



APLU Science and Mathematics Teacher Imperative

MATHEMATICS TEACHER EDUCATION PARTNERSHIP

Mathematics Teacher Education Partnership

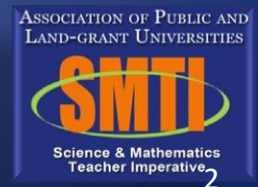
Presentation to the
Critical Issues in Mathematics
Education Workshop, MSRI

March 27, 2014



MTE-Partnership

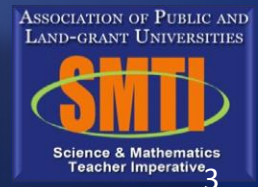
- Organized by the Association of Public and Land-grant Universities (APLU) as a part of its Science and Mathematics Teacher Imperative (SMTI).



MTE-Partnership Goal

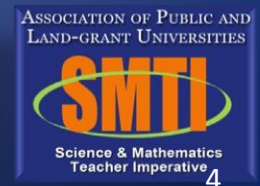
To transform the preparation of secondary mathematics teachers to ensure they can promote mathematical excellence in their future students, leading to college and career readiness as described in the Common Core State Standards for Mathematics (CCSS-M).

“To set the bar for the nation in secondary mathematics teacher preparation”



MTE-Partnership Membership

- Consists of partnership teams that include:
 - An APLU/SMTI institution as the lead
 - At least one K-12 district
 - At least one other organization (e.g., collaborating university, college, or community college; regional inservice center; state department of education)
- Teams must demonstrate continuing involvement of:
 - Mathematics educators
 - Mathematicians
 - K-12 educators



MTE-PARTNERSHIP TEAMS



38 Partnership Teams – 30 States:

- 68 universities and 9 community colleges
- 87 school systems

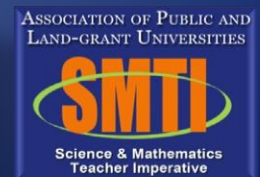
Networked Improvement Community (NIC) Design

The NIC design marries:

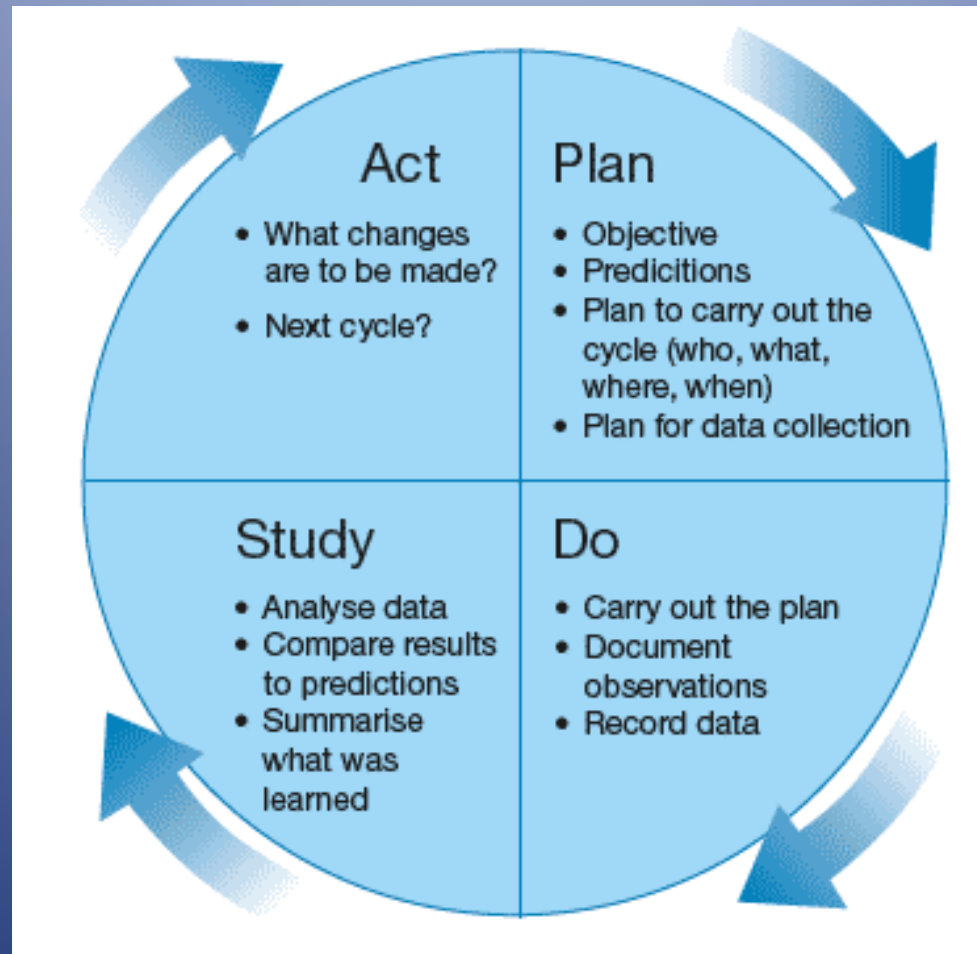
- precepts of improvement science, such as problem analysis and “Plan-Do-Study-Act” cycles, with
- precepts of networked design, so that common activities and measures can be carried out across a range of contexts

