

Using Targeted Quizzes to Address Common Errors and Improve Student Learning

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INTRODUCTION

- Observation across multiple cohorts:** Students consistently make *similar errors and exhibit recurring misconceptions* in foundational computing concept.

- Intervention:**

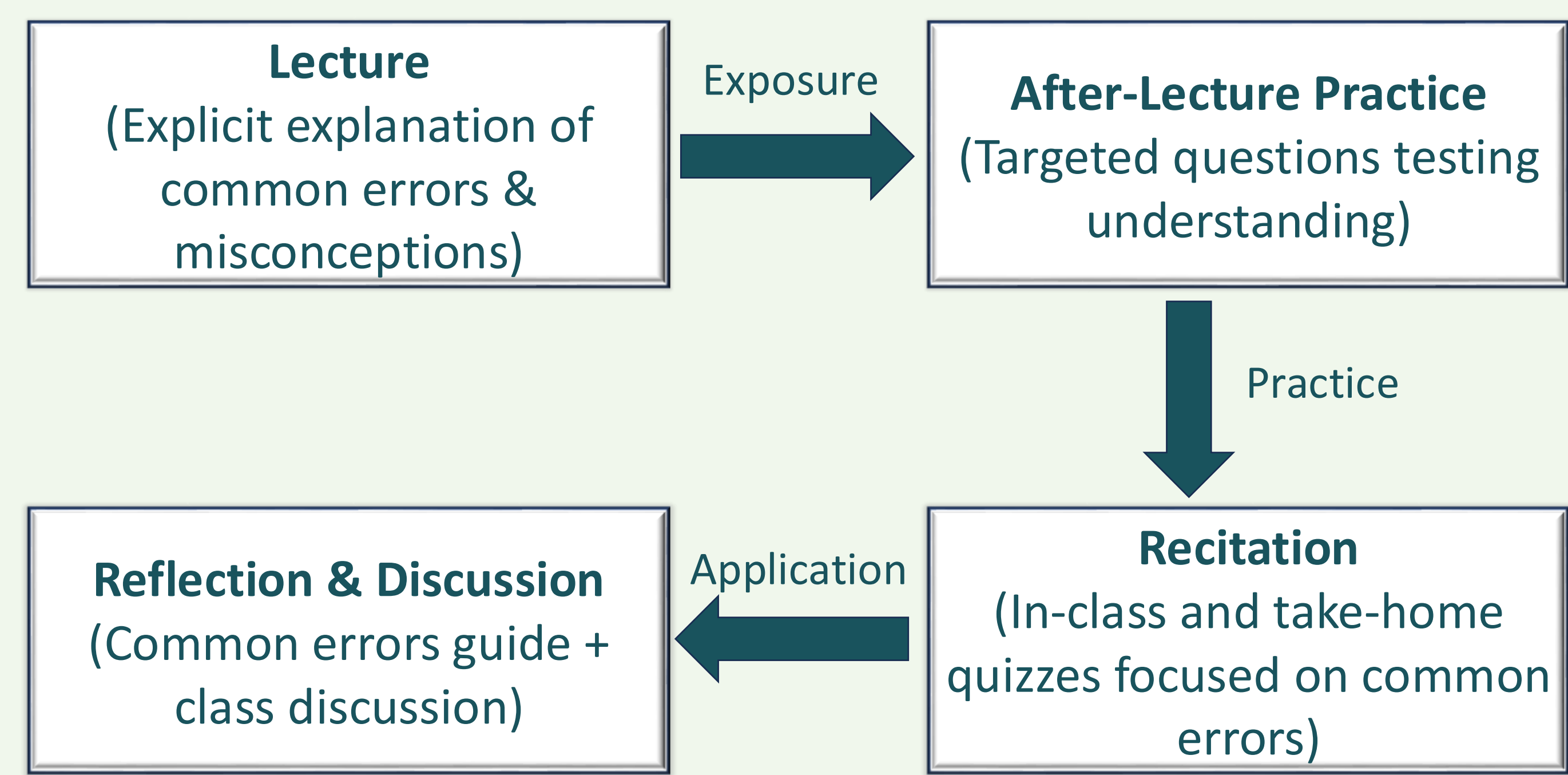
Targeted in-class and take-home quizzes explicitly aligned with common errors and misconceptions

Detailed common error guides

- Quizzes integrated into the course learning flow to provide timely feedback, reinforce correct understanding, and promote reflection.
- This study explores the following research question:

