Student Behavior in Online Course

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Learning Design & Student Behavior

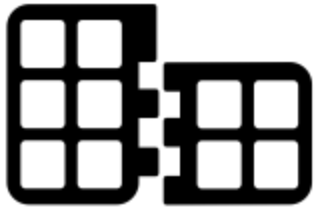
- Introductory statistics course
  - Fully asynchronous and online
  - Fall 2018 (pre COVID)
  - Collaboration component (Collaborative Key)

- Research questions:
  - How are students are using the available resources in the course
  - Is students' use of course resources aligned with the intended learning design of the course?

Data Wrangling

- Moodle Event log
  - Removed records that were not related to the learning design components and assessments.
  - A total of 8,251 records pertaining to the access of relevant course components.
  - Variables: access and transition probabilities.

- Moodle Gradebook log
  - The Moodle gradebook log contains all of the grades for the course assessments, final course scores and final grades.
  - Grade categories:
    - A or B (10 students)
    - C (9 students)
    - D or F (8 students).



Collaborative Keys

- 1 Collaborative Key for the whole class

- Interactions:
  1) 1st contribution
  2) Professor's feedback
  3) 2nd contribution

- Graded on completion

- Interactions:

  More: STUDENT X PROFESSOR

  Less: STUDENT X STUDENT

20. Are you comfortable with concluding from this study that the diet used causes a difference in BMI change? Justify your answer.

Izzy: Yes, because the evidence we found suggests there is a correlation between a specific diet resulting in women's BMIs going down.

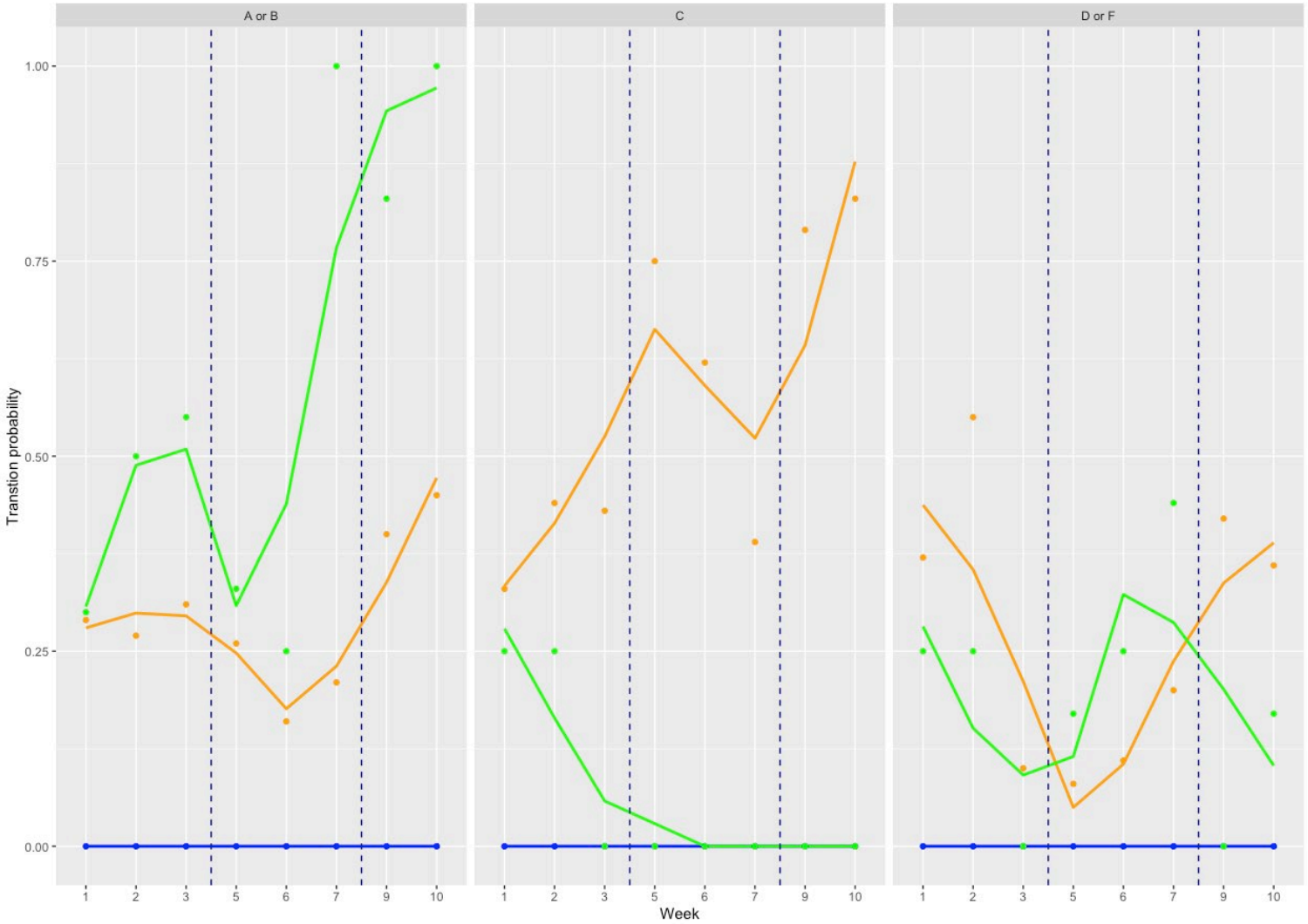
PROFESSOR: Answer is not correct. Finding a statistically significant result is not enough to make a causal claim.
Izzy, what else is needed in the design of the study to allow you to make a causal claim?

