

# Assessing college students' views about mathematics with the Views About Mathematics Survey

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## **Abstract**

The mathematical views of two samples of university students are ascertained with the Views About Mathematics Survey (VAMS). VAMS is an instrument for assessing and characterizing student views about knowing and learning mathematics. It was administered to approximately 600 pre-calculus and third semester calculus students. Student views are described and compared across course, gender and course grade.

Student views were assessed on six conceptual dimensions and classified into four distinct profiles: expert, upper transitional, lower transitional, and folk. Students with an expert profile possess views aligned with the views of mathematicians (e.g., they think critically and employ effective problem solving methods). Students with a folk profile are passive learners and hold naive views about knowing and learning mathematics. Students with transitional profiles hold a mixture of these views.

Results reveal that: (a) third semester Calculus students hold views about knowing and learning mathematics that often diverge from the views of mathematicians and educators; (b) pre-calculus students' views are not noticeably affected by moderately reformed mathematics instruction; (c) a correlation exists between the number of expert views held by students and their achieved course grade; (d) gender differences were observed with male students reporting greater persistence and confidence than female students; and finally, (e) confidence correlates with achievement and aspects of expert mathematical views.