Texas Middle and Secondary Mathematics Project
“TxMSMP”

National Science Foundation
Math/Science Partnership
Definition of Student Success

In light of the Texas Middle and Secondary Mathematics Project, our definition of success is aligned with the National Research Council definition to the publication titled It’s Up: Helping Children Learn Mathematics. Mathematical proficiency has the following components:

- Conceptual understanding - comprehension of mathematical concepts, operations, and relations;
- Procedural fluency - skill in carrying out procedures, flexibility, accuracy, efficiency, and appropriately;
- Strategic competence - ability to formulate, represent, and solve mathematical problems;
- Adaptive reasoning - capacity for logical thought, reflection, explanation, and justification;
- Productive disposition - habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy.

Students who have reached the level of proficiency would not only pass exit level exams for high school graduation, but having these attributes relative to high school courses, they would be well-prepared for college or the work place, a requirement for “student success.”

Role of Partners Related to Student Success

Stephen F. Austin State University mathematics faculty and educational specialists developed courses and materials to support the education of underprepared middle school teachers in the East Texas region. Mathematics faculty and educational specialists developed the course content with support from educational specialists. SFASU TAMSP project personnel were responsible for implementation of all project activities.

Collaborative efforts with Horizon Research, Inc.

SFASU TAMSP collaborated with Horizon Research, Inc. to further study the effects of the project on student achievement. Through repeated data collection, analysis, and reporting, HR studied the impact of the project’s truth with teachers and school district administrators.

These research questions emerged:

- What is the impact of teachers’ participation in TAMSP program on the students’ mathematics content knowledge, proficiency in mathematics, and teaching practice?
- What is the impact of teachers’ participation in TAMSP program on the students’ mathematics learning experiences and achievements?
- What are the individual school and district-level impacts of TAMSP work with administrators, and participating teachers as leaders?

Research Design Related to Student Success

SFASU Mathematics Faculty Research Team —

Research Design Related to Student Success

The Texas Middle and Secondary Mathematics Project sought to improve the awareness and involvement of college/university mathematics departments in the project operation.

TAMSP Goal:

- Improve the capacity of teachers in 4–12 grade-level mathematics classrooms to enhance student performance and increase the number of students who reach the highest level of proficiency on state or national achievement tests.
- Prepare teachers to become Texas Master Mathematics Teachers.
- Increase student performance at high school exit level exams through classroom experiences and summer enrichment activities within collaborating districts.
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Challenges and Resolutions

Challenges: Some influence a central knowledge of under- prepared teachers, making it difficult for them to engage in effective instruction. MTFs are often asked to provide a vision for materials they can use immediately. Using Katherine K. Merseth’s “Got Math?” curriculum as a model, TAMSP has engaged MTFs in the development and implementation of math camps.

Successes: Signed agreements between MTFs and school districts to fund and sustain MTF-collaborative content development and professional development.

Definition of Student Success

The definition of student success is aimed at ensuring that students not only graduate from high school, but also develop the skills necessary to succeed in college and the workforce. This definition includes measures such as standardized test scores, graduation rates, and post-high school outcomes. It is important to note that student success is not just about academic achievement, but also about personal growth and development.

Research Design Related to Student Success

The research design related to student success involves the use of qualitative and quantitative methods to evaluate the impact of the Texas Middle and Secondary Mathematics Project (TAMSP) on student achievement. This includes the use of pre- and post-assessment data to measure changes in student performance, as well as the collection of data from teachers and administrators to evaluate the effectiveness of the project.

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