

TEACHER ASSIGNED LAB GROUPS:

How Specialized Groupings Affect Student's Social Confidence and Communication Habits

Meg Cleary, Manchester High School Central, NH, July 2024



Demographics

School Demographics

Manchester High School Central is the oldest public high school in the state of New Hampshire. There are 1305 students enrolled, 58.1% of students identify as a minority. On any given day, you will hear 30 different languages being spoken at Central.

Course Demographics

This study was conducted with the 11 students in my Advanced Placement (AP) Chemistry course. AP Chemistry is a rigorous second year chemistry course, available to students who have already completed one year of introductory chemistry. AP Chemistry students were chosen to complete this study because of their high interest in being successful in science courses, especially in courses that require lab group work.

Research Statement

The purpose of my capstone research was to assess how student's social confidence and communication habits was affected when they are given a certain group work role and placed in teacher assigned lab groups.

Key Findings

"My communication skills have definitely changed for the better especially with the different roles each time we do a new lab" – AP Chemistry Student

"I have been more attentive and aware if me and my partner(s) are on the same page. I have also started expressing my thoughts to contribute to the group even if I am not completely comfortable with the material" – AP Chemistry Student

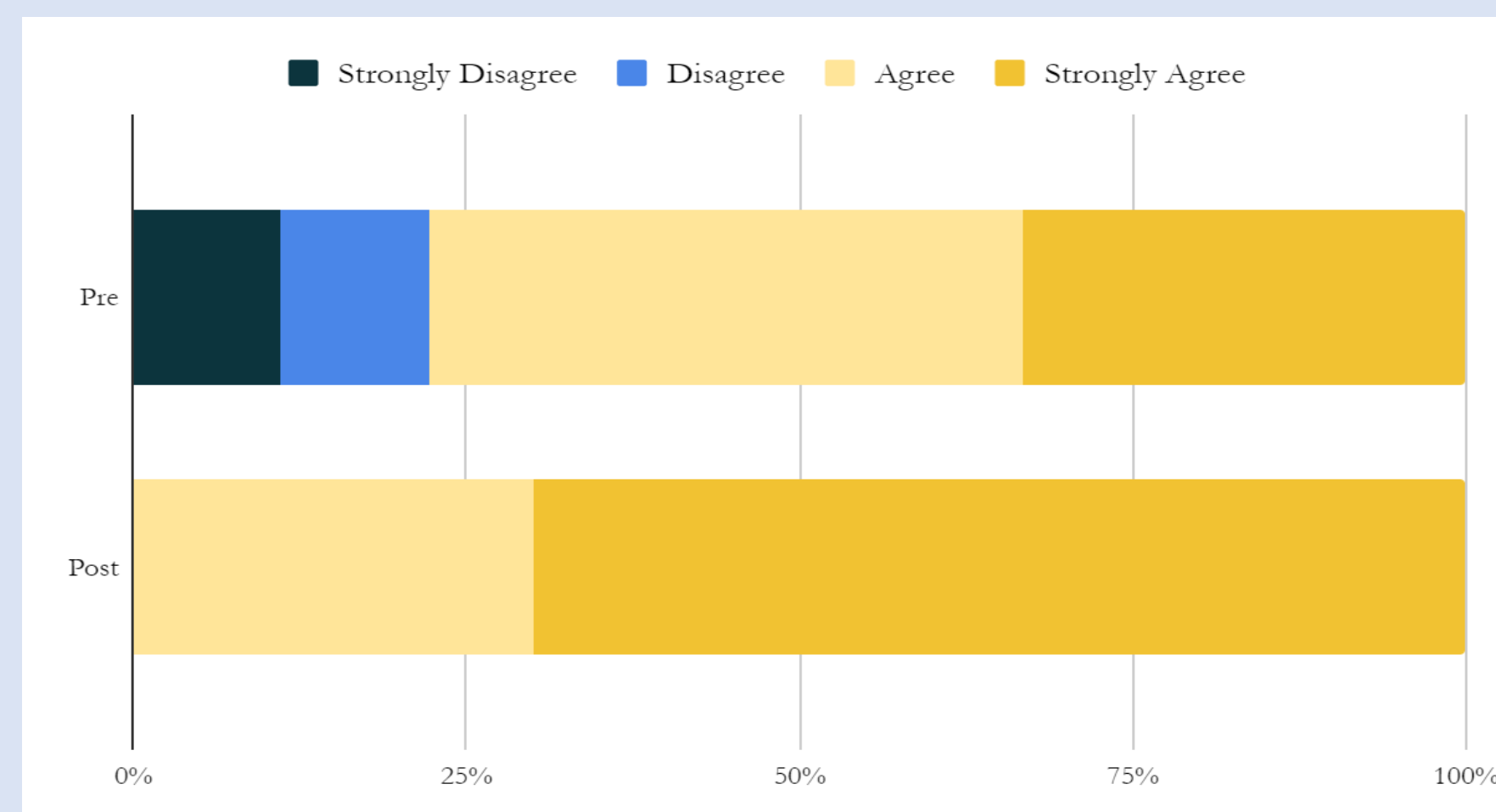


Figure 1. Results from Chemistry Group Work Aptitude Test, students' confidence in their ability to contribute effectively to any group chemistry discussion pre- and post- study (N = 10).

