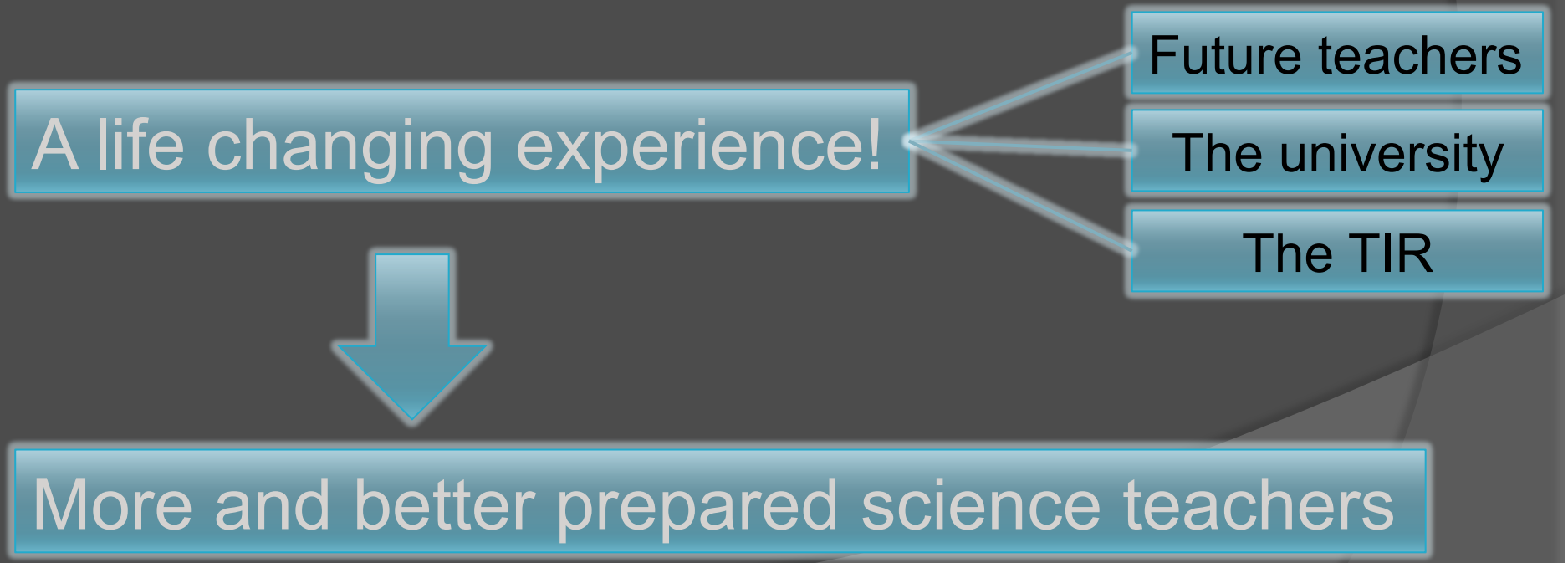
USING AND SUSTAINING THE TEACHER-IN-RESIDENCE: A TEN-YEAR REPORT

Chance Hoellwarth
California Polytechnic State University
San Luis Obispo

AAPT Summer Meeting 2014 - Minneapolis

Teacher-in-Residence (TIR)

