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### Exploring the Impact of Subject Placement on Exam Questions

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# Exploring the Impact of Subject Placement on Exam Questions

By Briana Craig and Jeremy L. Hsu

## Background

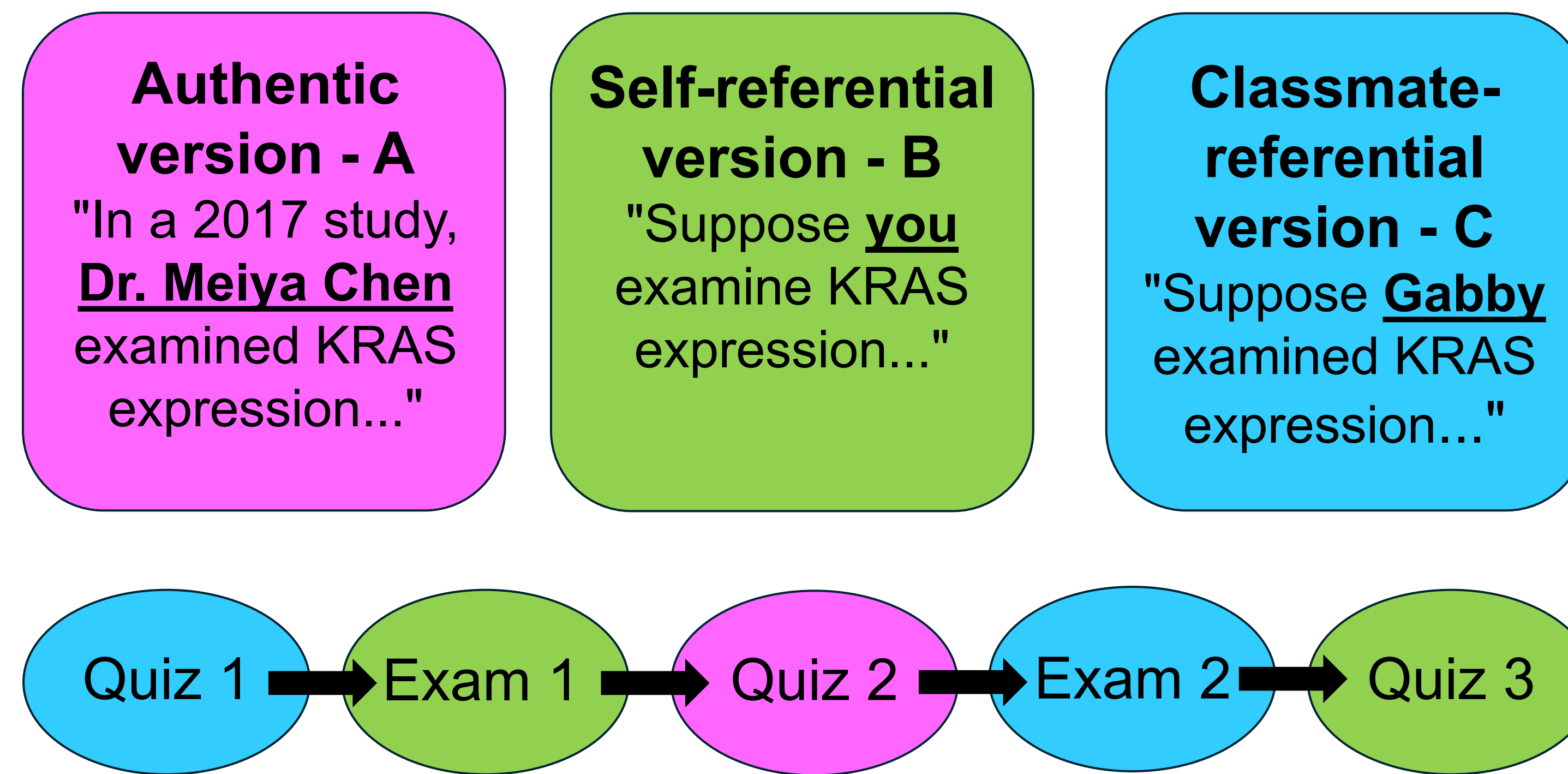
- Quizzes and exams in can have a large impact in determining a student's performance
- Performance can impact their sense of identity and willingness to continue in that field of study
- Discourse Comprehension Theory: question wording can impact students' ability to process information and generate mental representations of scenarios<sup>1</sup>

## Research Questions

- 1) How does assessment question framing impact students' identity within the scientific community?
- 2) How does assessment question framing impact students' anxiety levels during an assessment?
- 3) Which assessment question framing to students prefer? Why?