Methodology

December 2023 – March 2024



Data Analysis

Social Confidence

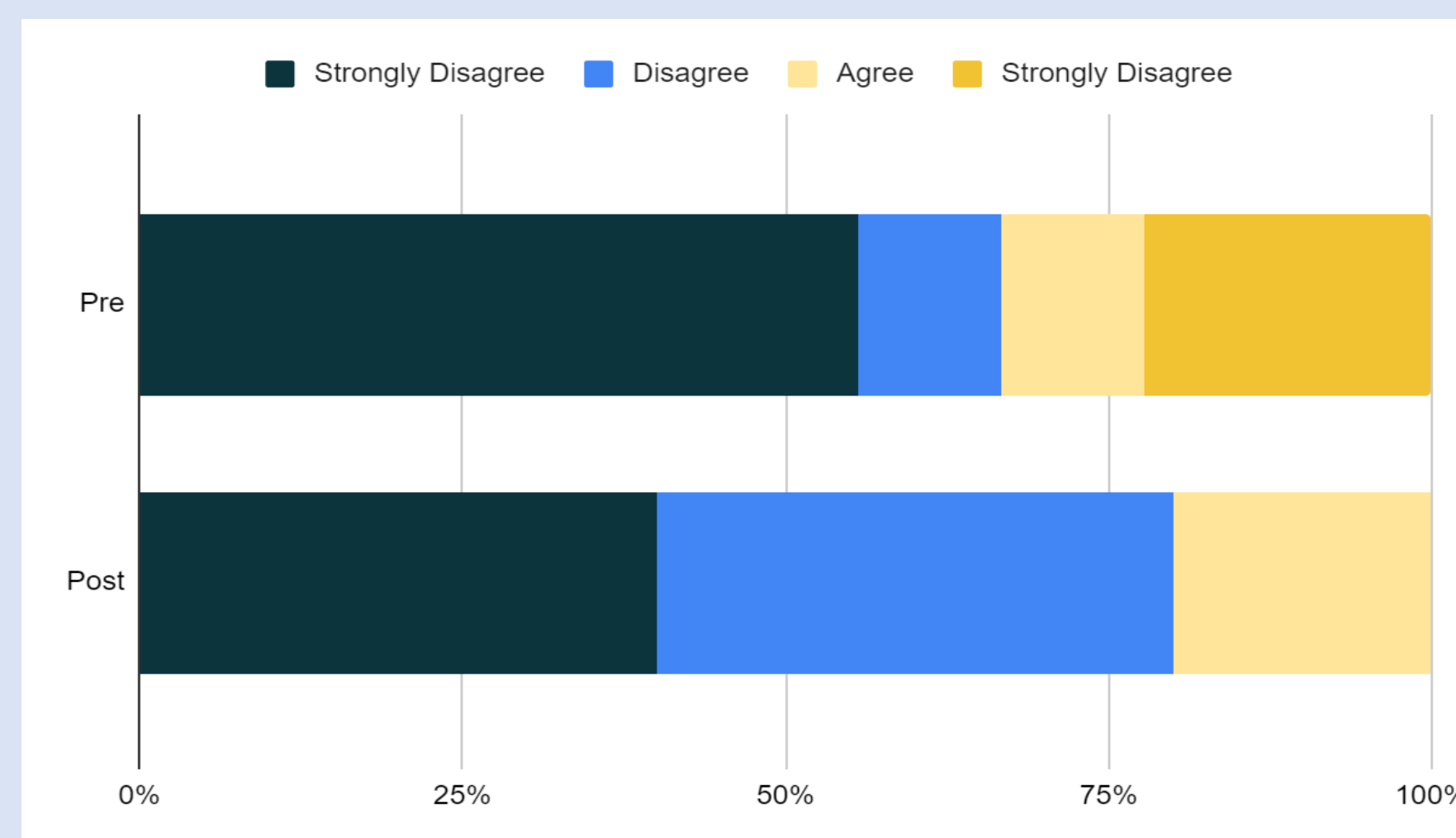


Figure 2. Results of question 10, Chemistry Group Work Aptitude Test, I do not feel confident sharing my ideas about chemistry when I am paired with people I do not know well (N=10).

