Decreasing the Enrollment Gender Gap in Computer Science Classes at a Silicon Valley Public High School

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Introduction

- Junior at Gunn High School
- Gunn Social Justice Pathway
- Founder of **Tech**Knowledge
  - Platform to encourage more middle school girl's to join the computer science pathway in high school
  - Help them prepare for **course selection** for the 23-24 school year

The GLOBAL Need

- Underrepresentation of women in STEM
  - <u>Computer Science specifically</u>
    - LARGE tech companies

- *Where does it start?*
  - Middle School? High School?
  - Gender stereotypes influence on career choices.

The LOCAL Need

- Underrepresentation of girls in computer science classes at a Silicon Valley Public High School
  - Only 30% of student enrollment is female
  - Ongoing problem
- Computer science is an important tool
  - Increasing in value, career opportunities, real world usage
  - More **girls** should be involved starting with the incoming freshman

The Project

- Centered around insightful <u>presentations</u> to middle school students
- Distributed informational <u>brochures</u>
    - Middle schoolers and middle school teachers
    - 8th grade parents
    - 9th, 10th, 11th grade high school girls

- Spoke with the middle school's CS, Engineering, and 8th grade math teachers
    - Ways to influence more girls in the pathway
    - Reached out to 8th grade middle school girls specifically encouraging them to enroll

Presentations

- Presented to around 100 middle schoolers
  - Majority 8th graders
- Provided:
  - Information on course selection
    - CS pathway specifically
- Focused on:
  - The need for more female representation
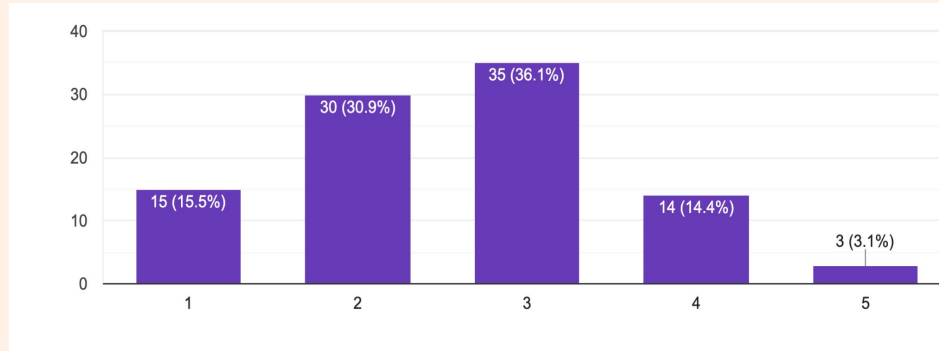 - Importance of learning computer science

Brochures

- Around <u>250 brochures</u> distributed
- Distributed copies to 8th grade parents during "Parent Night"
- Handed out before presentations for middle schoolers to reference to
  - 8th graders
  - 7th graders
- Gave around 50 copies to middle school teachers to distribute in their classes
- Promoted the CS pathway during course selection time in High School
  - Encouraged current 9th, 10th, 11th grade girls to join

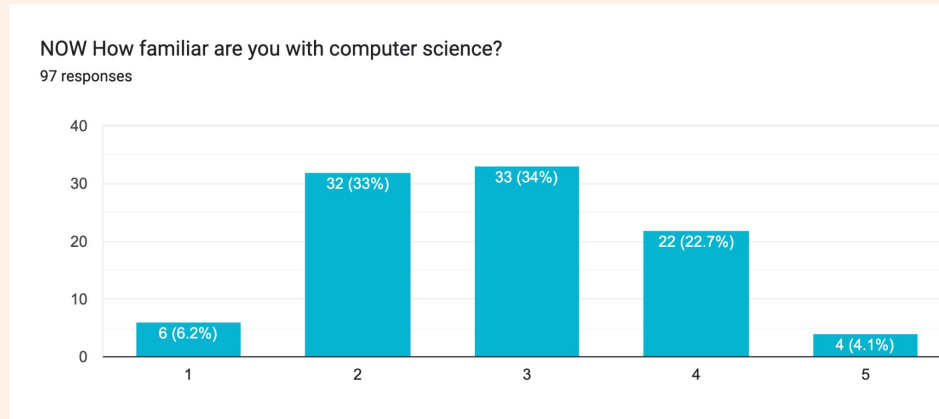# Presentation Survey Results

- Surveyed 97 students before and after presenting to test effectiveness
  - Identity:
    - 50 males
    - 45 females
    - 1 gender-fluid
    - 1 agender
  - Grade:
    - 55 8th graders
    - 42 7th graders
- Two questions surveyed twice (before and after):
  - "How familiar are you with computer science?"
    - On a scale of 1-5
  - "How likely are you to take a computer science class next school year?"
    - On a scale of 1-10

