

Research Question

How does the presenter type (human vs AI) during adaptive segments affect math performance, engagement, and gaze behavior?

Methods

Participants consisted of 10-18 year olds. Participants watched a video about least common multiples taught by a human instructor. During the lesson, two adaptive segments occurred that were taught either by the human instructor or a digital likeness (AI). Therefore, participants in the Human condition saw both the main video and adaptive segments taught by the human instructor and participants in the AI condition saw the main video taught by the human version and the adaptive segments taught by the AI version. Even though participants were presented problems in the main video and adaptive segments, participants did not solve any problems during the lesson. During the video and adaptive segments, participants were probed for task-unrelated thought, difficulty disengaging, valence, and boredom. Three probes occurred during the main video and two occurred during the adaptive segments. After the video, participants answered math questions, a survey about the instructor, and answered demographic questions. Participants were randomly assigned to instructor condition.

Summary of results

Participants were more likely to look at the video and less likely to look offscreen in the human condition than the AI condition. In addition, within the AI condition, which saw both the human and digital likeness, the human version was rated as more likeable, trustable, and comfortable to watch. Higher proportions of gazes on the video and lower proportions of gazes offscreen were associated with more positive feelings and less boredom. These findings suggest that we can use gaze behavior to predict some forms of engagement.