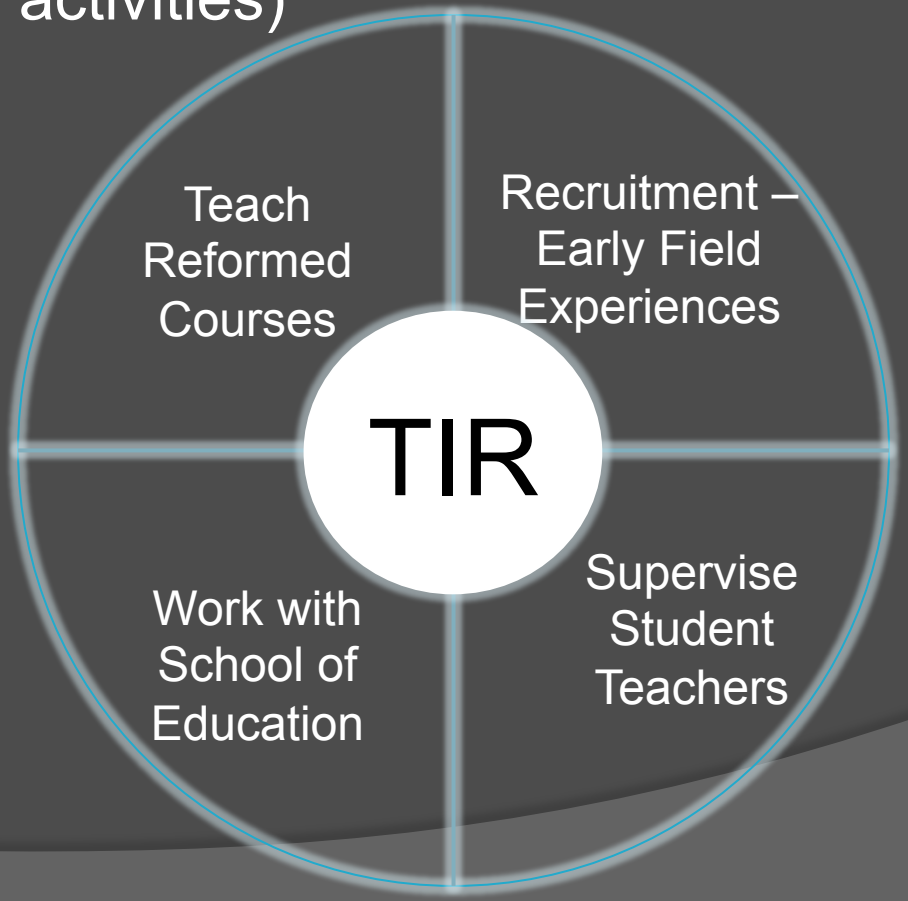
Local high school or middle school teacher who comes to the university to help with the preparation of future teachers



Teacher-in-Residence (TIR)

PhysTEC allowed 1st TIR

They are at the center of PhysTEC activities (teacher preparation activities)



