FAST Fellowship Program: A High-Engagement Professional Development Program for Future STEM Faculty
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A critical step towards improving STEM undergraduate education and increasing the number of STEM college graduates, is the preparation of STEM future faculty committed to implementing and advancing effective teaching practices as an integral part of successful professional careers. High engagement, well-supported teaching development programs have been shown to be effective in promoting faculty’s use of evidence-based teaching practices in their classrooms (Beach et al., 2012; Henderson et al., 2011).

The Future Academic Scholars in Teaching (FAST) Fellowship Program at Michigan State University implements a professional development model designed to prepare future faculty to integrate the multiple components of academic careers. The program, initiated in 2006, emphasizes a commitment to teaching and learning grounded in a thorough understanding about the roles and responsibilities that are part of an academic career. FAST is a cohort-based, academic year-long program that provides a reflective learning community for mid-to-senior level STEM doctoral students who are committed to continuously improve their teaching practices.

We will present the evaluation results from three cohorts of STEM doctoral students enrolled in the FAST Fellowship Program from 2009-2012 (N=25). We will focus on the results from the analyses of pre- and post-program surveys, and will also include some interview data. Specifically, we will: (1) describe the structure and implementation of the program, (2) present and discuss evaluation results, and (3) discuss the short-term impacts of the program on participating graduate students.

Our goal is to conceptualize the characteristics and elements of the FAST program that are important for the success of graduate student preparation programs that have a similar structure and goals. To aid in this characterization and to situate the FAST program among the range of graduate teaching development programs available at US universities, we draw upon teaching preparation models implemented in the faculty development field. Amundsen & Wilson (2012) developed a framework to describe core characteristics of faculty development programs. The framework typifies programs based on their goals and practices: skill-focused, reflective, one or more disciplines, institution, a pedagogical method and action research.

Our analyses indicate that the FAST program—by implementing a multi-faceted approach—falls under three of the modes described in the Amundsen & Wilson (2012) framework: reflective, disciplinary, and action research. FAST provided a reflective learning community for graduate students within STEM disciplines. FAST participants practiced action research in the context of their teaching, through Teaching-as-Research (TAR) projects, while improving their teaching skills and pedagogical knowledge.

Interview and survey data indicate that graduate students participating in FAST have improved in their ability to assess and evaluate learning, incorporate diversity in the classroom and the use of instructional methods that encourage active learning.

The FAST program represents a model for a high engagement graduate teaching professional development program, that can be adapted across institutions of higher education that are interested in developing similar programs. Our data indicates that the structure of FAST provides STEM doctoral students the opportunity to learn, practice, and reflect about their professional development specifically related to improving their teaching practices.