

MAIN QUESTION

When students set their own video playback speed, do they choose the speed that maximizes learning?

BACKGROUND

Trends for watching videos

85% of the time, people use speeds other than the original one. 1.5x used the most, 2x second most. (Watson, 2022)

Harvard medical school - 169/191 don't use 1x speed (Cardall Krupat, Ulrich, 2008)

Consequences of changing speed

1x - original speed or intended speed

1.5x - mixed results

Positive effects:

- HS info science: higher score for 20 MCQ/yes-or-no questions (Nagahama and Morita, 2017)

Negative effects:

- Medical school ultrasonography artifact: lower score for 20 MCQ (Song et al., 2018)

2x - Roman empire & real estate: no reduction in immediate and delayed comprehension score (Murphy et al., 2022)

x2.5 - lower immediate and delayed comprehension score compared to 1x (Murphy et al., 2022)

Students don't always make good choices to maximize their learning

Ineffective

Cramming
Re-reading
Highlighting



Effective

Distributing
Active Practice
Interleaving

(Dunlosky et al., 2013)

METHODS

Materials:

- 5 Crash course videos with Hank Green
- Chemistry, History of Science, Plant Science and Biology
- 4 prearranged speeds (0.5x, 1.25x, 1.75x, 2.25x), 1 self chosen speed (1x - 2.5x), pseudorandomized content and speeds
- Self-chosen speed occurred for 1st, 3rd, or 5th video
- Learning assessment: 15 multiple choice post-video quiz
 - 8 factual and 7 conceptual questions