Teacher-in-Residence Sustained

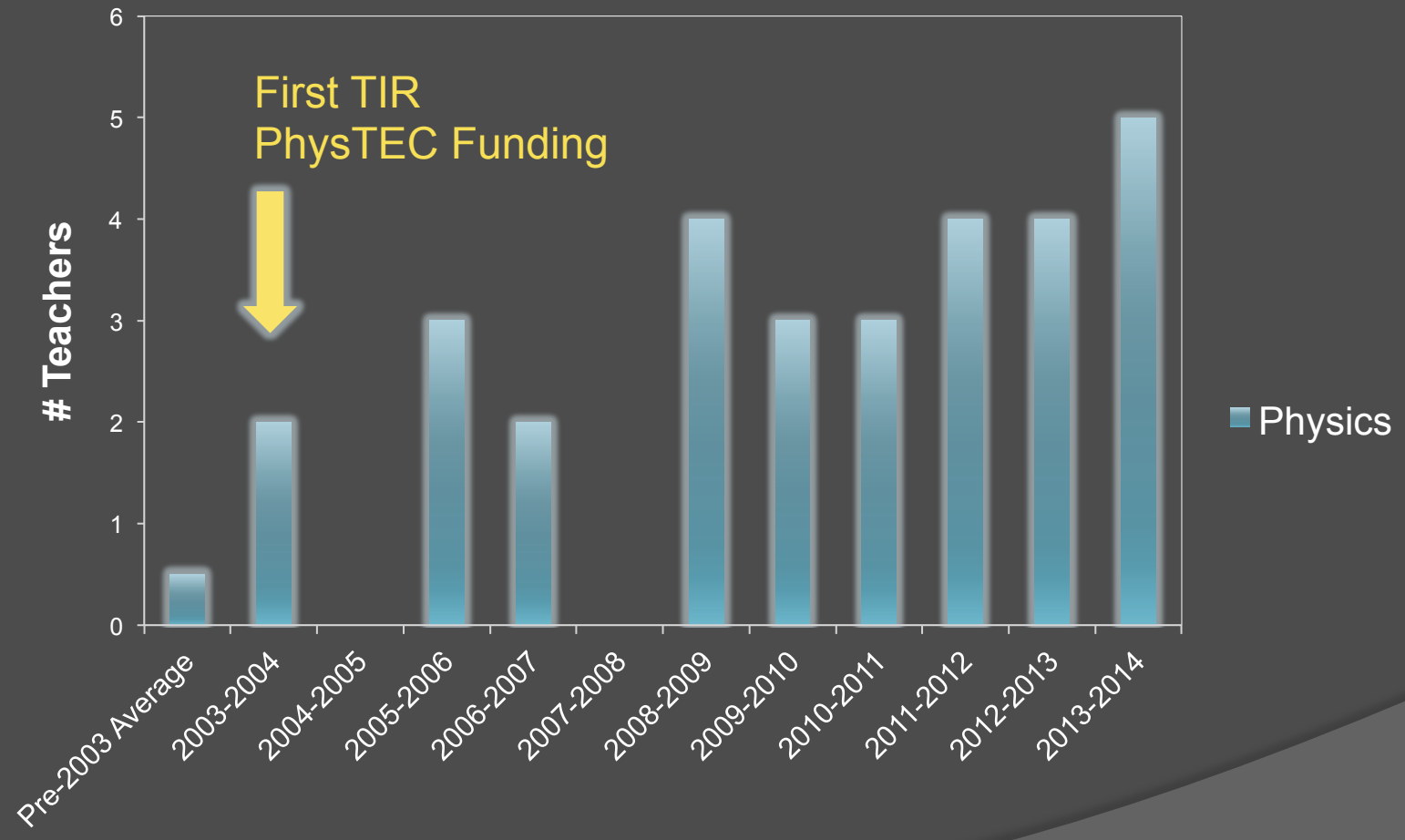
- Continuously supported TIR last 11 years
  - ~ 4 TIRs (5th TIR starting in fall)
  - ~ Different backgrounds
  - ~ Different funding
- 3 have returned to classroom

TIR	Discipline	Years	Type
Michael Landino	Chemistry	2003-4	Returned
Nancy Stauch	Physical Science (MS)	2004-present	Continuous
David Buck-Moyer	Chemistry ➔Physics	2005-7	Returned
Sarah Cameron	Physical Science (MS)	2010-2013	Returned
Tina Duran	Biology	2014-?	Will return

