Chicago Transformation Teacher Institutes (CTTI)
Student Success through Teacher Leadership, Content Understanding, and Pedagogical Training

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Donald J. Wink
Dean Grosshandler (Project Coordinator)
Department of Chemistry
John Baldwin
Department of Mathematics
Steve Tozer
Education Policy Studies
University of Illinois at Chicago

John Loehr
Office of Science
Chicago Public Schools

David Slavsky
Stacy Wenzel
Megan Deiger
Nick Schuetz
Center for Science and
Math Education
Loyola University Chicago

Norm Lederman
Department of Math and
Science Education
*Illinois Institute of
Technology*

Lynn Narasimhan
David Jabon
Department of Mathematical
Sciences
DePaul University

Steven McGee
Linda Brazdil
Learning Sciences
School of Education and
Social Policy
Northwestern University

Kathryn Race
Project Evaluator
*Race and
Associates*

Project Definition of Student Success

Student outcomes measured as a focal priority are in bold; regular font means that these will be measured but in part; and those in a faded font won't be measured during the project period
Students will:
- know more math and/or science (dramatic increase in subject matter knowledge **and the ability to see the connections between the different subject matters)**
- work collaboratively and communicate results in speech, graphics, and in writing
- **increasingly enroll in 12th grade courses**
- be able to participate and succeed in 12th grade courses
- **successfully complete 12th grade courses**
- show improved readiness for college
- **increasingly take AP exams, receive better scores on AP exams, and receive better scores on ACT tests/Illinois state academic exams**
- increasingly enroll in college and stay in college longer

Research Design Related to Student Success

The goal of the CTTI research design is to analyze the relationships among the partner institutions in the CTTI Program Model below as they relate to the outcomes listed.

Outcomes
1. Universities share research programs through courses and workshops.
2. Teachers gain content knowledge and leadership skills.
3. School and district gain policies and practices to support teachers' course planning and implementation.
4. Teachers build teams to discuss content of courses and consider student work.
5. Schools and teachers impact student outcomes through the impact of cross-curricula competencies.
6. Schools and teachers identify, refine and implement challenging 12th grade courses including capstone and AP.
7. Universities gain increased knowledge of K-12 instruction and refine the undergraduate programs.

CTTI Outcome 1 — **CTTI Teacher Program** 160 teachers in teams of 4 math and 4 science teachers per 20 schools.

CTTI Outcome 2 — **Teachers learn** • Content knowledge • Pedagogy • Leadership in schools and content areas.

CTTI Outcome 4 — **In schools, teachers** • Identify, refine, and implement challenging grade 12 courses • Provide vertical alignment and cross-curricula knowledge in grades 9-10-11

CTTI Outcomes 5 & 6 — **Students in schools** • Take new rigorous courses to prepare for college. • Receive further grade 9-10-11 improvements.

CTTI Outcomes 3 & 7 — CPS District (*n* = 20), Schools, Universities (*n* = 5)

Key research questions related to student success.
- What are schools offering students when they enter CTTI? What do they offer after/because of CTTI? What supports optimize greatest improvement?
- How does math and science faculty engagement with public schools influence instruction?
- How does CTTI relate to students success in graduation from high school and enrollment in college long term?

Roles of Project Partners—Program Strategies

In CTTI, we have adopted a logic model wherein **deep content knowledge + pedagogical skills + leadership training** for teachers changes **school capacity** to implement and support innovative math and science curricula. In turn, this affects **teacher practice** and improves **student outcomes.**

Math/Science Courses offered by partner universities
- Reflect current understandings and research in mathematics and science.
- Are based on an interdisciplinary approach to course design.
- Model conceptually-based and inquiry-oriented instruction by university faculty to motivate and stimulate student participation.

Workshops offered by university educational leadership and STEM faculty
- Provide a common leadership training experience, with one workshop for the entire cohort and two in either math or science.
- Review how leadership affects school practices overall and within / between content areas, and between content areas.
- Support development of plan for each participating school
- Provide opportunities and support for teachers to plan specific 12th grade curricula planning

