

## Research Question

How does the use of a least-steps strategy affects gaze, problem-solving, and mind wandering behavior?

## Methods

Participants were informed that they will be solving mathematical problems and instructed to use a strategy to solve the problems in the least number of steps. Participants were also informed that they will be scored based on the number of steps used (importance of strategy) and/or they should reflect on what strategy to use prior to the first step (application of strategy). A control condition was only told they will solve mathematical problems and no other instructions are given.

Participants answered mathematical problems for 30 minutes followed by a survey. During the problem solving portion, participants' eye movements were tracked using a webcam-based eye tracker. Additionally, participants were probed for mind wandering behavior every 5 minutes.

## Summary of results

The manipulations had no significant effect on problem solving behavior. However, the lack of a significant difference in time before first action between the reflect and no reflect conditions suggests that participants in the reflect condition may not have been reflecting. The manipulations also had no significant effect on mind wandering behavior or gaze behavior. The lack of differences in unique gazes and offscreen gazes supports the findings of no significant differences in mind wandering behavior. Overall, greater offscreen and unique gaze proportion were associated with fewer problems solved. Both gaze behaviors can be associated with less on-task performance. However, mind wandering behavior showed no significant relationships with problem solving or gaze behavior.