

Project Outcomes Report

Award Title: Improving Educational Outcomes in Manufacturing Engineering Technologist and Technician Education (METTE) Programs

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This technician education research project aimed to improve student success in Wisconsin's technical college manufacturing and engineering technology career pathways. Using multiple student success indicators, we sought to identify the individual, educational, and environmental factors influencing students' short-term and long-term success in the educational setting and the workplace. A large integrated, longitudinal student-record database was provided and updated annually by the state education agencies (containing nearly de-identified 400,000 students records for 2005-2013 technical college students). The database was supplemented with student engagement survey data, as well as survey and interview data to address additional campus-specific research and innovation questions.

Working collaboratively with Local Leadership Teams (LLTs) on four Wisconsin Technical College campuses, we designed and supported networked METTE improvement communities. With assistance from a university-based research facilitator, these inter-departmental teams used locally focused analytics to implement targeted teaching/ learning/ student support/ assessment innovations designed to improve student progress, retention, completion, and/or transfer in one or more of the fifty METTE career pathways.

Across the 11 research and innovation studies completed during the project, mathematics proficiency and pre- or early student program choices emerged as significant challenges for METTE programs and students. Studies revealed the importance of contextualizing the METTE math curriculum and helping students complete math requirements early. Additionally, selected factors and practices associated with high school dual credit course completion (e.g., enrolling in college directly, completing summer college courses) predicted success in METTE pathways. Based on these findings, promising innovations were implemented on some of the partner technical college campuses. Most notably, the Milwaukee Area Technical College team systematically revamped several math courses within METTE programs.

Several student success-focused products were generated describing findings, conclusions, and recommendations for improving METTE student success. Project team members made 20 national and state conference presentations. Additionally, 10 articles or chapters were published in or are currently under review by peer-reviewed research journals. The portfolio of research and innovation products and outcomes generated is available on the project website, mette.wceruw.org