Factors Influencing Female Students at a Bay Area High School to Take AP Physics C

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INTRODUCTION

- Women have been persistently unrepresented compared with men in STEM.
  - Physics, Computer Science, Engineering
- Understanding and addressing the underrepresentation of women in STEM is important for a number of reasons.
  - Could potentially help to close the gender wage gap
  - Could also fill a vital predicted shortage in STEM jobs
  - Including the perspectives of women in STEM fields helps prevent bias
  - Having a more diverse group of problem solvers has been shown to produce better outcomes
- This study looks at what factors influence female students at a San Francisco Bay Area high school to take AP Physics C.

DATA AND FINDINGS

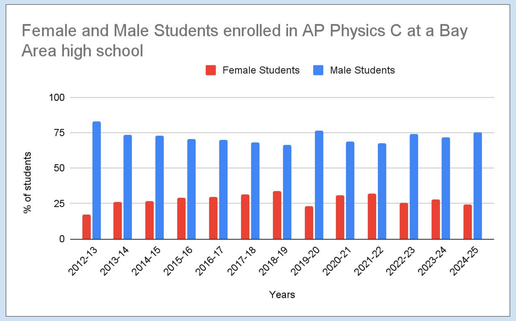

Figure 1: AP Physics C enrollment by gender at a SF Bay Area High School between 2012-2025. Data retrieved from Dataquest (CA Dept of Education).

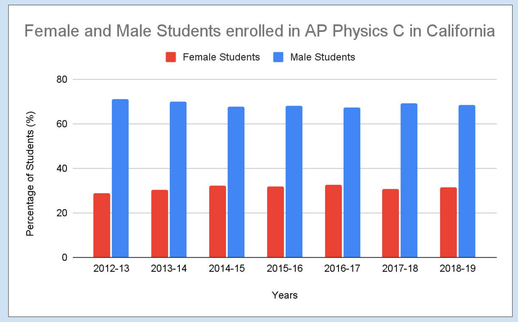

Figure 2: AP Physics C enrollment by gender in the state of California between 2012-2019. Data retrieved from Dataquest (CA Dept of Education)

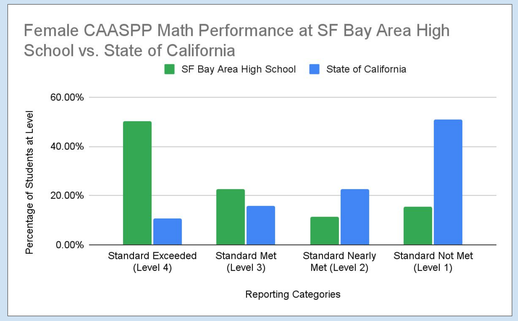

Figure 3: Eleventh grade female students CAASPP math performance at a SF Bay Area high school compared with performance at the state level in California for the 2023–24 school year. Data retrieved from CAASPP.

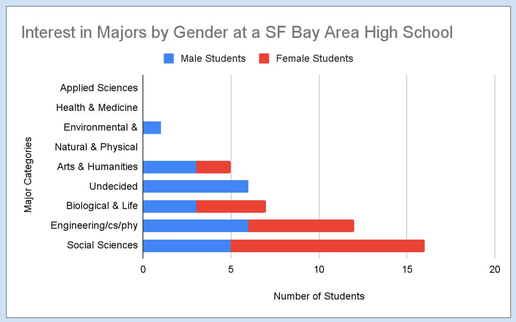

Figure 4: Interest in college majors by subject area and gender at a SF Bay Area high school. Data retrieved from survey responses.

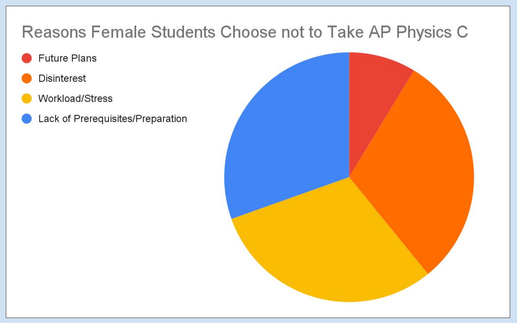

Figure 5: This graph shows the reported reasons of female students at a SF Bay Area high school as to why they didn't/don't want to take AP Physics C. Data retrieved from survey responses.

RESEARCH METHODOLOGIES

- A structured survey was administered online using Google Forms over a 5 week period.
- Participants were recruited from a SF Bay Area High School.
- A combination of correlational and case study research was used to analyze the survey results. Open-ended responses were thematically coded to identify common motivations and barriers to enrolling in advanced STEM courses and majoring in STEM fields.
- In addition to survey data, this study analyzed publicly available datasets from the California Department of Education ("CDE") and California Assessment of Student Performance and Progress ("CAASPP") to provide context for student STEM interest and ability.
- Publicly available datasets were accessed through the CDE and CAASPP websites.
- Data was analyzed from datasets from the Bay Area high school

CONCLUSIONS AND ANALYSIS

- Female students at a Bay Area high school are academically prepared for high-level math
- Female students are as interested in math-intensive STEM careers as male students
- Female students are underrepresented in AP Physics despite academic preparation and STEM interest
- Female students reported the following primary motivations for pursuing STEM majors in college:
  - Personal interest, career goals and financial
- Female students reported the following primary reasons for not taking AP Physics in high school:
  - Lack of interest, workload/stress, lack of required prerequisites/other schedule issues

IMPLICATIONS & NEXT STEPS

- Factors beyond academic preparation
- Equal interest
- Primary factors:
  - Lack of required prerequisite courses
  - Perceived workload and stress
  - Lack of interest in physics
- Earlier accessibility/encouragement needed

ACKNOWLEDGEMENTS/REFERENCES

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Works Cited:

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