



Learning Remotely: Does Self-Awareness Reduce Comprehension in a Virtual Learning Environment?

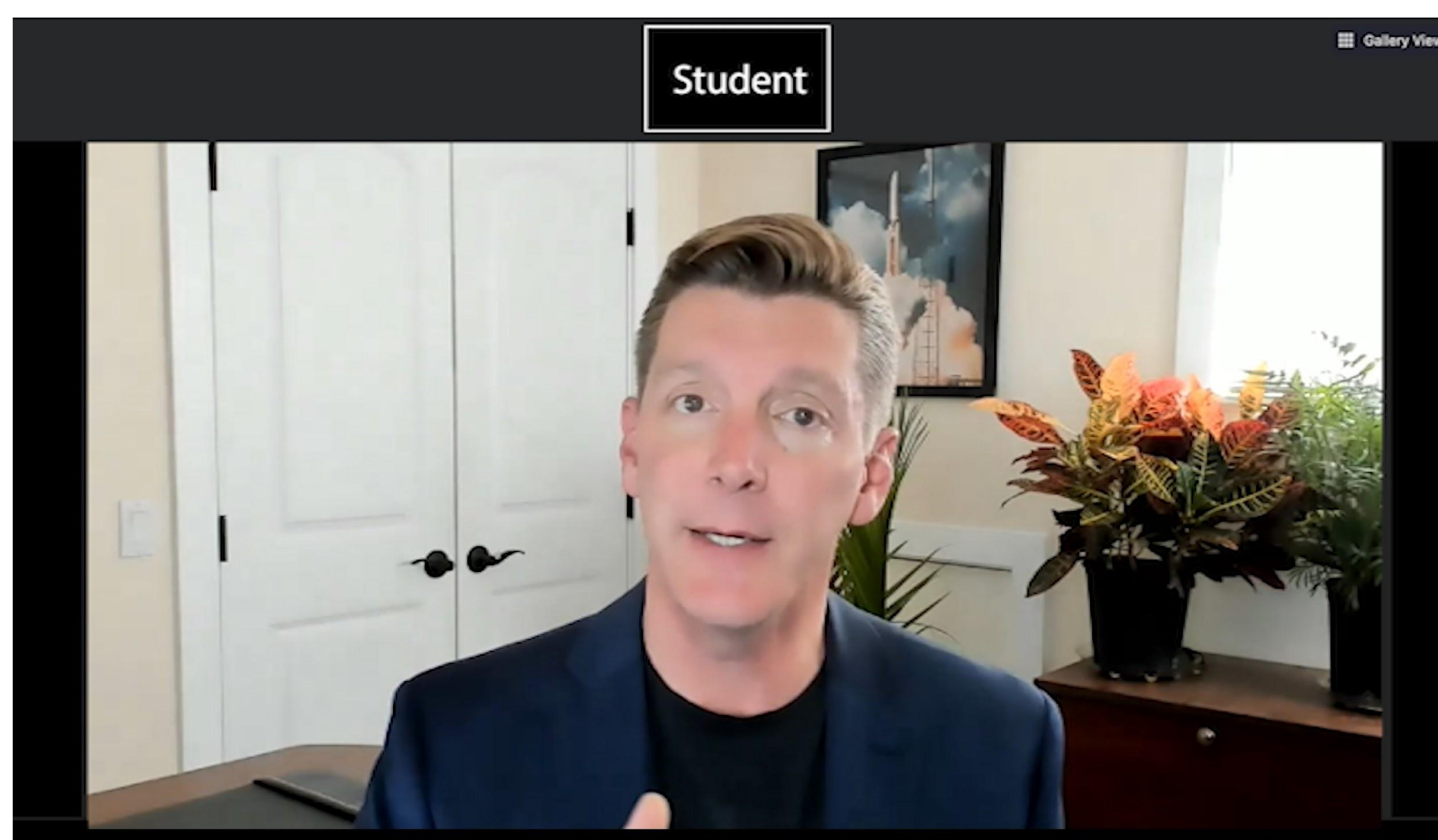
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Introduction

- In the spring of 2020, 99% of teachers were facilitating remote instruction as a result of the COVID-19 pandemic (Hamilton et al., 2020).
- Attentional resources are limited, so giving attention to one thing leaves less for another and decreases performance (Desimone & Duncan, 1995).
- Faces have been shown to strongly draw attention away from the task being performed (Eitam et al., 2014).
- We hypothesized that the presence of a participant's own video on the screen would decrease performance on a comprehension quiz compared to a control group.
- The current study sought to determine whether having your own video on the screen in a video call would negatively impact comprehension.
- The results of this study could provide insight into how to make online learning more effective and potentially lead to further research into how the pandemic has affected classroom learning.



