Student views of what counts as doing physics in the lab

Taking notes counts but managing does not

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Background

Recognition is important for students’ identity development [1].

Men and women tend to take on different roles in the lab, with women disproportionately taking on Notes and Managing [2,3].

Women’s roles may not be valued as part of doing physics, and consequently women may not receive equal recognition to men.

Survey prompt

Which of the following experiment tasks or roles do you think counts as doing physics? Choose all that apply.

- Setting up the apparatus and collecting data. (Apparatus)
- Writing up the lab procedures and conclusions. (Notes)
- Analyzing data and making graphs. (Analysis)
- Managing the group progress. (Managing)
- Exploring the theoretical aspects of the experiment. (Theory)

Research questions

1. What lab tasks do students view as part of doing physics?
2. How does this vary based on student gender?

Intro lab

- First semester
- Engineering majors
- Independent lab units
- 45% women
- N = 239

Project lab

- Third semester
- Physics majors
- Semester-long project
- 30% women
- N = 28

In Intro Lab, results do not significantly vary by gender or across time

In Project Lab, gender difference in attitudes toward Notes and Managing emerges throughout the semester

Implications

- Students who take on a Notes role (primarily women) are likely receiving recognition as physicists.
- Students who take on a Managing role (primarily women) are likely not receiving recognition.
- Women in the Project Lab place more value on Managing and Notes than men by the end of the course, so women may receive less recognition in this majority-men course. This is concerning given that managing and notes are especially important in the Project Lab.

Future work

- Does role taken on impact student views of what counts as doing physics?
- What causes students’ views to shift (or not) throughout a course?
- How does role taken on impact students’ physics identity?

References