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How Calculus Students at Successful Programs Talk About Their Instructors

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According to the PCAST report, have team under CSPCC Yes was MS Foundation No No How do the results compare across institutions? There is
Creating an atmosphere funded
The Dana Kirin Phase 2: Case studies at
Phase 1: National survey given to

How do students in successful Calculus programs talk about their instructors? To this end, we seek to better understand student experiences in successful Calculus courses by answering the question:

How do students in successful Calculus programs talk about their instructors?

Project Background

Characteristics of Successful Programs in College Calculus (CSPCC):

- Phase 1: National survey given to calculus students and their instructors at the beginning and end of the term (3,187 students; 231 instructors)
- Phase 2: Case studies at institutions deemed to have successful calculus programs (interviews with instructors, focus group interviews with students, collected class materials, observatory classes)

Indicators of Successful programs: student persistence on Calculus II, change in student confidence, interest, and enjoyment in mathematics

How do students in successful Calculus programs talk about their instructors?

Conceptually driven

Students often spoke of their instructors’ concern for understanding their foundational understanding of concepts in Calculus. These sorts of comments often alluded to a concern of students feeling that if simply completing the course with a passing grade, (no codes issued at doctoral level)

Available & timely

Students often perceived their instructors as accessible, available, and approachable both inside of class and outside of class; encouragement outside of class is encouraged; students at all institution types commented that their instructors were often available and responded in a timely manner.

Mathematically Diverse

One way in which students speak of their instructors as being helpful, is in offering multiple strategies to a single problem. It is an alternative way to think about the problem or an alternative approach in problem solving, students often mention diversity in their instructors’ mathematical approaches.

Creating an atmosphere

Students reported on a kind of positive atmosphere fostered by successful Calculus programs where students feel comfortable doing mathematics. They even go further to suggest that this kind of learning community not only increases their enjoyment, but it can even have a positive effect on their attitude and behavior.

Additional Findings

Three main findings were identified:

- Students in successful Calculus programs express their perceptions of instructors in an overwhelmingly positive way. Students speak positively about their instructor’s character, methods, and the learning environment created by their instructors.
- The data referring negatively to an instructor is present. However, the negative comments in the study are infrequent and do not significantly detract from the general positive perception of instructors.
- The study is significant enough to warrant the conclusion that students in successful Calculus programs talk about their instructors in a positive way.

Questions

Now that we have analyzed the data we would like to conduct further investigations regarding:

- How do the results compare across institution levels?
- How do the students talk about the teaching and learning of calculus?
- What do students think is the purpose of calculus?
- How are calculus instructors at successful institutions talking about their students?
- How are instructors and students talking about each other? Do they share a common vision of calculus in classrooms?

References


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