Case study of a college mathematics instructor: patterns of classroom discourse.

Summary: In the United States, undergraduates—regardless of their field of study—generally must complete a mathematics course to meet breadth-of-study requirements. This report is aimed at providing a research foundation for practical efforts to improve teaching and learning in such college mathematics service courses (e.g., college algebra, liberal arts mathematics, business calculus). The case participant, Professor Kale, was a PhD mathematician with 12 years of college teaching experience, 6 years as a graduate student and 6 years after the doctorate. He and students in both of his classes agreed to the daily video recording of their meetings for an entire semester. Through constant-comparative analysis of videos and extensive interviews with Professor Kale, as well as brief interviews with his students and other members of the department, we derived a description of discursive patterns in Kale’s classes. We conclude with possible implications for future work in college mathematics service course research and teaching.

Classification: C55 C65 C75

Keywords: post-secondary teaching; college mathematics courses; discourse; pedagogical content knowledge; empirical investigations

doi:10.1007/s10649-011-9323-4