in order to produce

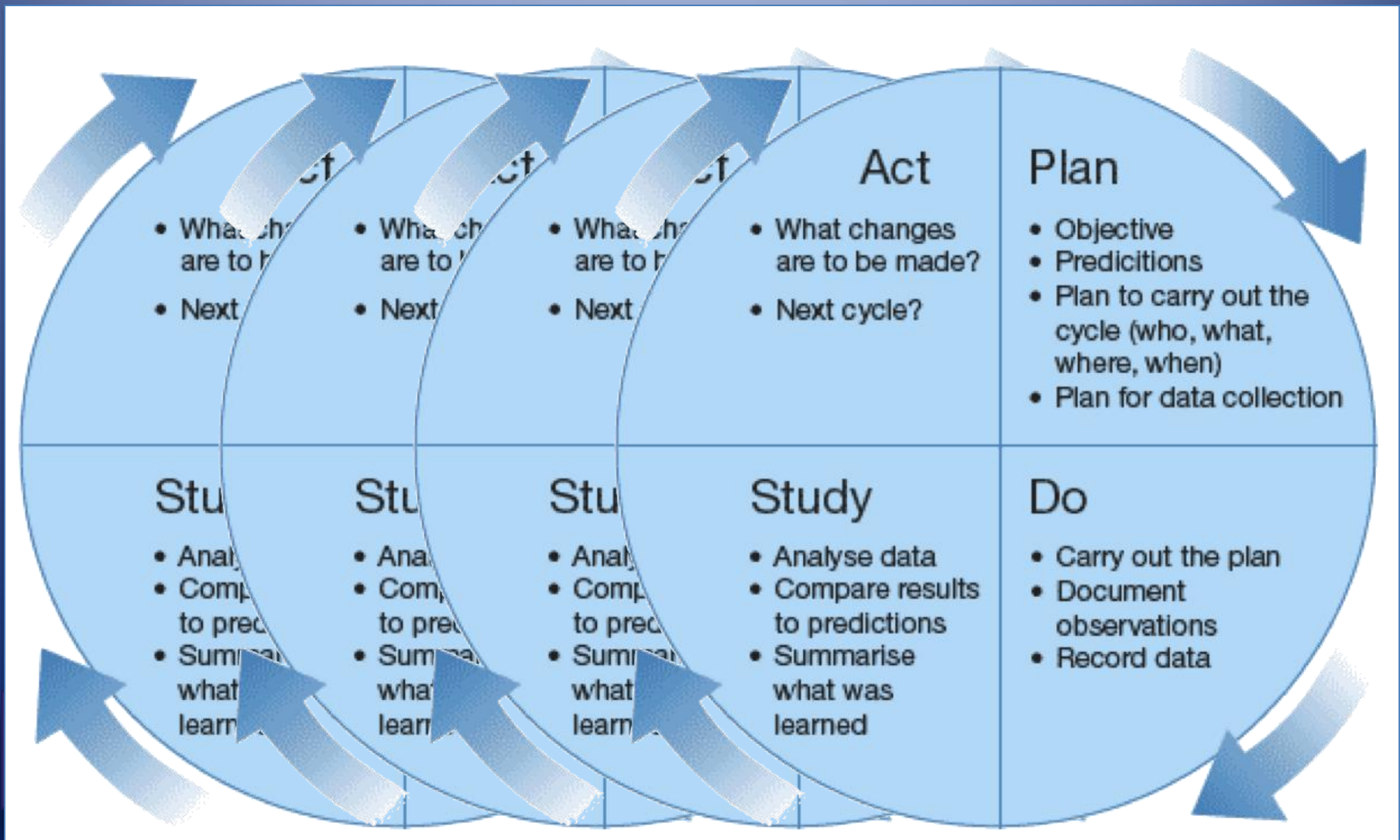
- tested products, programs and approaches addressing important issues
- that are sensitive to conditions effecting their success.