Izzy: I am not 100% sure, can you point me in the right direction? I know a causal claim is any assertion that invokes causal relationships between variables?

Kaitlyn: Isn't it that we can make a causal claim because random assignment was used in the study which nullifies any potential confounding variables from affecting the results?

PROFESSOR: Yes, random assignment does tend to balance out confounding variables and this allows you to make a causal claim.
We have evidence that the Atkins diet causes a higher change in BMI, when compared to ORNISH, LEARN, and ZONE because this is a randomized experiment (random assignment was used in the design of the study). When random assignment is used confounding variables tend to be balanced out between groups.

Transition Probabilities to CK

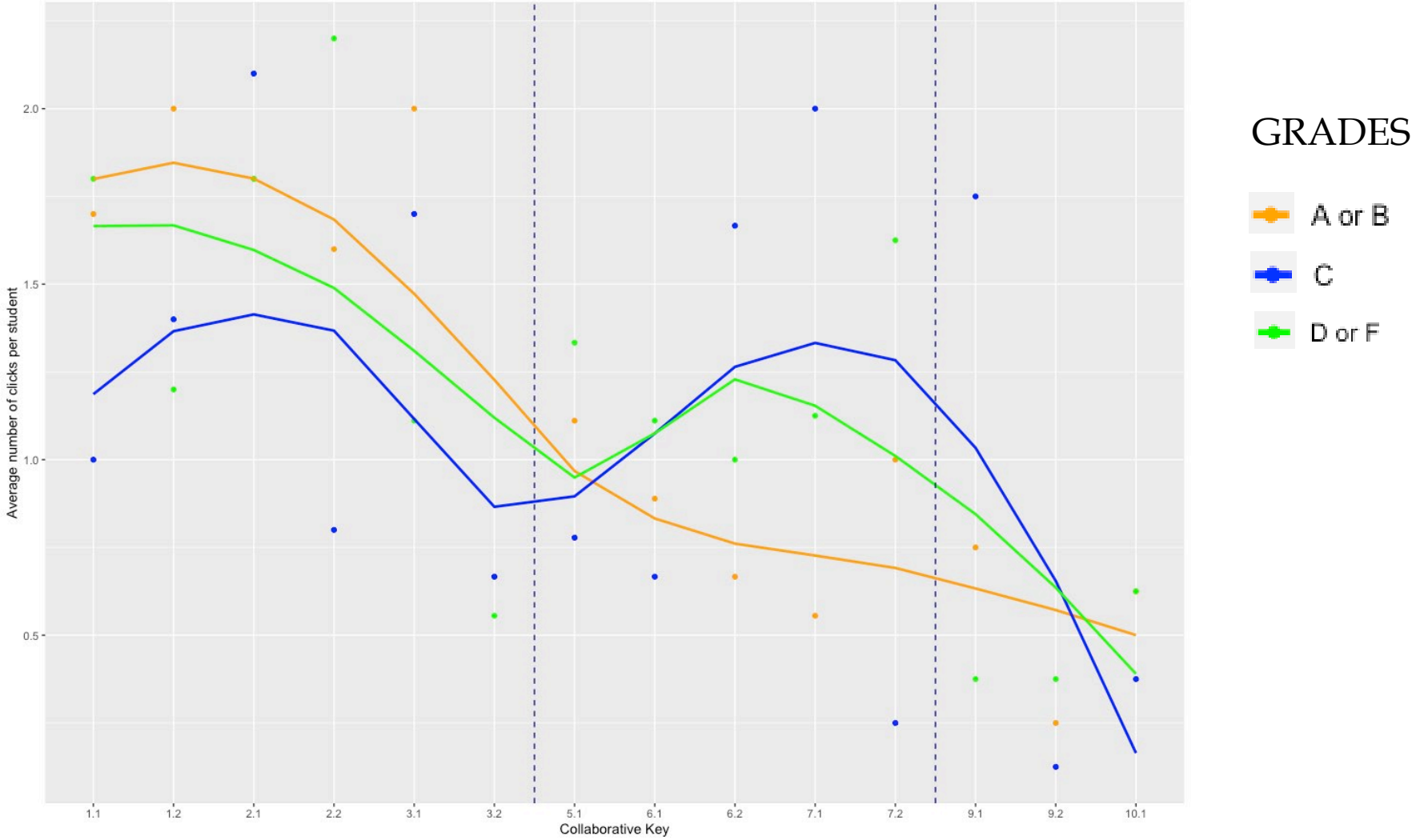


