

Math Anxiety and its Effects on Academic Performance: A Look at Community College Students and their Decision-making

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Research Focus

- ◇ Understand the formation of math anxiety and how students navigate this experience in their academic career
- ◇ Literature reading & datasets were used to derive insights on the topic
- ◇ Focus groups focused on understanding the ‘why?’

Literature Review

- ◇ Articles covered topics such as
 - Working memory
 - Manifest Anxiety Scale
 - Math anxiety
 - Student engagement in STEM

Quantitative Research

- ◇ Anonymized data of 1,698 students' behavior
- ◇ 11.84% never placed into a math class
- ◇ One third of all students never enrolled in math
- ◇ Average of 8 months to enroll in a math class

Quantitative Research

- ◇ Extremely weak correlation between first math placement level and first math grade
 - Pearson's correlation coefficient of -0.022
 - Math placement does not impact math grade
- ◇ Extremely weak positive correlation between time elapsed from placement to math enrollment and grade
 - Pearson's correlation coefficient of 0.166
 - Longer time between placement and math class results in slightly better grades

Qualitative Research

- ◇ Focus group with four students using pseudonyms for anonymity
- ◇ Observer: Jimena took notes regarding body language and the environment of the room
- ◇ Interviewers: Matthew & Teresita traded off asking the students questions
- ◇ Consented audio recording and physical note taking used to create a transcript

Focus Group Questions

- ◆ When you were younger, did a parent assist you with your math homework? How did that experience change your relationship with math—did it help or contribute to any anxiety that you may have had?
- ◆ What factors influenced your choice to take math courses here at SCC in a certain order (like by semester, school year, or timeline)?
- ◆ If you had a math placement but chose not to enroll in a math course, what were the reasons you chose not to take a class?

Focus Group Questions

- ◆ If you feel comfortable sharing, did failing any math class at any point in school affect your motivation to keep going with your major or switch to a different one? If yes, how did it affect you?
- ◆ How do you feel about your math skills right now? How does this feeling affect your decisions about future classes or your academic goals?
- ◆ Are there any personal habits or outside commitments that you think make it harder for you to fully focus on your math work? Such as a job or family.

Conclusions

- ◆ Alignment and divergence in understanding students' experiences with math at SCC
- ◆ Math performance correlates with graduation rate
 - All focus group participants academically successful and on track to graduate
- ◆ Dataset identified an 8-month delay between placement and enrollment
 - Focus group explained personal factors influenced this delay
- ◆ Early parental involvement in math led to an appreciation of math and a tendency towards STEM fields
- ◆ Lack of early parental help struggled with math and leaned away from pursuing STEM fields

Future Recommendations

- ◇ Conduct additional focus groups of 4-8 students
- ◇ Use both community colleges and universities for research
- ◇ Increased sample size and diversity leads to higher quality data

Thank You!

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