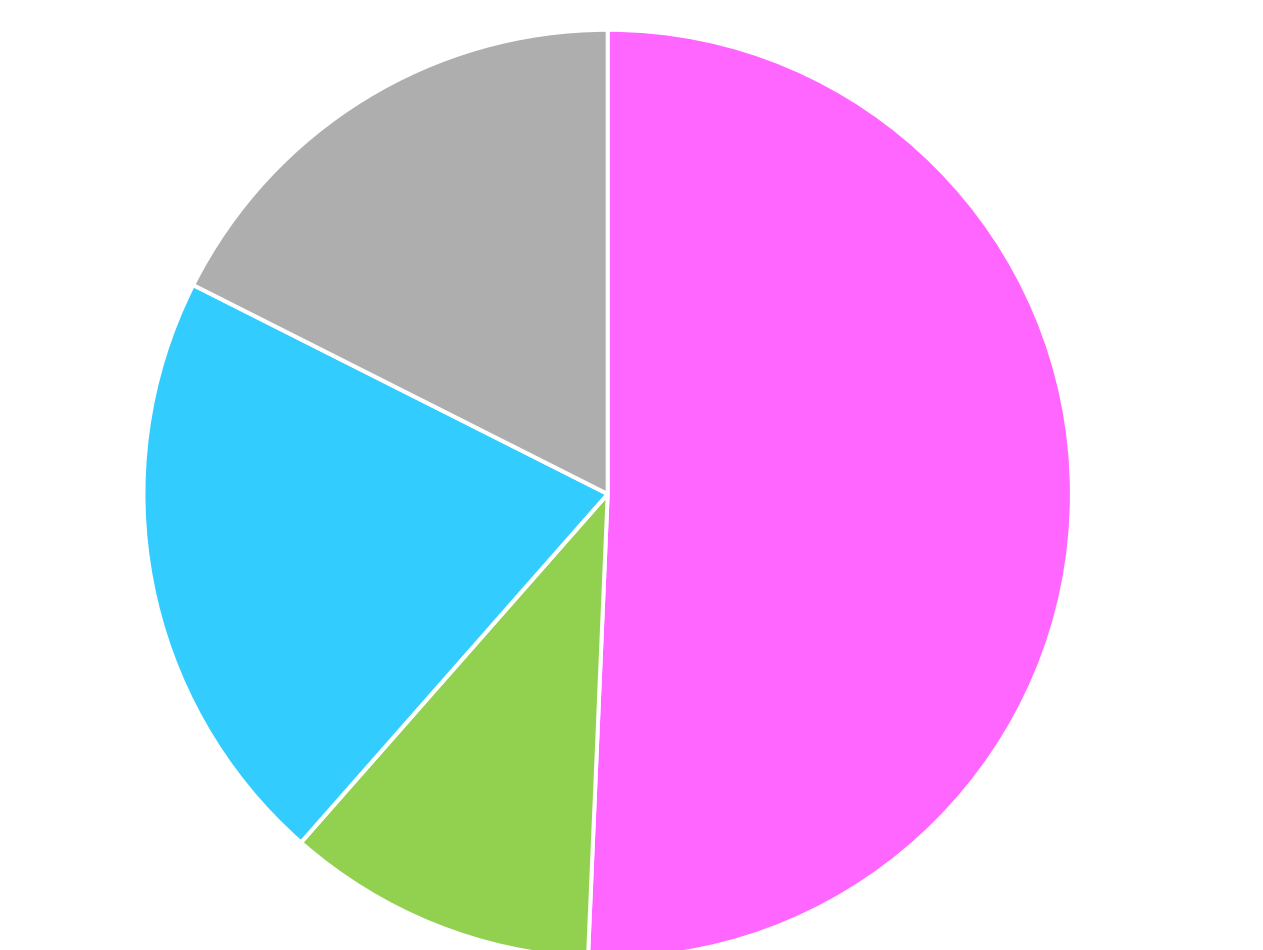
## Methods

- Each assessment used a different question framing version
- Surveyed self-reported feeling of anxiety and identify at end of each assessment
- At the end of the semester, we surveyed students asking which version they preferred and why
- Used codebook from previous study to categorize reasoning for preferences<sup>2</sup>
- Checked for inter-rater reliability for both the most and least preferred version (Cohen's kappa of 0.73 and 0.75, respectively)
- Checked all values for significant change using t-tests



