

## Contextualizing Math Instruction for Manufacturing

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### MATC Projects

- Purpose: to prepare students who fall under the math cutoff scores for full admission.
- Project #1 – For Associate Degree METTE program students - a new one-credit companion course (WELDTEC-195) to MathGen-110 that contextualizes math learning using examples from manufacturing to support Associate Degree students who are in the prepared-learner level math course.
- Project #2 – For METTE Diploma program students - a program specific math course with support from adult basic education (ABE) and hands-on learning, such as blueprint and shop courses.

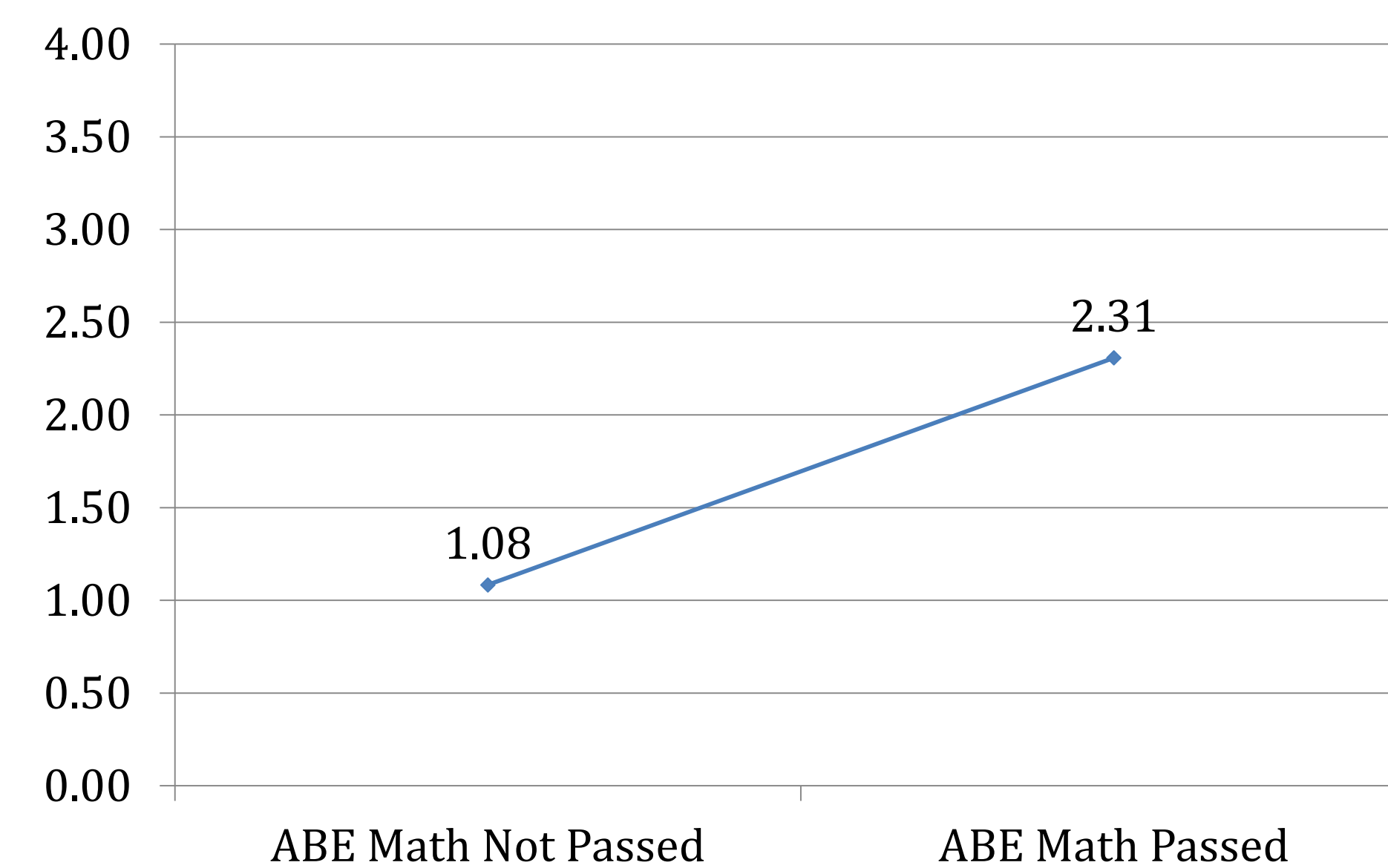
### Research Activities and Findings

- CCSSE data was collected and analyzed among METTE program students and results showed that students' math placement scores had positive relationship with their course GPA among students reporting high scores on the CCSSE benchmarks (including Active and Collaborative Learning, Academic Challenge, Student-faculty Interaction, Support for Learners, Student Effort. )
- Students' math requirement and fulfillment data was analyzed and results showed the importance of completing the math requirement early on in order to be successful.
- Classroom observations, interviews and surveys were conducted among project participants and results showed that students had overwhelmingly positive experiences overall and in math. It appeared that the contextualized approach improved students' self-efficacy beliefs in learning math and advancing toward their educational and career goals.

### Student Performance

- Statistical analyses were conducted to see the relationship between contextualization of math instruction with ABE Math support course and students' performance in Welding and Machine Tool courses.
- Students who passed the ABE Math support course were compared with those who did not. Results showed better performance among those who passed the ABE math support course.

Comparison of Course Grades among METTE Students



### Student Testimonial

“Sometimes you feel you have already given your best, but it is still not working. That sense is kind of defeating. But if you got WELDTEC-195, how can you lose. When you get math, it gives you a personal up boost. You know, like I can do math.”

### Dissemination and Training

- Disseminated the data analyses and results to METTE faculty and administrators.
- Developed and offered SPSS training session to 24 faculty and staff on campus to learn how to analyze, understand and use data collected from METTE projects.
- Incorporated a Student Success Assessment Tool (SSAT) into METTE to determine risk factors for METTE students not being successful. We plan to provide interventions to students using the SSAT results.

### Implications

- **These METTE projects showed to be promising for improving student success.**
- Since METTE's inception, more projects at MATC are incorporating the ABE support courses along with a program level Math course.
- Coordination and relationship between LAS, pre-college and program level faculty/administrators are strengthened and expanded to accommodate this effort.
- Research activities will continue to evaluate similar efforts to see their impact.