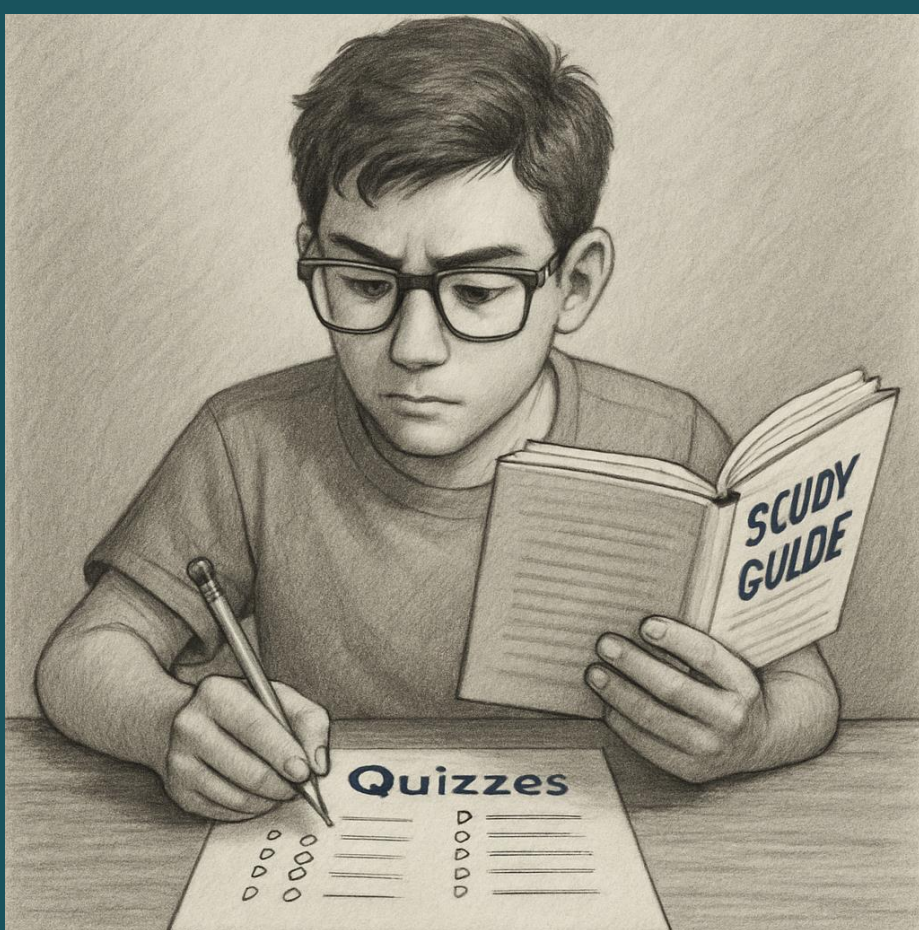
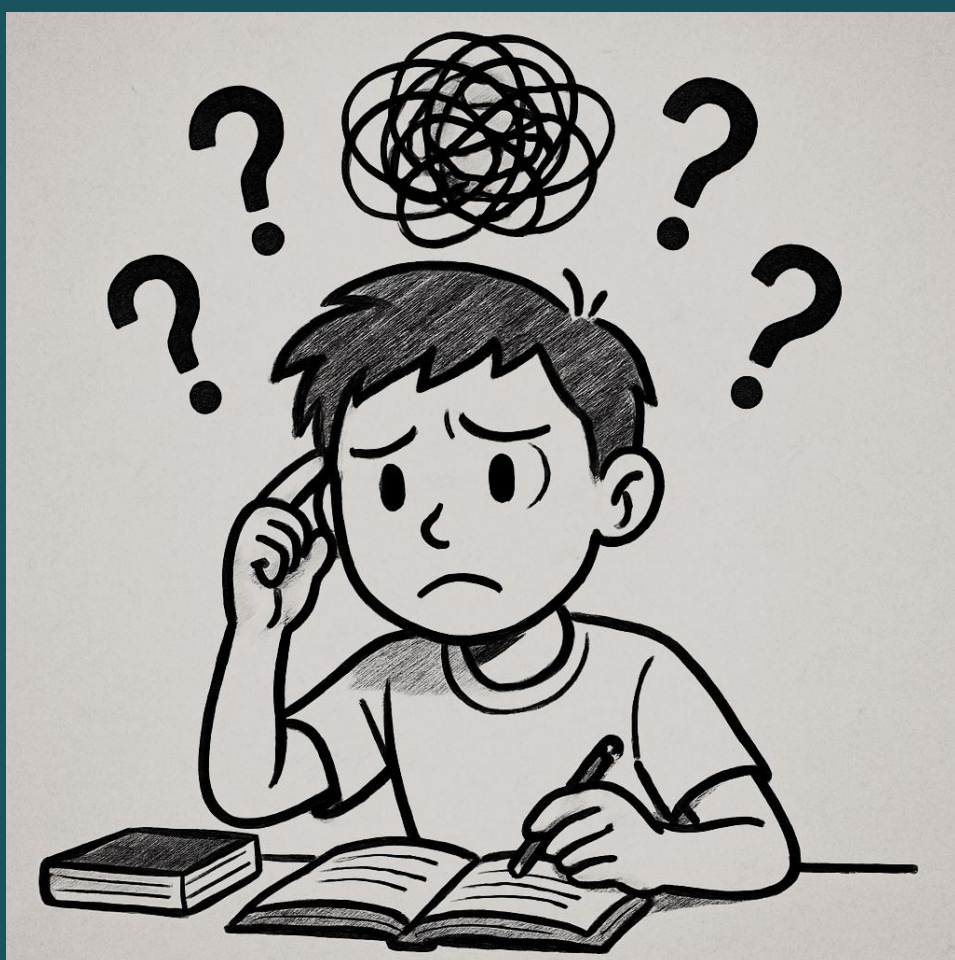
How do targeted in-class and take-home quizzes, specifically designed around common errors and misconceptions, improve learners' conceptual understanding?

