Mathematics Affirmations

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This poster reports on an action research project set in a developmental mathematics classroom in a community college. Students at the beginning of the semester expressed mathematics anxiety and did not believe they could succeed in the course. To help support students’ learning, the instructor and students co-created a list of ten statements that became the prevailing philosophy in the class. These statements helped students alter their view of their own mathematics learning.

Key words: Developmental mathematics, student beliefs, mathematics anxiety

The first day teaching a developmental mathematics course, I distributed a self-efficacy survey and questionnaire to give me insight into my students’ previous experiences learning mathematics and the challenges they foresaw which could affect their success. Several students discussed their responses personally and based on their prior experiences, they did not believe they even had the capability to succeed in my class. Several mentioned mathematics anxiety. It was clear that if I wanted to help these students see themselves as mathematical beings (Nasir, 2002), I would have to find a creative solution to alter their perspective on their potential for success. These conversations had a sense of urgency; my impression was that their negative self-talk needed to be addressed before students would be open to learning mathematics. Inspired by The Definite Dozen (Duncan-Andrade, 2010), my students and I co-created a list of ten Math Affirmations to increase students’ self-efficacy (Bandura, 2008; Zientek, Yetkiner Ozel, Fong, & Griffin, 2013), reduce their anxiety (Dowker, Sarkar, & Looi, 2016), and develop a growth mindset (Dweck, 2006). The Affirmations included statements such as “I am capable of learning and doing math,” “Hard work is often mistaken for luck or natural ability,” and “Success comes from not being afraid to ask questions,” and were recited every day. The norms of the course centered on reinforcing the Affirmations so that they were not an empty set of statements read aloud, but the foundation for the pedagogical structure of the course.

When the Affirmations were initially presented, many students felt optimistic that the Affirmations would help them be successful in this class. One student wrote, “I believe that Math Affirmations will help me to sharpen my math skills and also help me a be a confident student” Another supported this sentiment; “I think they [the Affirmations] can all benefit us in many ways”. One student supported reading the Affirmations only once per week. Overall, student feedback at the beginning of the semester and during mid-semester feedback indicated a belief in the potential of the Affirmations to help improve students’ mathematics performance or attitude.

These students were successful compared to other developmental mathematics classes, (Bahr, 2010; Bonham & Boylan, 2011; Boylan & Nolting, 2011; Waycaster, 2001). Twenty-nine students enrolled in the course. Eighty one percent of the students completed the course by taking the final exam; 57% passed the common final exam. Students were also highly satisfied with the course with 95% of students stating they would recommend the course and instructor to others and felt the instructor motivated them to do their best.

The Math Affirmations could be introduced to reduce any trepidation students may have about their ability to succeed. Future research will explore whether the Affirmations reduce anxiety, increase self-efficacy, and how they may contribute to student success.
References