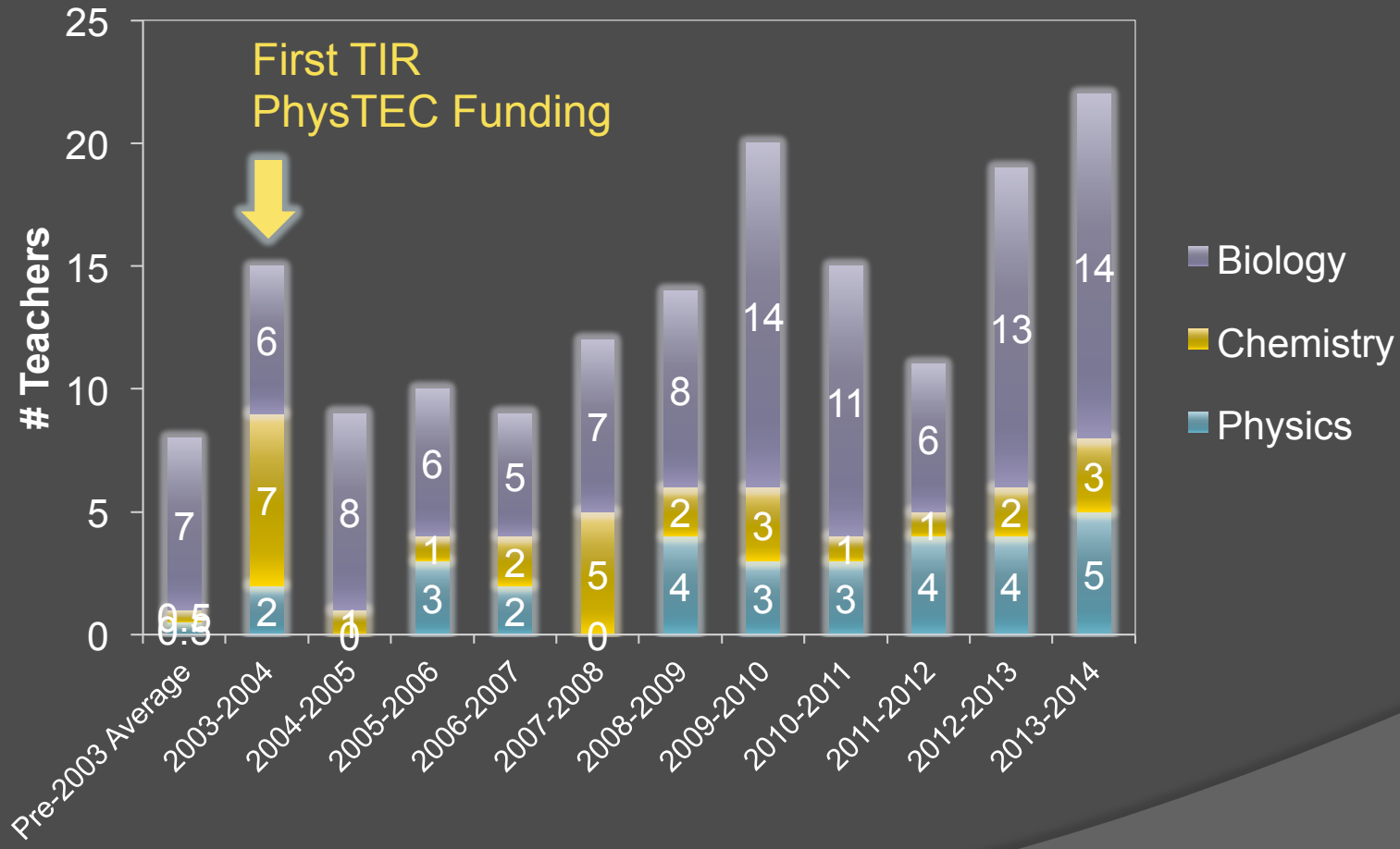
Outline ...

- Impact of the TIR
- The TIR context
- Role of the TIR
- Benefits of the TIR
- Sustaining the TIR
- Conclusions