Method

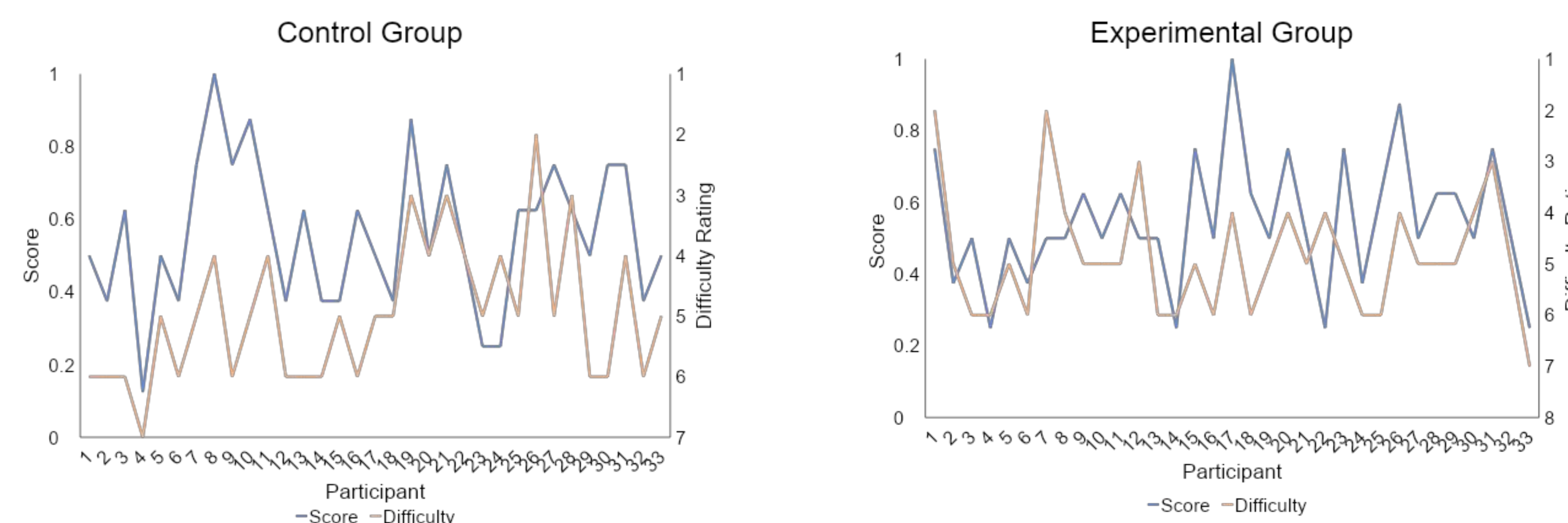
Subjects. 66 undergraduate students (39 female, 27 male)