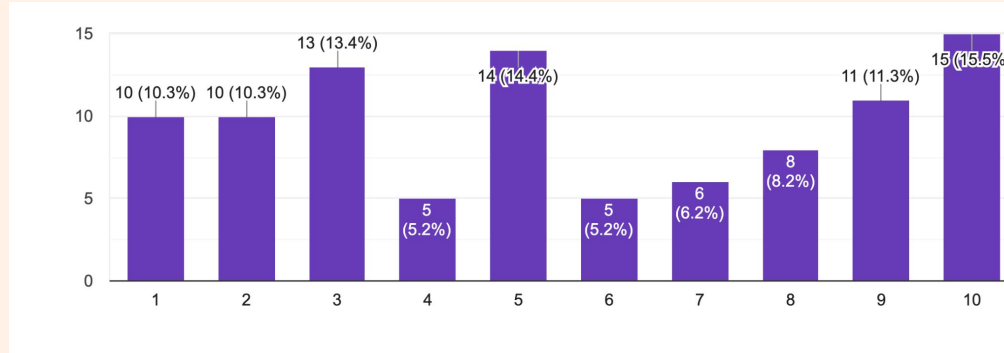# "How familiar are you with CS?"

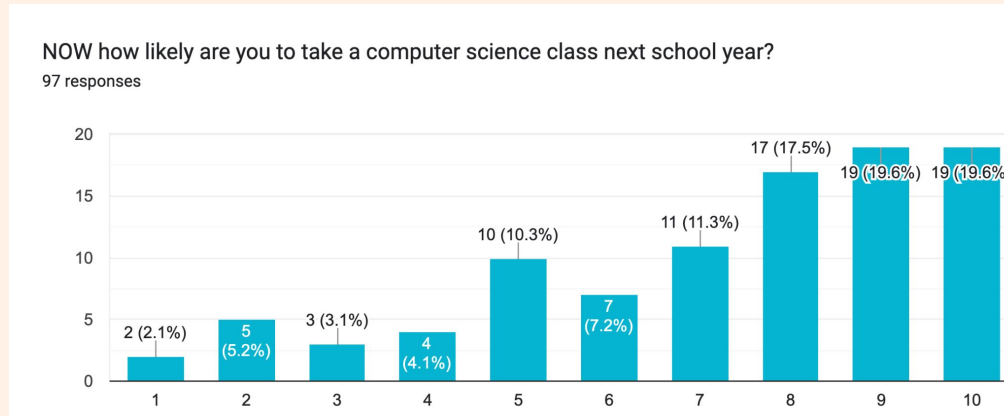**Before:**

After:

NOW How familiar are you with computer science?
97 responses

"How likely are you take a CS class next school year?"

Before:

After:

NOW how likely are you to take a computer science class next school year?

97 responses
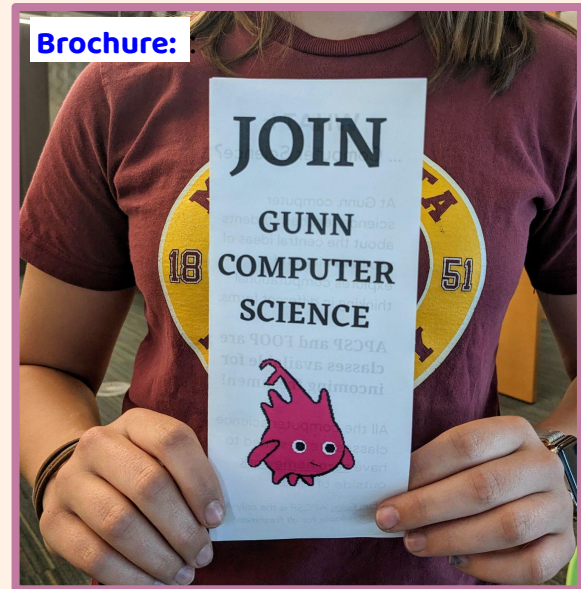
Project Results

- In the two courses offered at Gunn High School to incoming freshman, there was <u>an overall **increase** in freshman females enrolled!</u>