COURSE DESIGN

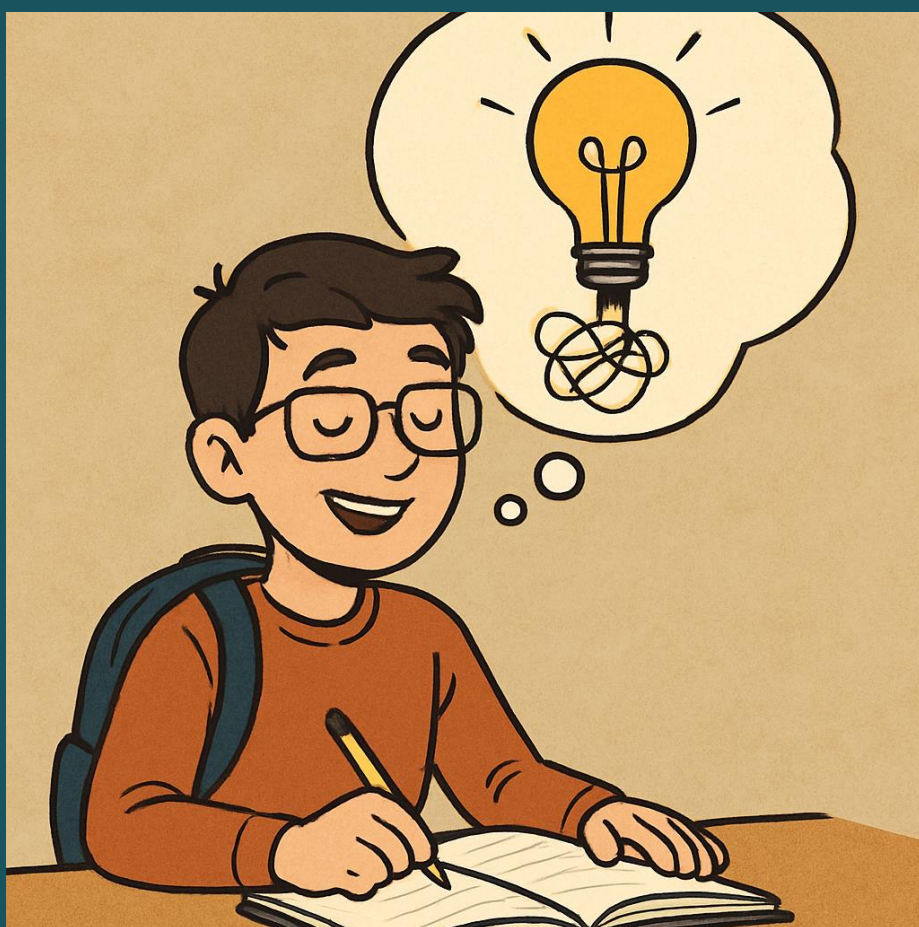


Key Design Features

- Targeted to known misconceptions and errors
- Low-stakes (optional, ungraded) quizzes
- Repeated reinforcement across learning stages