Impact of the TIR



Impact of the TIR



The TIR Context

It isn't the TIR alone; however the TIR is involved

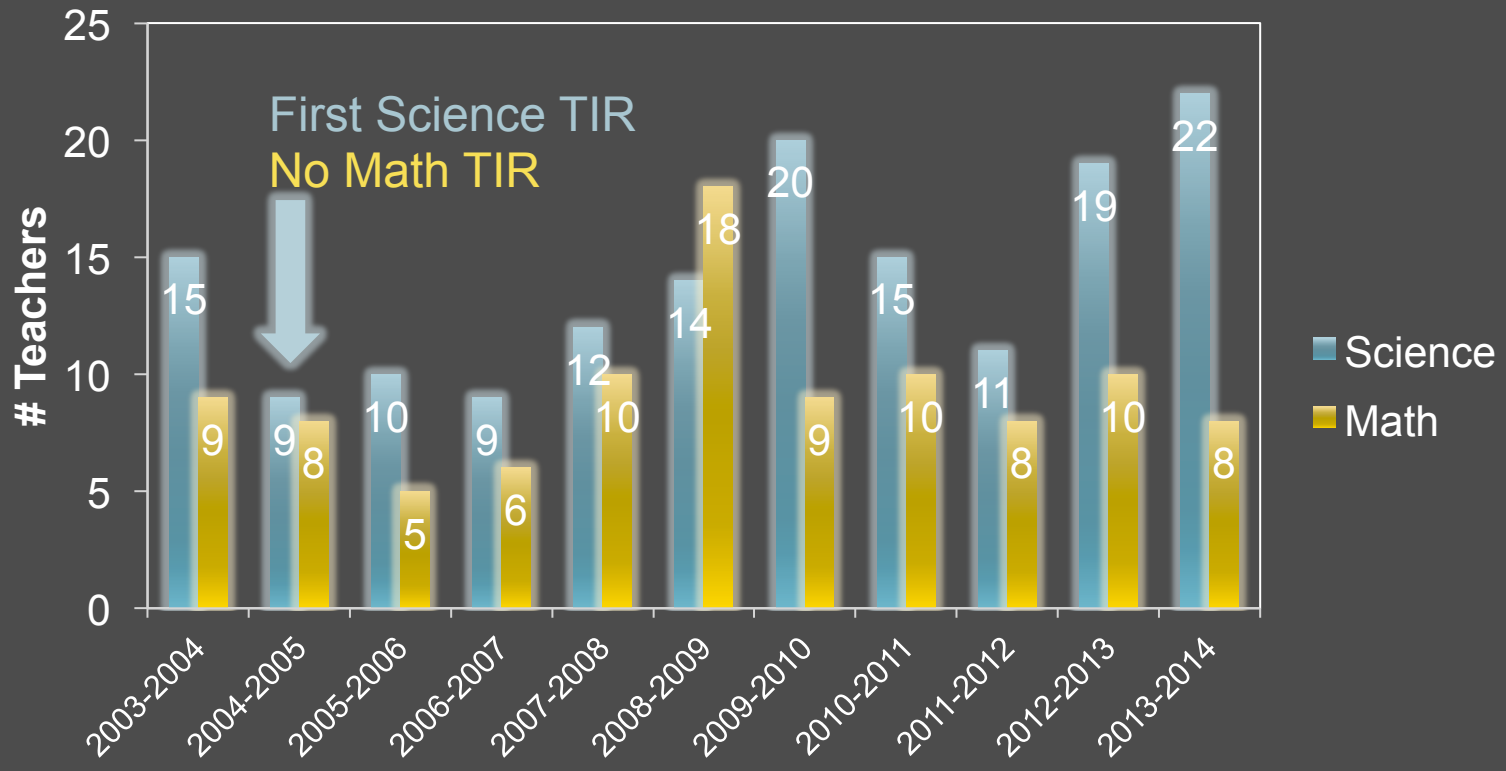
- Early Field Experiences
  - Learn by Doing Lab – undergraduates teach science to 5^{th}-8^{th} graders that visit campus
  - Teaching Assistants in Math and Science – undergraduates tutor in middle and high school classrooms
  - Introduction to Science Teaching Course
- Noyce scholarships
- Stem Teacher as Researcher Program
  - Undergraduates interested in teaching do 8 weeks of research in National Labs

The TIR Context

It isn't the TIR alone; however the TIR is involved

- Early Field Experiences
  - Learn by Doing Lab – undergraduates teach science to 5^{th}-8^{th} graders that visit campus
  - Teaching Assistants in Math and Science – undergraduates tutor in middle and high school classrooms
  - Introduction to Science Teaching Course
- Noyce scholarships
- Stem Teacher as Researcher Program
  - Undergraduates interested in teaching do 8 weeks of research in National Labs

Impact of the TIR



- Math students have same context (opportunities) as science students
- Science numbers have grown; math has not

Role of the TIR

- Teach courses (50%)
  - introductory physical science*
  - science methods
  - early field experience
- Working with future teachers (15%-30%)
  - Supervise student teachers*
  - Student teaching seminar
  - Advising and recruitment
- Interface with School of Education (5%-15%)
  - Place all student teachers
  - Secondary education committee
  - New credentialing requirements
- Work with Early-field-experiences (5%-15%)
  - Place undergraduates in field and teach supporting seminar

Role of the TIR

- Teach courses (50%)
  - introductory physical science*
    - Intro physical science for non-science majors
    - Team taught with other faculty - daily plan and weekly meetings
    - Used Powerful Ideas in Physical Science and/or Physics for Everyday Thinking