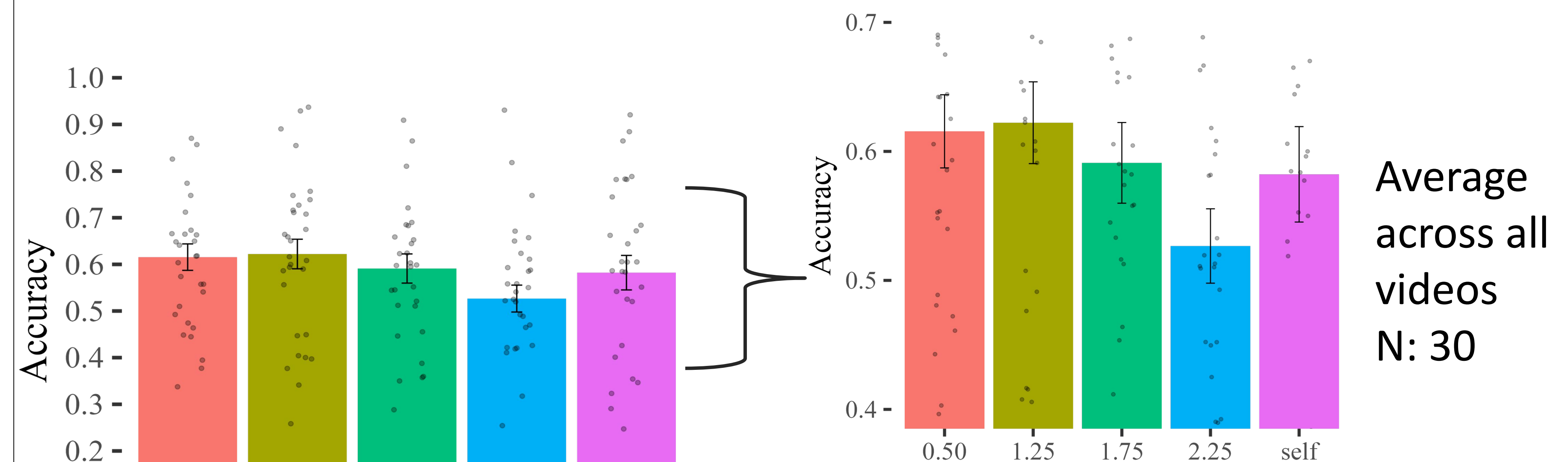


Hank Green

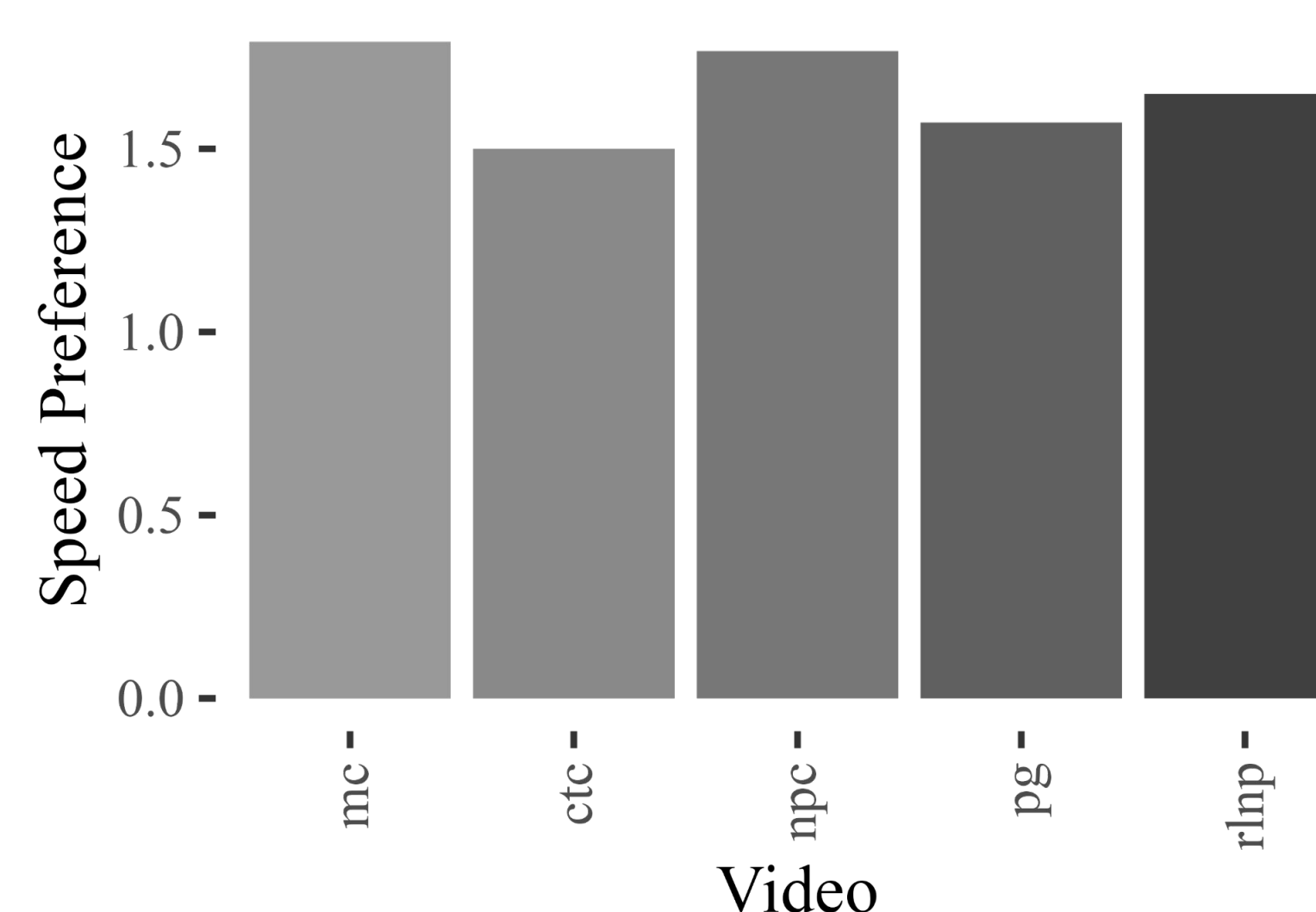
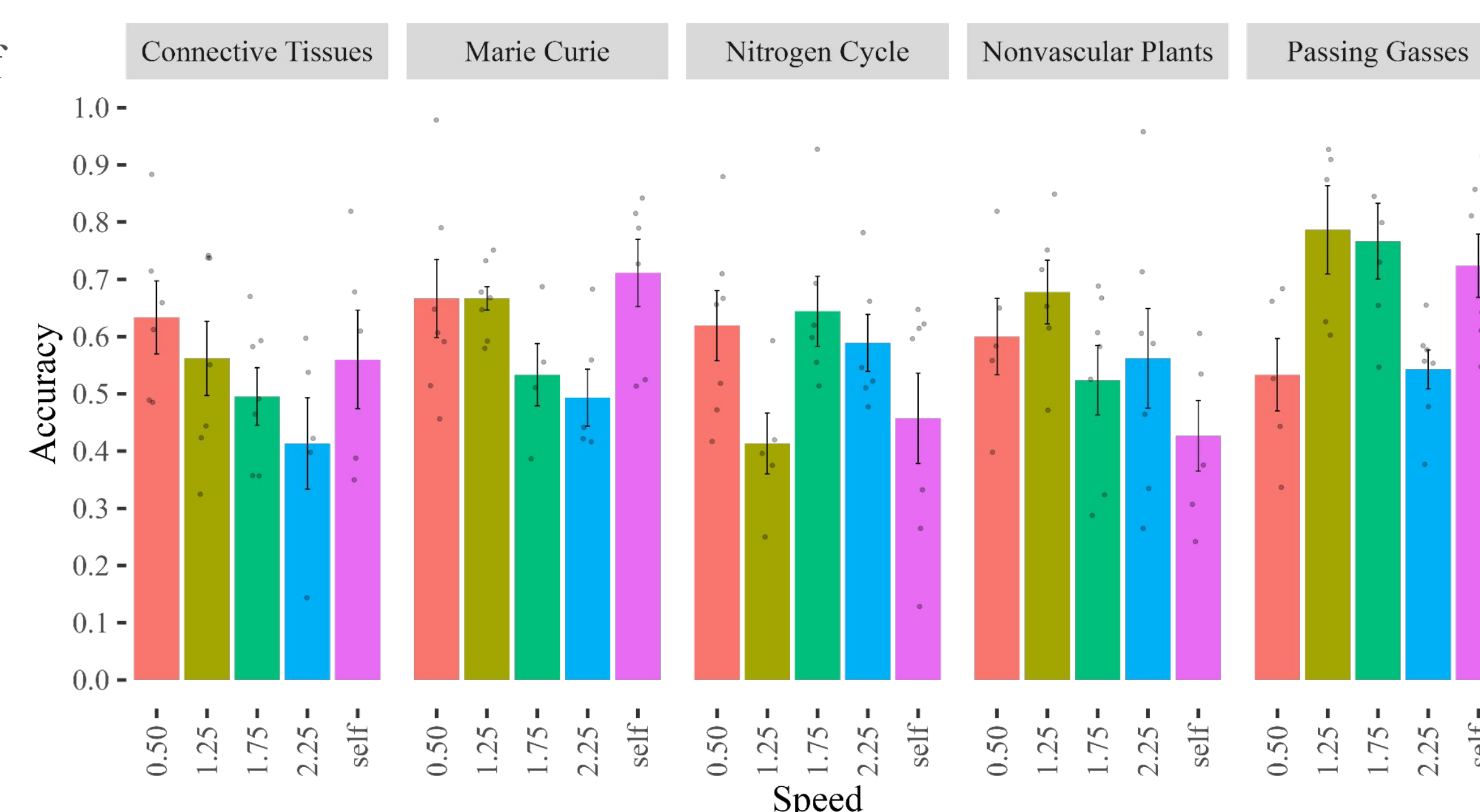