## Results

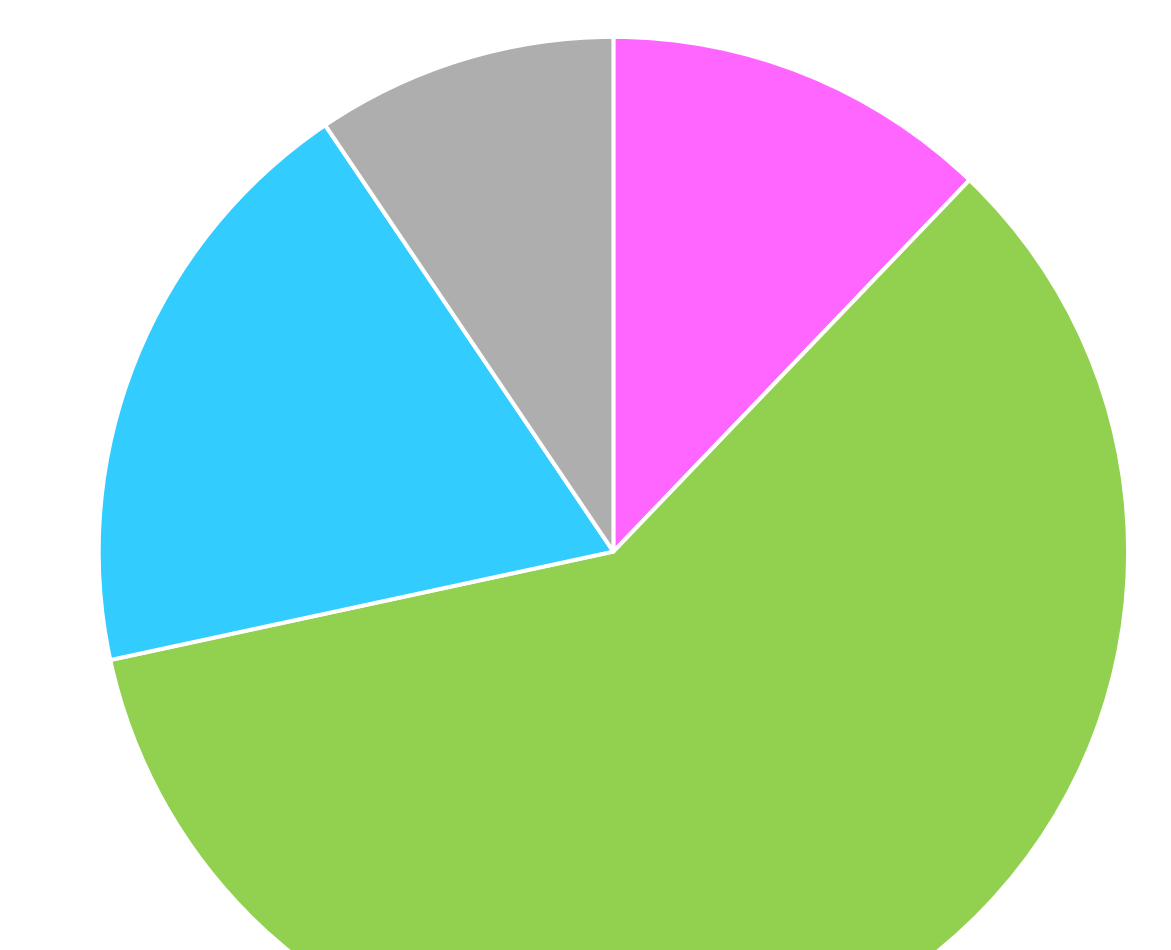
Least Preferred Version



Reason for least preferred version

Less authentic	19.59%
Dislike higher complexity	16.22%
Intimidation of real study	16.22%
Dislike lower complexity	15.54%
Stereotype threat	8.78%
Less connected	8.11%
Distraction from names	6.08%

Most Preferred Version



Reason for most preferred version

Easy to read	45.95%
Visualization	26.35%
Identity	21.62%
Distraction from names	8.11%
Similarity to past exams	6.76%
Like higher complexity	6.08%

## References

- 1) Van Dijk, T. A., & Kintsch, W. (1983). Strategies of discourse comprehension. New York, NY: Academic Press.
- 2) Hsu, J. L., Clark, N., Hill, K., & Rowland-Goldsmith, M. (2023). Investigating the influence of assessment question framing on undergraduate biology student preference and affect.

## Results (continued)

- The self-referential version was most preferred with 59.46%
- Students liked the self-referential version because it was easier to read, helped them visualize problems, and allowed them to relate to the problems
- The authentic version was the least preferred with 50.68%
- Students did not like the authentic version because the wording seemed more complex, and they felt intimidated by the idea of a real study
- There was no significant impact on students' self-reported levels of anxiety or sense of identity between any of the versions or assessments
- There was no significant change in preference or reason for preference between the previous iteration of this study and our implementation

## Conclusion

- Self-referential framing reduces students' cognitive load while taking exams
- Instructors should try to write their exam questions using self-referential framing because it has potential to positively impact their students.



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