

Abstract

Graduate teaching assistants (GTAs) are responsible for instructing approximately 25% of introductory statistics courses in the United States (Blair, Kirkman, & Maxwell, 2013). Most research on GTA professional development focuses on structured activities (e.g., courses, workshops) that have been developed to improve GTAs' pedagogy and content knowledge. Few studies take into account the social contexts of GTAs' professional development. However, GTAs perceive their social interactions with other GTAs to be a vital part of their preparation and support for teaching (e.g., Staton & Darling, 1989).

Communities of practice (CoPs) are one way to bring together the study of the social contexts and structured activities of GTA professional development. CoPs are defined as groups of practitioners who deepen their knowledge and expertise by interacting with each other on an ongoing basis (e.g., Lave & Wenger, 1991). Graduate students may participate in CoPs related to teaching in many ways, including attending courses or workshops, participating in weekly meetings, engaging in informal discussions about teaching, or participating in e-mail conversations related to teaching tasks.

This study explored the relationship between statistics graduate students' experiences in CoPs and the extent to which they hold student-centered teaching beliefs. A framework for characterizing GTAs' experiences in CoPs was described and a theoretical model relating these characteristics to GTAs' beliefs was developed. To gather data to test the model, the *Graduate Students' Experiences Teaching Statistics (GETS) Inventory* was created. Items were written to collect information about GTAs'

current teaching beliefs, teaching beliefs before entering their degree programs, characteristics of GTAs' experiences in CoPs, and demographic information. Using an online program, the GETS Inventory was administered to $N=218$ statistics graduate students representing 37 institutions in 24 different U.S. states.

The data gathered from the national survey suggest that statistics graduate students often experience CoPs through required meetings and voluntary discussions about teaching. Participants feel comfortable disagreeing with the people they perceive to be most influential on their teaching beliefs. Most participants perceive a faculty member to have the most influential role in shaping their teaching beliefs.

The survey data did not provide evidence to support the proposed theoretical model relating characteristics of experiences in CoPs and beliefs about teaching statistics. Based on cross-validation results, prior beliefs about teaching statistics was the best predictor of current beliefs. Additional models were retained that included student characteristics suggested by previous literature to be associated with student-centered or traditional teaching beliefs (e.g., prior teaching experience, international student status).

The results of this study can be used to inform future efforts to help promote student-centered teaching beliefs and teaching practices among statistics GTAs. Modifications to the GETS Inventory are suggested for use in future research designed to gather information about GTAs, their teaching beliefs, and their experiences in CoPs. Suggestions are also made for aspects of CoPs that might be studied further in order to learn how CoPs can promote teaching beliefs and practices that support student learning.