

## Research Question

Does showing a video ahead of a math lesson refuting the idea that they are not a math person improve motivation (on a "which one is special" task)

## Methods

Participants first calibrated the webcam-based eye tracker. Participants then completed a short intrinsic motivation survey and the Indiana mathematical belief scale. Depending on condition, participants listened and read a short paragraph about "math people" either before the survey (pre), after the survey (post), or not at all (none). The goal of the paragraph was to refute the belief that a person's ability to do math problems is related to whether or not they are a "math person". Instead, ability was linked to support and motivation.

Then participants completed a modified version of a "which one is special" task. Each problem in the task consists of two parts. In the first part, participants are shown a word problem and asked to identify which numbers out of a group of 4 are needed to answer the problem. The correct answer required choosing 1-4 options. Participants are then given feedback for each option as to whether it was chosen (yellow) or not (white) and whether that decision was correct (green) or incorrect (red). If participants selected the correct options, they moved onto part 2. Otherwise, they are given another opportunity to answer the problem.

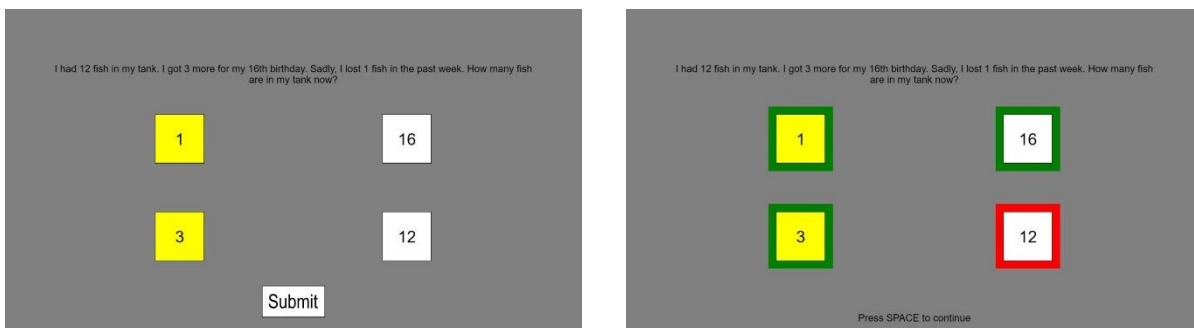


Figure 1. Example display of part 1 of the WOIS task. Left side is presubmission. Right side is feedback.

In part 2, participants are asked to answer the problem. Participants completed 12 word problems. During the task, webcam-based eye tracking was used. Participants were probed 3 times for task-unrelated thought, disengagement, and valence while answering problems. Probes occurred after 3-4 questions. After answering all problems, participants completed the initial intrinsic motivation survey again, as well as a math perceptions survey, a visual skills survey and demographics.

## Summary of results

The intervention did not influence intrinsic motivation. Performance was related to math beliefs and engagement. Multiple motivation measures were related to valence.