Sample video

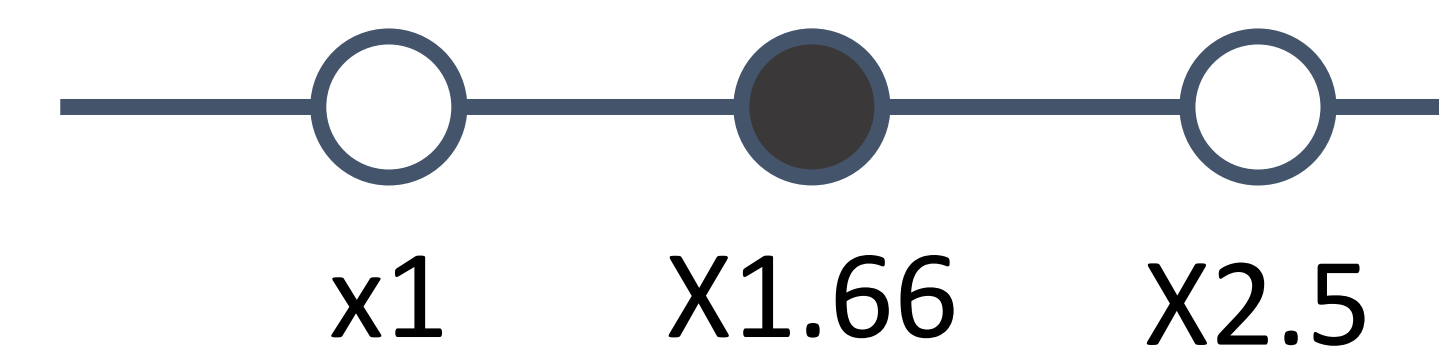
RESULTS



Average for each video
N:30



Speed Preferences



DISCUSSION

Do students select the optimal speed?

Not all the time. In general, participants appeared to select speeds that were slightly faster than what would have been optimal.

Across all videos and all participants, the best speed for quiz performance was 1.25x. Participants tended to pick speeds ~20% faster (1.66x).

Differences across videos though:

- Self speed for Marie Curie
- x0.5 for Connective Tissues
- x1.75 for Nitrogen Cycle
- x1.25 for Passing Gasses
- x1.25 for Nonvascular Plants

Did the speed participants chose depend on where in the sequence they had the self-selected speed?

- mean = 1.72 for first video
- mean = 1.51 for 3rd video
- mean = 1.73 for last video

Next Steps

- More data collection
- Share the content and potentially the difficulty of the content and see if they change their speed decision
- Code for metacognition survey
- Examine individual difference predictors for optimal speed

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