RESOURCES

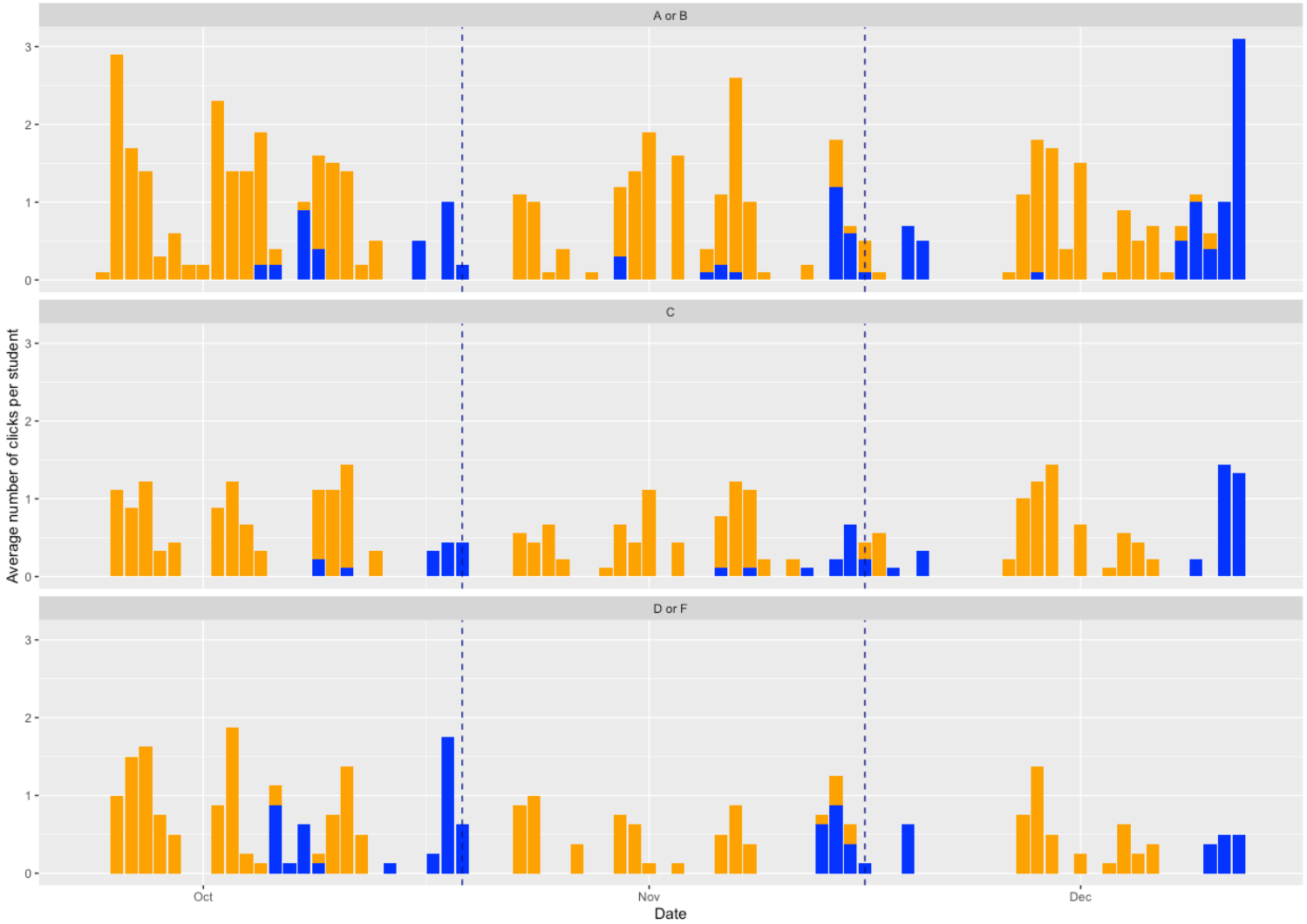
Videos

Reading

Average Clicks per student on CK



Visits and Revisits to CK



ACCESS

Initial

Revisit

Summary of Results

- Preference for video-related resources by higher performing students
- Early and frequent visits to course assignments by A or B students
  - Collaborative Keys
  - End of Unit Quizzes
  - Instructor developed Wrap-up Videos.
- Throughout the quarter, clicks become more focused and intentional, in particular for the better students (A or B) who have figured out how to work the course and are more efficient.

More Information

Article: *Learning Design and Student Behavior in a Fully Online Course*

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THANK YOU

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