Homogeneous and Heterogeneous Peer Groups in the Secondary Science Classroom

NAPERVILLE CENTRAL HIGH SCHOOL

MONTANA STATE UNIVERSITY
Master of Science in Science Education

BACKGROUND

- Students in high school science classrooms often work together for labs and discussions
- As a teacher, I often find that less motivated students rely on their peers for answers, and disengage
- Is there a way group composition can be used strategically to foster engagement and learning?

TREATMENT

- Two classes will participate in the study, with one serving as the treatment (homogeneous) group for the first cycle, and then as the non-treatment (heterogeneous) group for the second cycle

Cycle 1	Cycle 2
Class A Treatment (Homogeneous)	Class A Non-treatment (Heterogeneous)
Class B Non-treatment (Heterogeneous)	Class B Treatment (Homogeneous)

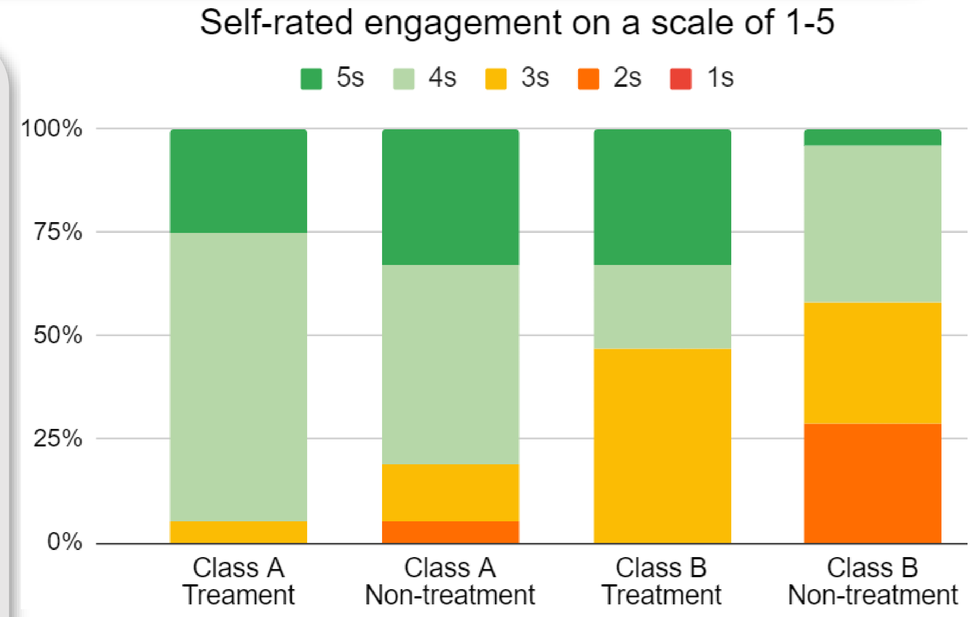
RESEARCH QUESTIONS

Does grouping students homogeneously or heterogeneously by academic performance improve classroom engagement and learning in an AP Physics classroom?

- Does homogeneous grouping affect different subgroups differently? For example, are high-achieving students affected differently by homogeneous grouping than low-achieving students?
- How do the different grouping styles influence students' perceptions of peer learning and group cohesion, both overall and in each subgroup?

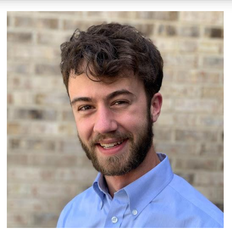
DATA TO BE COLLECTED

- While in groups, students will complete labs with their groups, and will be given periodic quizzes and tests as an ordinary part of learning. Scores on these can be used to measure engagement & learning.
- At the end of each cycle, students will answer a peer-review and self-review survey, reflecting on how much their group worked together and how helpful group work was to their learning.



FINDINGS & CONCLUSIONS

- Assessment scores on tests, labs, and quizzes are largely unaffected by the treatment
- Student self-reported engagement is higher during treatment cycles with homogeneous student groups, both overall and in each subgroup
- Students report more collaboration while working in homogeneous student groups, especially for high-achieving students



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