Cycle of Prototyping, Testing, and Revision



Networked Cycles – Embracing Context

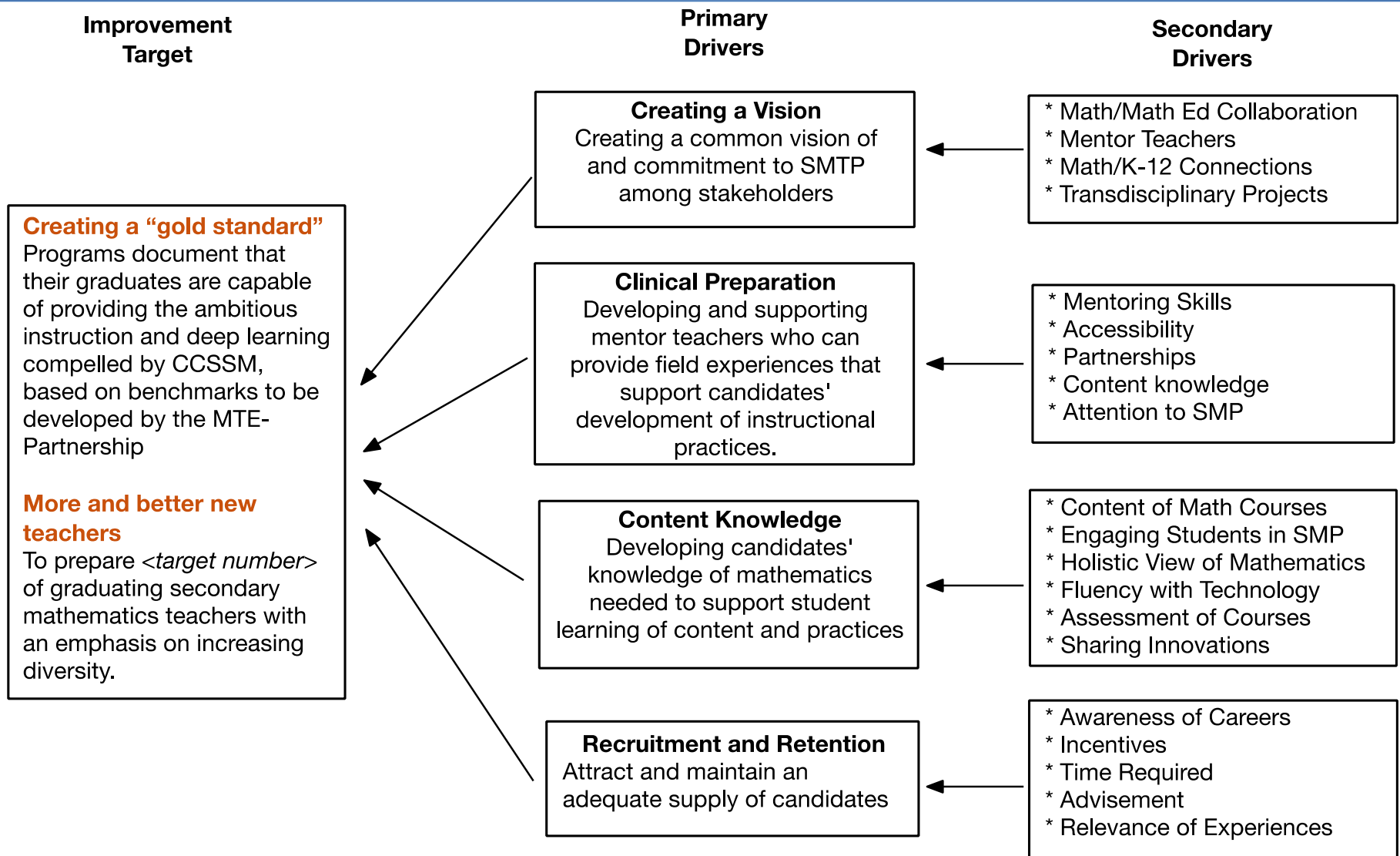


Projected Outcomes

- A variety of validated products, programs and approaches addressing important issues in secondary mathematics teacher preparation
- Incorporates sensitivity to the conditions affecting their success throughout the developmental process



Driver Diagram



Progress of the Partnership

- **June 2011** – a small group conceived of this partnership at SMTI National Conference
- **March 2012** – *Guiding Principles for Secondary Mathematics Teacher Preparation* and first annual MTE-Partnership conference
- **June 2013** – white papers defining the problem space, leading to second annual MTE-Partnership conference
- **September 2013** – grant from Helmsley Charitable Trust to launch action phase



“Research Action Clusters” (RACs)

- Collaborations of partnership teams have been formed to address specific challenges facing secondary mathematics teacher preparation using the Networked Improvement Community model.



RACs in Progress

- **Developing Effective Clinical Experiences** ← *Mentor professional development; alternative models*
- **Building Communities and Courses** ← *Addressing specific mathematical needs of secondary teachers (cf. METII)*
- **Knowledge-for-Teaching-Mathematics Tasks (KTMT)** ← *Assessing mathematical knowledge for teaching*
- **Actively Learning Mathematics** ← *Improving instruction in introductory mathematics classes*
- **MATH: Marketing for Attracting Teacher Hopefuls** ← *Moving beyond advertising*

Continuing Work of the Partnership

- **Spring 2014:** RACs begin piloting interventions and collecting data
- **June 2014:** Third partnership conference
- **Fall 2014:** Scale-up of RAC activity

Challenges to Engaging Mathematicians

- Mathematics education may not be a priority for many mathematicians and mathematics departments.
- Reimagining courses to promote the mathematical practices that prospective teachers (cf. MTEII) – and arguably all students -- need to develop may challenge deeply held beliefs and departmental culture.
- Aspects of teacher preparation that are not directly related to content may be perceived as the province of mathematics educators.

Opportunities for Further Engagement

- Invitation for additional teams to join the Partnership – see www.x.co/mtepapp/
- SMTI Annual Conference will include a focus on the MTE-Partnership – see www.aplu.org/smti



For More Information

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