using a 3-level logistic regression (HLM)
- Level pass regressed on environment and motivation, controlling for demographics.
- A separate model added motivation as an interaction with environment (moderation)

RESULTS

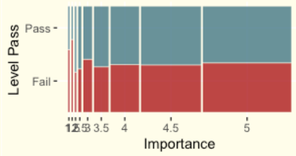
- Motivation×Environment did not improve model (X^2= 6.03, p = 0.11)
- Students are more likely to pass a level when playing at home (O.R. = -2.30, p < 0.001)



- Students with higher math expectancy are more likely to pass (O.R. = 0.32, p < 0.001)



- Students with higher math importance are less likely to pass (O.R. = -0.08, p = 0.02)



DISCUSSION

- These students were more likely to pass levels at home than in school
- Caregiver involvement may improve promote math learning at home
- Alternatively, school environments may be distracting and hinder performance

AUTHORS


RAYMOND PATT
UNIVERSITY OF DELAWARE


DR. ALLISON ZENGILOWSKI
UNIVERSITY OF CALIFORNIA, DAVIS


SO YEON LEE
MCGILL UNIVERSITY


DR. KERRY DUCK
UNIVERSITY OF DELAWARE


DR. TEOMARA RUTHERFORD
UNIVERSITY OF DELAWARE

Funding: NSF #1845584