| Goals of study | Study Background Information

**Transition to Algebra (TTA)**
Develop a curriculum intervention to support students who are underprepared for Algebra 1.

Conduct a quasi-experimental field test to seek evidence of promise of the intervention to raise the competence and confidence of students in mathematics. [http://ttalgebra.edc.org/](http://ttalgebra.edc.org/)

**Learning and Teaching Algebra (LTA)**
Develop a companion intervention to the CME Algebra 1 curriculum to support teachers and coaches in their initial year implementation.

Conduct a quasi-experimental field test to identify the initial impact of LTA materials on teachers’ mathematical knowledge and use of Common Core State Standards (CCSS) by students.

**Mathematical Practices Implementation Study (MPI)**
Examine the first two years of implementation of the CME Algebra 1 curriculum among new teacher users who receive a moderate level of professional development support.

Conduct a mixed-methods study to examine relationships among teachers’ CME curriculum use, mathematical knowledge, and instructional practice.

| Research questions related to fidelity | Study Background Information

**Transition to Algebra (TTA)**
Do students with teachers who demonstrate higher fidelity to the TTA curriculum have stronger mathematics outcomes?

**Learning and Teaching Algebra (LTA)**
Does LTA PD and coaching impact classroom fidelity?

Does faithful use of LTA materials impact student outcomes?

**Mathematical Practices Implementation Study (MPI)**
How may teachers' fidelity to the CME curriculum be related to teachers' mathematical knowledge for teaching and instructional practices over two years?

How may teachers' content fidelity be related to their presentation fidelity?

How may teachers' characteristics and school factors may be associated with higher levels of teacher fidelity to the CME curriculum?

| Data types used for measuring fidelity | Study Background Information

**Transition to Algebra (TTA)**
1) Surveys on use of curriculum
2) Live classroom observations

**Learning and Teaching Algebra (LTA)**
1) Surveys on use of curriculum
2) Live classroom observations
3) Video for refining instrument and confirming scores

**Mathematical Practices Implementation Study (MPI)**
1) Surveys on use of curriculum
2) Video-recorded classroom observations

| Sample for classroom observations | Study Background Information

**Transition to Algebra (TTA)**
2 high schools/2 district/1 state 9th grade
10 teachers
51 observations

**Learning and Teaching Algebra (LTA)**
17 high schools/5 districts/2 states 8th and 9th grade
40 teachers
53 observations

**Mathematical Practices Implementation Study (MPI)**
14 high schools/10 districts/5 states 9th grade
20 teachers in Year 1, 12 in Year 2
176 observations

| Timeframe for data collection | Study Background Information

**Transition to Algebra (TTA)**
One academic year for tool development and data collection (2011-2012)

**Learning and Teaching Algebra (LTA)**
One academic year each for tool development and data collection (2012-2014)

**Mathematical Practices Implementation Study (MPI)**
Two years for tool development and data collection, occurring simultaneously (2011-2012 and 2012-2013)

| Intervention | Study Background Information

**Transition to Algebra (TTA)**
Curriculum

**Learning and Teaching Algebra (LTA)**
PD, PD materials, coaching and curriculum

**Mathematical Practices Implementation Study (MPI)**
Curriculum

(see reverse for key citations)
Key Citations

Mathematical Habits of Mind

...we’d like students to think about mathematics the way mathematicians do...They should be able to use the research techniques that have been so productive in modern mathematics, and they should be able to develop conjectures and provide supporting evidence for them.


Content Fidelity versus Presentation Fidelity


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