

Research Question

How does the presenter type (human vs 2 AI instructors) during adaptive segments affect math performance, engagement, and gaze behavior?

Methods

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 one of 2 AI instructors. Therefore, participants in the Human condition saw both the main video and adaptive segments taught by the human instructor and participants in the AI conditions saw the main video taught by the human version and the adaptive segments taught by an AI version. Both AI instructors were digital likenesses of the human instructor. Even though problems were presented 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. Additionally, participants rated the current instructor. Three probes occurred during the main video and two occurred during the adaptive segments. After the video, participants answered 10 math questions, the Indiana Mathematic Beliefs scale, a visual skills questionnaire, and demographic questions. Participants were randomly assigned to instructor condition.

Summary of results

The AI instructor 1 was rated lower than the human and AI instructor 2. AI instructor 2 had similar ratings as the human instructor except in comfortableness in which the human was rated higher.