

## Are students more engaged in active learning when activities are online or in-person?

### Background & Context

- Engagement has been widely studied as a predictor of academic success.
  - Behavioural, Cognitive, Emotional levels
- Fall 2021: Return to campus for small classes
- COMP202 is a large CS class (> 400 students)
  - On Fridays, students gave presentations and peer feedback (active learning).
  - Students self-enrolled in-person or online.

435 students

397 online

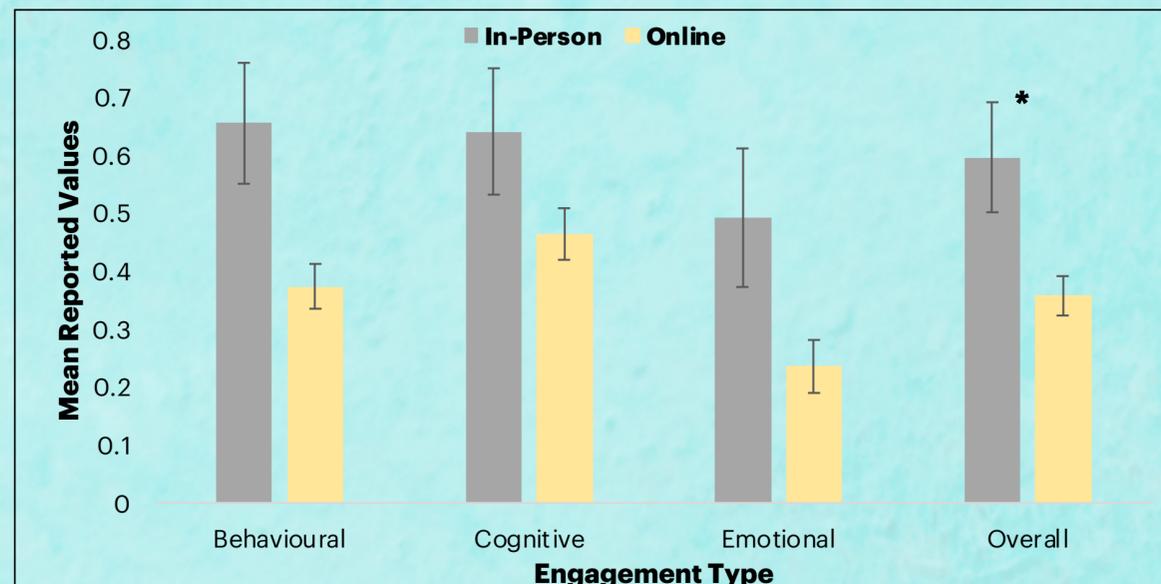
38 in-person

- Aim: Improve the quality of McGill courses!

### Methodology

- Surveyed COMP202 students mid-semester.
- Collected quantitative data (Likert questions).
- Data analysis conducted in Excel and JASP.
- Likert scale converted to 5-pt numeric scale.
- Repeated measures ANOVA splitting by:
  - Engagement (Behav., Cog., or Emo.)
  - Group (Online or In-Person)
- T-tests to determine significant differences on each question between groups.

### Results



**Fig 1:** ANOVA results. Significant differences observed in overall engagement between online and in-person groups ( $p = 0.014$ ).

Behavioural Questions	In-Person	Online	p
I attend live sessions regularly.	1.767	1.14	0.003**
Emotional Questions	In-Person	Online	p
I feel supported by my group members when I present during live sessions.	0.967	0.229	< .001***
In a computer science context, I enjoy being an active participant.	0.867	0.318	0.002**

**Fig 2:** T-test results. Significant differences observed on three questions. \* $0.01 < p < 0.05$ , \*\* $0.001 \leq p \leq 0.01$ , \*\*\* $p < 0.001$

### Discussion

- Compared to online students, in-person students reported significantly higher levels of:
  - Overall engagement
  - Attendance
  - Feelings of peer support
  - Enjoyment when being an active participant
- McGill should offer more in-person options.**
- Limitations:
  - Students might report more in-person engagement if they're more sociable.
  - Introductory courses often report lower levels of emotional engagement because science identity is still forming.
- Future research:
  - Analyzing other predictors of success in this context (e.g.: motivation).
  - Collecting qualitative data and running the survey in an advanced course.

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- I am a U2 neuroscience major. Data sources and supplemental materials available upon request ([isaac.bouhdana@mail.mcgill.ca](mailto:isaac.bouhdana@mail.mcgill.ca))