  - Comparing 22-23 and 23-24 school year CS course enrollment data

    - AP Computer Science Principles (APCSP)

    - Functional Object-Oriented Programming (FOOP)
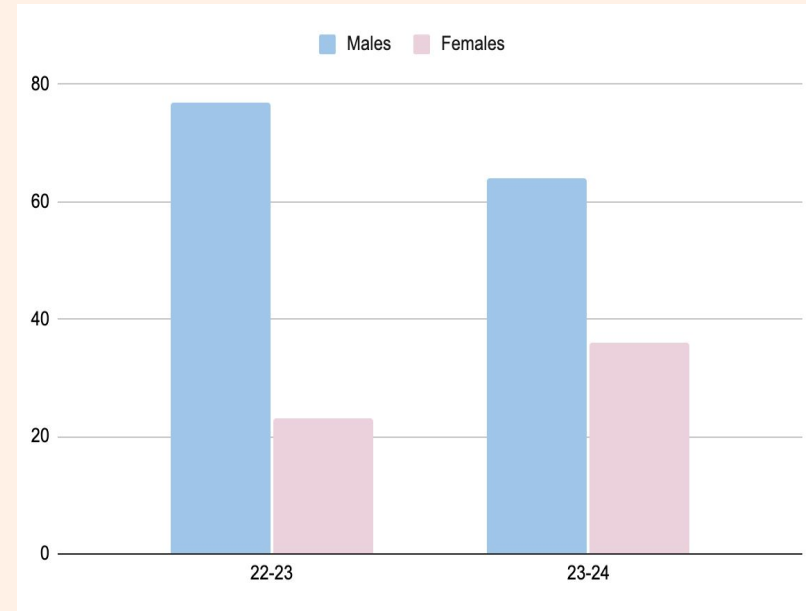

Brochure:

APCSP Percentage Comparison

22-23 School Year:

- MALE: 77% freshman
- FEMALE: 23% freshman

23-24 School Year:

- MALE: 64% freshman
- FEMALE: 36% freshman

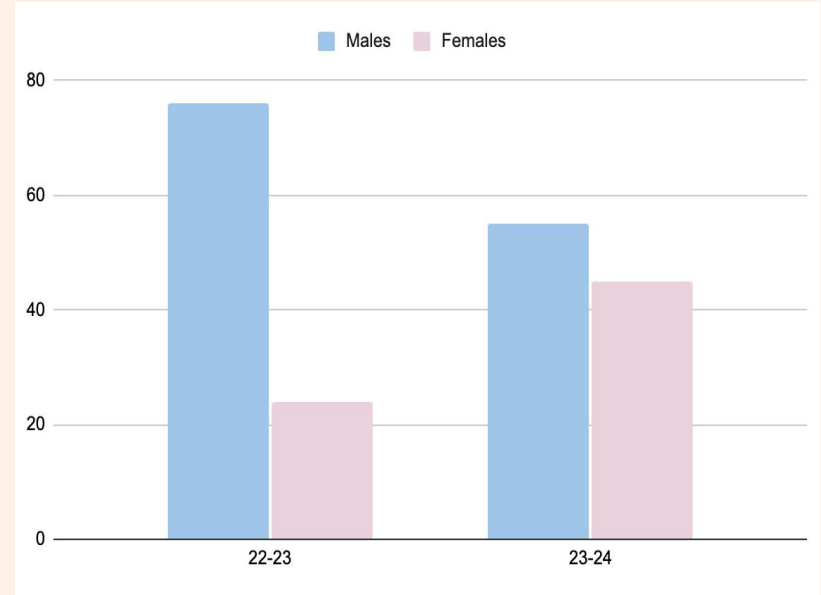
13% INCREASE in freshman females

FOOP Percentage Comparison

22-23 School Year:
- MALE: 76% freshman
- FEMALE: 24% freshman

23-24 School Year:
- MALE: 55% freshman
- FEMALE: 45% freshman

21% INCREASE in freshman females

Takeaways and Next Steps

- Brought more awareness towards the unspoken gender gap within CS classes
- Importance of Activism and Social Justice starting with my own community
- <u>Short-term</u>:
  - Small gap improvement but headed in the right direction
  - Focused on one middle school and one high school
- <u>Long-term</u>:
  - Conduct more research and continue promoting CS classes
  - Advocate for more female representation in CS classes within other local high schools

- **Encourage more girls to learn computer science everywhere!**

Sources

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Thanks

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Gunn High School CS Teachers

Fletcher Middle School Teachers