Materials. GazeRecorder software, Quick Camera app, iMac computer

Measures. Section 4 of the Law School Admission Council's Sample LSAT Test

Procedure

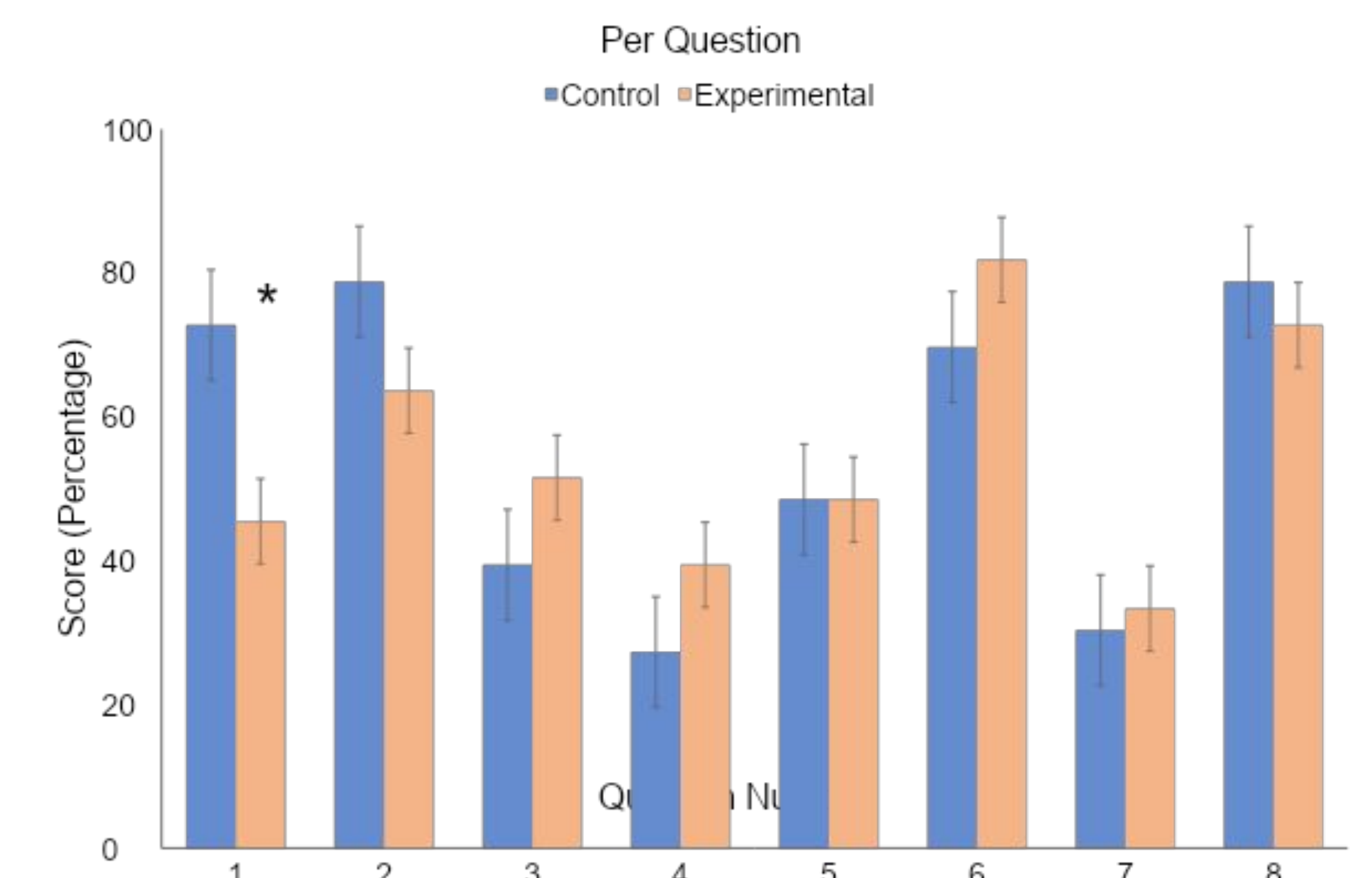
1. **Control:** Participants completed eye-tracking calibration, watched a 4-minute pre-recorded lecture on the rift between poetry and fiction, then took a 10-question assessment about the lecture.
2. **Experimental:** Participants completed same procedure as control group except with their own live-video on the screen during the lecture.



Each participant's score on the assessment and difficulty rating for the assessment, separated by group.

Results

- Independent samples t-tests and Pearson correlations were used to analyze the data.
- There was no significant difference between the scores for the experimental ($M = .56$, $SD = .20$) and control ($M = .55$, $SD = .18$) groups; $t(64) = .24$, $p = n.s.$
- There was no significant difference between how long the control ($M = 3.04$, $SD = 53.13$) and experimental ($M = 3.95$, $SD = 7.03$) groups looked at where the participants' videos were presented; $t(64) = -.41$, $p = n.s.$
- There was no significant difference between how long the control ($M = 113.33$, $SD = 10.77$) and experimental ($M = 99.84$, $SD = 45.10$) groups looked at the presenter's face; $t(64) = 1.11$, $p = n.s.$
- The experimental group ($M = .7273$, $SD = .45227$) scored significantly lower than the control group ($M = .4545$, $SD = .50565$) on Question 1; $t(64) = 2.309$, $p = .024$.
- There was a significant correlation between the average score and the difficulty rating for all participants; $r(64) = -.409$, $p = .001$.



Average score on each question of the assessment for the control and experimental groups.

Discussion

- Having their own video on the screen did not cause the participants to perform significantly worse on the assessment.
- Notably, the participants in the experimental group did not even look at themselves more than the control group looked at the same area of the screen.
- However, the experimental group scored better on the first question than the control group, suggesting that the participants' faces may have been distracting initially, but they became normalized over time, which is consistent with some previous research, but contradicts other research (Devue & Brédart, 2008; Eitam et al., 2014)
- Future research should focus on creating an environment that is more similar to a virtual learning environment by utilizing a live video call with the lecturer, using more discrete eye-tracking software, and increasing the length of the lecture and/or the number of questions on the assessment.