Communication Habits

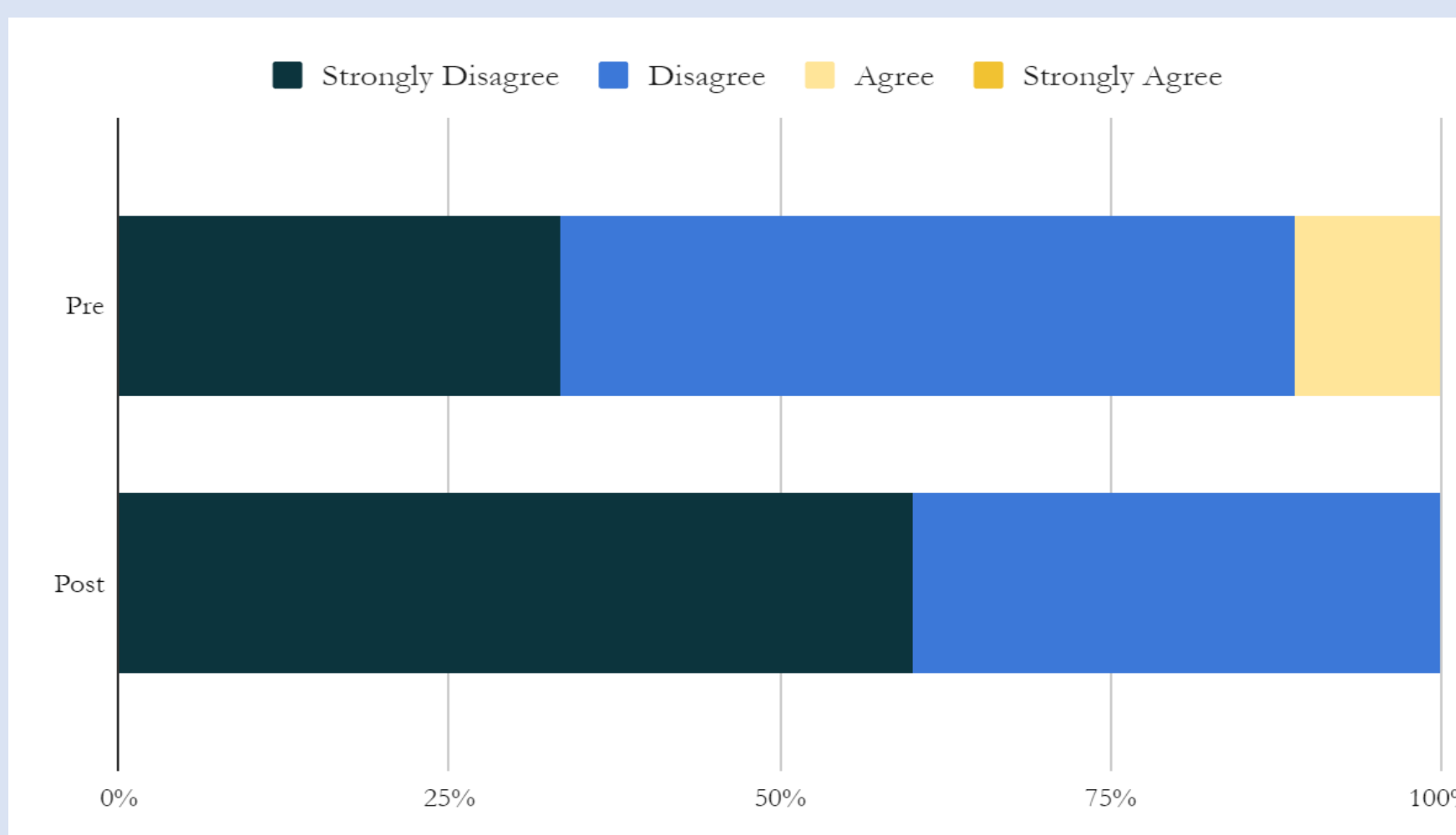


Figure 3. Results of question 13, Chemistry Group Work Aptitude Test, I would rather agree with other people than find an answer out on my own (N=10).

DATA COLLECTION INSTRUMENTS

1. Group Work Background Questions
 - 25 Likert questions
2. Chemistry Group Work Aptitude Assessment
 - 7 open-ended questions asking students to assess their baseline levels of social confidence, communication habits, and general thoughts towards group work.
3. Post-Lab Survey
 - 6 Likert questions
 - 1 muddiest point question
4. Partner Analysis Survey
 - 10 open-ended questions asking students to assess how working in the treatment groups changed their social confidence, communication habits, and academic abilities.

Claim Evidence Reasoning

CLAIM

- When given specific roles in teacher assigned lab groups, students' social confidence and communication habits positively increase.

EVIDENCE

- 70% of students report they are communicating more after being assigned to specific lab groups
- 75% of students indicate that they are confident in sharing their ideas with people whom they do not know well
- 100% of students agreed that they could confidently contribute to any group discussion relating to chemistry post-study

REASONING

- Assigning roles to students during labs gave them power to lead or follow. In addition to completing the lab, students also knew what they personally should be working on while the rest of the group is completing the lab.
- Assigning roles also gives the students a purpose to communicate on how to complete the lab. They could easily say, that is the role of the presenter, this is not what I should be doing right now.

- Statistical analysis did not show that the change in social confidence amongst students was statistically significant, except for one data point seen in Figure 1.

- Student confidence for each student is undefined on a day-to-day basis

- The data suggests that students did increase their social confidence because they were more confident sharing information relating to chemistry with their peers.

- Communication habits amongst students increased from the beginning of the study to the end of the study.

- 60% of students wrote that their communication habits changed, one student indicated that this was because they had a role to perform while completing the lab

- By the last lab performed in their group, 71% of students indicated that they were comfortable sharing their ideas in their lab group