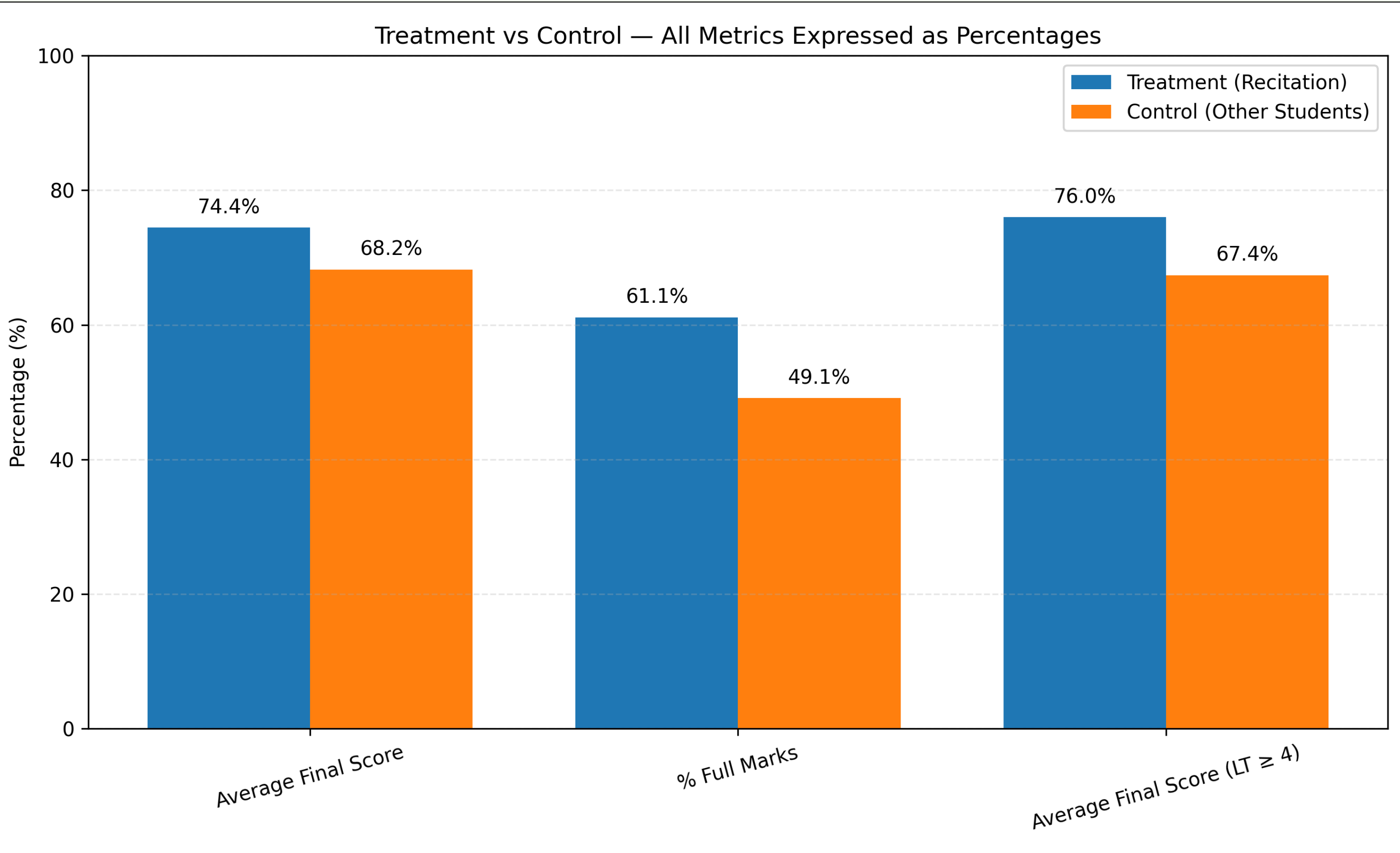


Targeted, *low-stakes in-class quizzes* designed around *common misconceptions and errors* enhanced engagement and conceptual understanding, with modest assessment gains.



RESULTS

- Assessment Performance:** Treatment group (90 students) *outperform* control group (344 students) across all metrics. Although the improvement was not statistically significant, a positive trend can be observed.



- High in-class engagement:** 74% of students participated in ungraded in-class quizzes, demonstrating *strong receptiveness* to in-class formative assessment.

DISCUSSION

- Optional take-home activities saw *low uptake* under high workload, despite being *perceived as useful*.
- In-class quizzes were widely *perceived as effective*, as confirmed by end-term feedback.
- Future plan is to integrate quizzes into lectures and expand on quizzes to cover more misconceptions and errors.
- Student feedback:

"I like the quizzes that help us to reinforce concepts."

"Her quizzes are also helpful in thinking about the concepts covered that week."