Networking Meetings organized by teachers and partner universities
- Provide opportunities for two-way communication between CTTI teachers and university faculty to increase content knowledge.
- Focus on teacher-teacher and school-school communication of program progress and planning
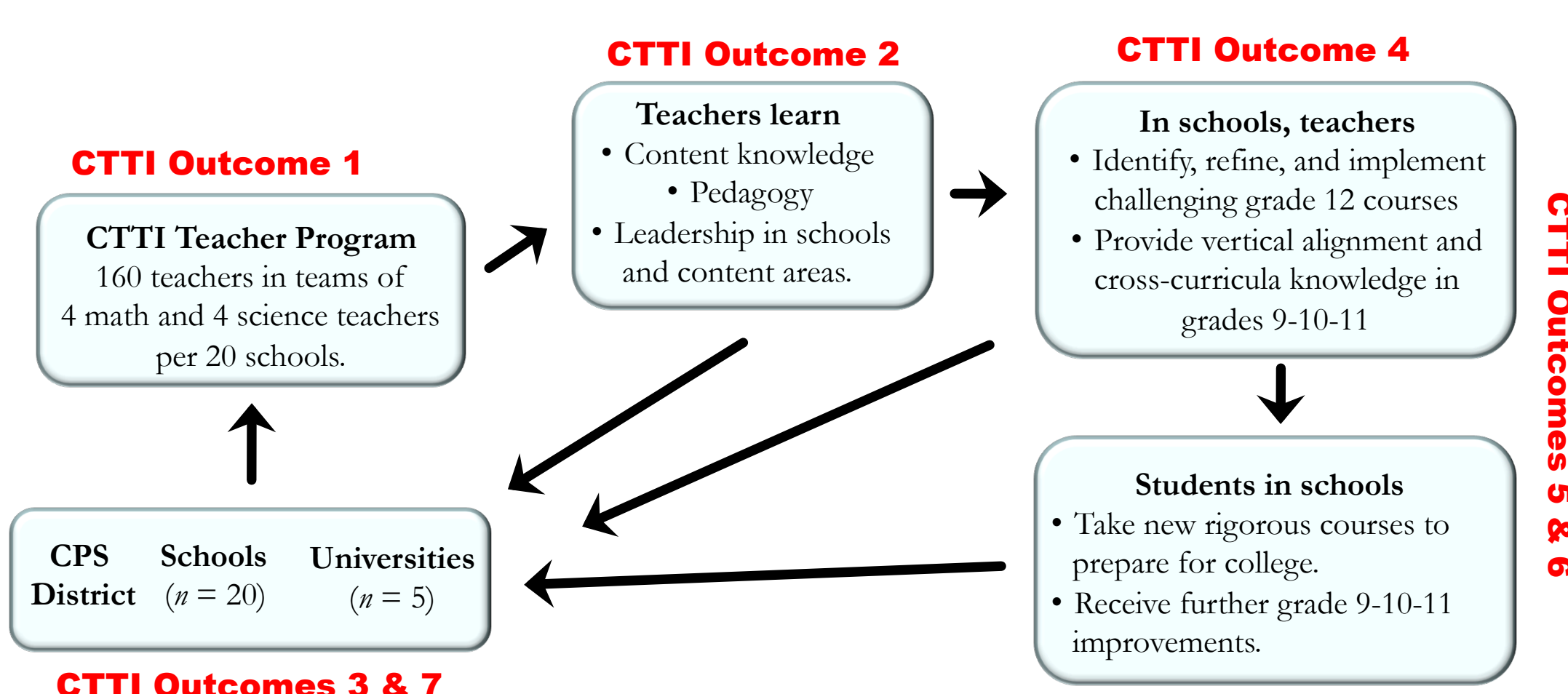
Teacher-Leader Teams working in schools and during networking and workshops
- Create a plan for the team
- Are aware of and responsive to the needs and opportunities of the students in their particular school.
- Bring interdisciplinary perspectives to science and math curricula.
- Through CTTI, serve as conduits for information on schools for area universities and for information on area universities for their schools

Challenges and Questions

Given our logic model and program strategies, we are faced with the following:
- How can we capture the aspects of teacher planning and practice that document the translation of CTTI content and leadership training into improved instruction and student outcomes?
- How do we document the way that STEM faculty, leadership workshop leaders, and district and school administrators impact teacher practices for improved student outcomes?
- Given the importance of post-secondary outcomes, how can we measure student success after graduation, both in academic and work-place settings?

Contact Information:
Donald J. Wink (PI; Physical Science) dwink@uic.edu; **Dean Grosshandler** (Project Coordinator): grosshan@uic.edu; **John Loehr** (Chicago Public Schools): jfloehr@cps.k12.il.us; **Steve Tozer** (Leadership): stozer@uic.edu; **David Slavsky** (Physical Science): dslavs@luc.edu; **John Baldwin** (Mathematics): jbaldwin@uic.edu; **Lynn Narasimhan** (Mathematics): cnarasim@condor.depaul.edu; **David Jabon** (Mathematics): djabon@depaul.edu; **Norm Lederman** (Life & Environmental Science): ledermann@iit.edu; **Steven McGee** (Life & Environmental Science): s-mcgee@northwestern.edu; **Linda Brazdil** (Life & Environmental Science): l-brazdil@northwestern.edu; **Kathryn Race** (Evaluation): race_associates@msn.com; **Stacy Wenzel** (Research): swenzel@luc.edu; **Megan Deiger** (Research): mdeiger@luc.edu; **Nick Schuetz** (Research): nschuetz@luc.edu.