CS-LISTEN Mission Vista HS

Research Question

How do we encourage CS 1 students to continue the CS pathway?

BACKGROUND

Mission Vista High/ Vista Unified SD
- Located in a suburban community approximately 25 miles north of San Diego
- Magnet School with an emphasis in the areas of Arts & Communication as well as Science & Technology
- Operates on a 4x4 block schedule
- 1660 Students
- 44.7% White, 37% Hispanic, 9.2% Asian, 4.3% Filipino, 3.1% African-American
- 40% Socioeconomically disadvantaged

Alumni Interview Highlights

- Exposure to CS early
- Get students to take CS1 as 9th or 10 graders
- Give more support with the complex concepts of object-oriented programming
- Need to get feedback from female alumni

METHODOLOGY

Survey
- Survey emailed to 273 students who had taken at least one CS course. 137 responses were received.
- Survey targeted 3 groups: those who will make CS1 the final course, those who plan to take CS2, and those who are taking/have taken CS2 or beyond. Each group was analyzed separately.
- Created a survey that mainly targeted personal experiences
- The survey employed skip logic and asked different questions based on previous questions

Interview
- Interviewed 14 MVHS CS Alumni over Zoom who are either in college (5) or in a career (9).
- Interviews were transcribed and responses consolidated into a Google Sheet.
- Questions focused on how their experiences at MVHS help them now
- Asked what could have been done better

SURVEY FINDINGS

- A majority of students have an increased interest in Computer Science after taking CS1

<u>Group that stopped after CS1:</u>
- 51.7% took CS1 as a senior
- 24/33 (**72.72%**) said they were more interested in CS after taking the course
- 6/24 (**25%**) of those who said they were more interested said they had scheduling conflicts
- Main reasons students stop after CS1 are 1) they are seniors or 2) they don't feel they are smart enough

<u>Group that plans to take CS2:</u>
- 60.9% were 9th graders in CS1
- 91.3% reported an enjoyment level of at least a 4
- 63% rated CS1 difficulty levels as moderate (2-3) and 37% rated CS1 difficulty levels as challenging (4-5)

<u>Group in CS2 Currently or Beyond:</u>
- 50% of students who continued on took CS1 in 10th grade
- 33.9% said no for continuing CS classes
  - 42.9% ran out of schedule space
  - 28.6% finished all CS courses
  - 28.6% lost interest
- Over half chose to continue the CS pathway because they desire to learn more about the computer science field.
- About ⅓ wants a possible career or degree in computer science.
- The remaining respondents are continuing as they enjoyed CS1
- Students that complete the CS pathway have had previous exposure to CS prior to taking CS1

Beginning

- Expose students to CS before they take CS1
  - to give an increased interest in CS
  - to gain confidence that they are smart enough to be successful in CS
  - to lead to more students continuing the pathway, and
  - to get them to start CS1 earlier
- Offer middle school afterschool program
- Pathway advertisement
- Introduce more work with Python
- Incorporate more group projects