Are attention and learning during online video lectures influenced by the presence and relevance of chat comments?

Jackie Heitzner, Effie J. Pereira, Samantha Ayers-Glassey, Bruno Korst-Fagundes, and Daniel Smilek

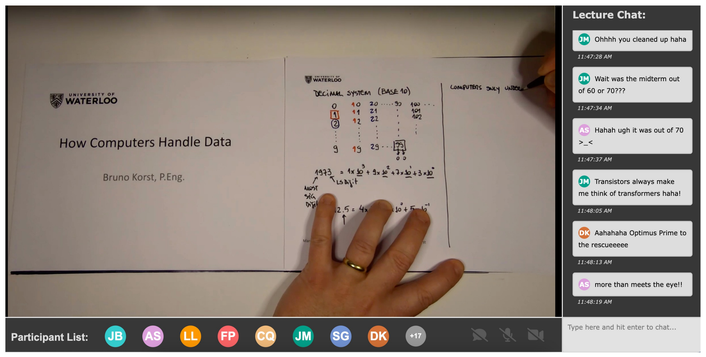
Department of Psychology, University of Waterloo

Background

- Video platforms (e.g., Teams, Zoom) are commonly used for synchronous online learning; however, it is still unclear how cognitive processes are impacted by components of video platforms.
- In this study, we looked at whether the presence and relevance of chat comments during online video lectures impacts attention and learning.

Methods

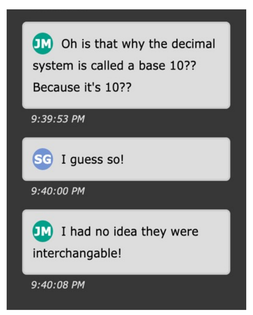
- 128 undergraduate participants (90 women, 34 men, 3 non-binary, 1 non-response; M_{age} = 20.7 years) completed the study online.
- Participants watched an online lecture on a simulated video platform:



- Chat comments during the online lecture were pre-programmed to be either: (i) not present, (ii) present and irrelevant to the lecture content, or (iii) present and relevant to the lecture content.

(ii)

(iii)



- After the lecture, we tested participants on their memory for lecture content. For example:

What is the range of integers that can be represented using base 10?	a) -10 to +10 *b) -infinity to +infinity* c) 0 to +10 d) 0 to +100

- Additionally, we had participants rate their subjective attention during the lecture:

What percentage of time did you spend attending to the video lecture during the study?

0% ---------- 100%

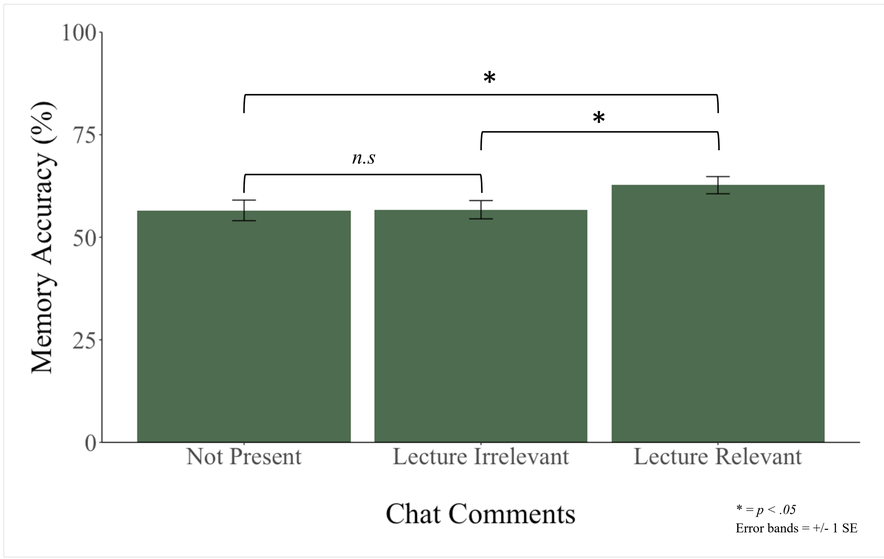
What percentage of time did you spend attending to the text-chat function during the study?

0% ---------- 100%

Results

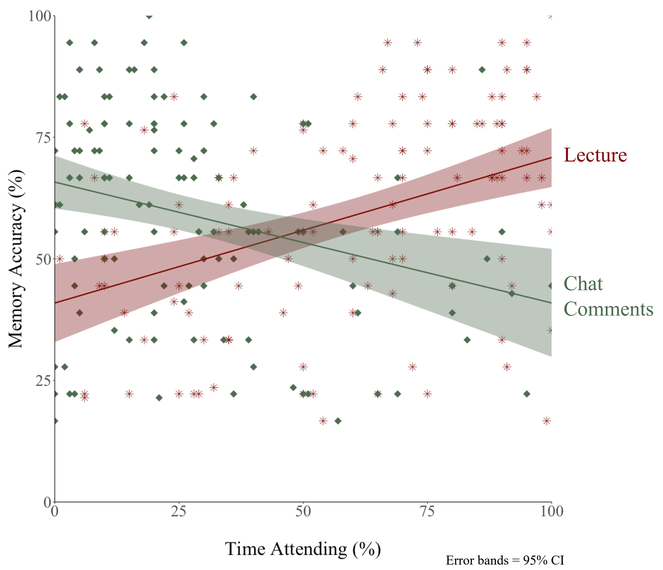
Memory for lecture content is affected by chat comments:

- Memory for lecture content was greater when lecture-relevant chat comments were present (*p*s < .018, d_zs > .25); however, no differences were found between lecture-irrelevant comments and when comments were not present (*p* > .99, d_z = .01).

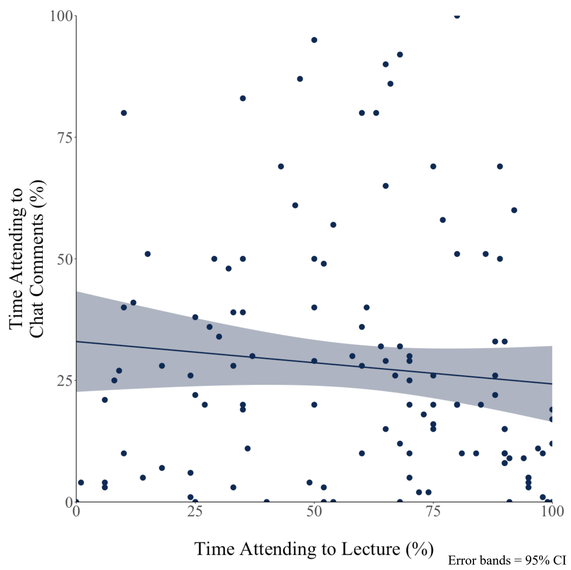


Perceived time attending to different components of the video platform affected memory:

- Memory for lecture content increased with more time attending to the lecture (R^2 = .16, *p* < .001, *β* = .30) and decreased with more time attending to the chat (R^2 = .08, *p* < .001, *β* = -.25).



- Time attending to the lecture was not related to time attending to the chat comments (R^2 < .01, *p* = .28, *β* = -.09).



Conclusions

- Chat comments can be beneficial for the memory of lecture content; however, when they pull focus away from the lecture, overall memory decreases.
- This work highlights the importance of chat comments as a component of online learning and as a means of impacting students' learning experiences.

For more information, contact Jackie Heitzner at jheitzne@uwaterloo.ca