







Helping At-Risk Students Excel at Math

The Ohio State University at Mansfield
Mansfield City Schools
The Algebra Project




The Algebra Project

- National mathematics literacy effort.
- Aimed at helping low income students and students of color - particularly African American and Latino students - successfully achieve mathematical skills.
- Founded by Civil Rights activist and Math Educator Robert P. Moses in the 1980's.

The Algebra Project




- Works with schools seeking to achieve a *systemic change* in mathematics education.
- AP has developed curricular materials with NSF support, trains teachers & trainers of teachers, provides ongoing professional development support, and implements community involvement activities.

The Algebra Project




“The main goal of the Algebra Project is to impact the struggle for citizenship and equality by assisting students in inner city and rural areas to achieve mathematics literacy. Higher order thinking and problem solving skills are necessary for entry into the economic mainstream. Without these skills children will be tracked into an economic underclass.”

-Bob Moses




History of Mansfield Implementation

- Ohio State University-Mansfield entered a partnership with the Algebra Project in 2008.
- OSU Outreach Grant in April 2008; started work with 15 students in 8th grade: YPP
- National Science Foundation Grant in September 2008; one cohort of 9th grade students (n = 19) started in Fall 2009.
- One more grant and two new cohorts started in 2011, 2012.
- High School begins assuming full cost of cohorts and commits to one cohort/year in Fall 2013.




The AP HS Cohort Model

- Double Period Mathematics
- AP Curriculum
- Professional Development for teachers
- Young Peoples Project: YPP




Young People Project: YPP

- First Year of AP Implementation
 - Selection of students
 - First & second quarter
 - Lessons learned
- Growth of the program
 - Connection to Elementary Schools




View of an AP Classroom

- Year 1: "It looks like we're not doing math."
- 5-Step Curriculum Process
- Individual Stories
 - Raheem
 - Olisseo
- Year 2: Cohesion




First Cohort Data

- N=19
- Retention and mobility
 - Finish with 16 students
 - 13 enrolled in college
 - 1 in Marines
 - 2 Decided to start a family









Extending to K-8

- Request from superintendent
 - What was in place, wasn't working
 - Common language: with respect to content & methods
- Creating an AP K-8 model
- Cohort development
 - 2 cohorts, 2 days/month, each month, lesson study




Student Work

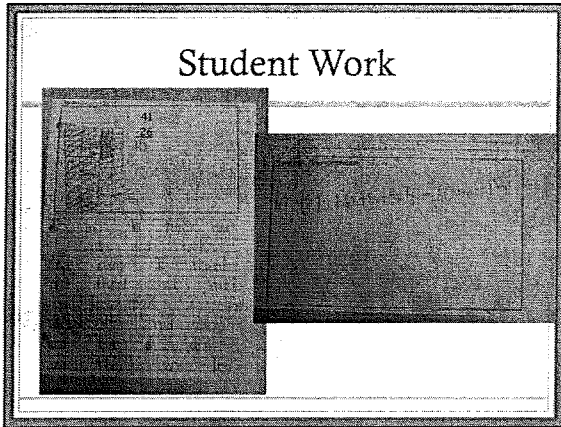


Amy's Story

- Where I came from.
- How I developed
- Where I'm at now.

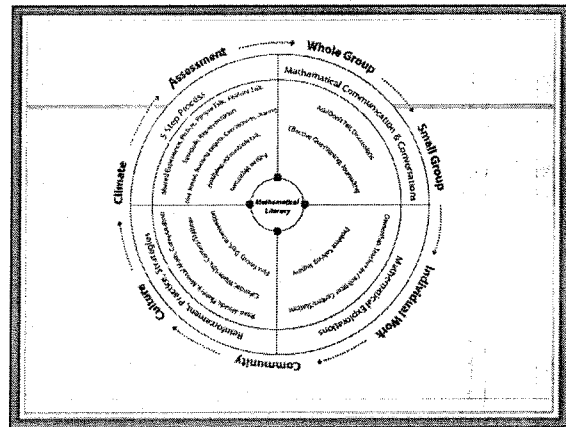


Mathematics Teacher Leaders

- The need for MTL's
- Site-based PD
- Sustainability- cost effective, individual building needs
- Decrease number of out-of-classroom days
- Selection
- Lesson Study
- Structure similar to Literacy Collaborative

Synergy between AP & CCSSM

- Mathematical Practices
- 5-Step Process
- Shared Experience
- Picture
- People Talk
- Feature Talk
- Symbolic Representation
- Grounding Metaphor



5-Step in Action: People Talk

Most Effective Least Effective

- Time out of the classroom
- Assessment
- On-site, job-embedded PD
- Transforming Teaching in the mathematics classroom

K-16

- Connection to Mathematics Content Courses
- Connection to Mathematics Methods Courses
- MTL's Work with Methods students
- Placements all in Mansfield City



Questions

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