Role of the TIR

- Teach courses (50%)
  - introductory physical science*
  - science methods
  - Introduction to Science Teaching
- Working with future teachers (15%-30%)
  - Supervise student teachers*
  - Student teaching seminar
  - Advising and recruitment
- Interface with School of Education (5%-15%)
  - Place all student teachers
  - Secondary education committee
  - New credentialing requirements
- Work with Early-field-experiences (5%-15%)
  - Place undergraduates in field and teach supporting seminar

Role of the TIR

- Teach courses (50%)
  - introductory physical science*
  - science methods
  - Introduction to Science Teaching
- Working with future teachers (15%-30%)
  - Supervise student teachers*
    - Visit classes weekly
    - Pre- & post-conference
    - Weekly seminar

Role of the TIR

- Teach courses (50%)
  - introductory physical science*
  - science methods
  - Introduction to Science Teaching
- Working with future teachers (15%-30%)
  - Supervise student teachers*
  - Student teaching seminar
  - Advising and recruitment
- Interface with School of Education (5%-15%)
  - Place all student teachers
  - Secondary education committee
  - New credentialing requirements
- Work with Early-field-experiences (5%-15%)
  - Place undergraduates in field and teach supporting seminar

Benefits to the TIR

- Time to reflect on and learn about their profession
- Changed view of teaching and learning*
  - Was hands-on, now heads-on
  - Before felt she constructed students knowledge, now aware that students construct their own knowledge
- Realization that they have experience that is valued and needed
- Gain confidence
  - Having instructed at college level
  - Presented at national conferences
  - Been a resource for college faculty

* This is the result of teaching reformed courses with others, attending AAPT meetings, and attending professional development (Modeling & Physics for Everyday Thinking)

Benefits of a TIR

- Improved supervision
  - Knowledge of environment
    - Expectations
    - Where to push different people
    - Support for cooperating teachers
  - Come as coach, not evaluator
    - Give 5 minute adjustments for next class
    - Resource for curriculum (TIR has taught to these standards)
    - Classroom management tips
- Reality check for classroom expectations

… Benefits of a TIR

- Willing teacher of reformed courses
- Improved relationship with School of Education
- Improved relationship with K-12 schools (principals, teachers, and secretaries)
- Coherent consistent experience for credential candidates (early-field experience, methods, seminar, and supervision)

Benefits of a Returning TIR

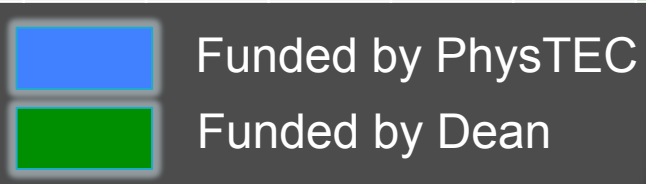
- Improved instruction in K-12 classroom
- Mentors more student teachers, better
  - Uses better pedagogy
  - Knows the program (gaps)
- Helps with placements at his/her school
- Leads professional development

Benefits of a Continuous TIR

- Continuity and consistency - the GLUE that holds the program together…a credential cheerleader!
- Improved instruction in college classrooms
- Becoming like faculty
  - Has become placement coordinator for all student teachers
  - Helping with Co-teaching research

The TIR Sustained

	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Michael Landino												
Nancy Stauch												
David Buck-Moyer												
Sarah Cameron												
Tina Duran												



- Initially, PhysTEC supported 3 TIR positions
- Dean has supported 14 TIR positions

Sustaining TIR at Cal Poly

Favorable Conditions

- Dean supports the idea
  - Sabbatical for high school teachers
- College of Science & Math responsible for:
  - Teaching methods class
  - Supervision of student teachers
  - Student teaching seminar

  (1/2 faculty load, but low number of students taught)
- Teach many small sections of a given course

Sustaining TIR at Cal Poly

Sustainable Solution

- TIR does supervision, seminar, and methods course for all sciences
  - Frees faculty for professional development
- TIR teaches 1/2-lecturer load
  - TIR team-teaches, but has own sections
  - Teaches courses that need to be taught
  - Dean pays less for better supervision

Sustaining the TIR – in general

- Overlap TIR with multiple projects (make them a part)
- Find job that pays (ease the Dean's decision)
  - Teaching reformed classes
  - Leading LA trainings
  - Mentoring
  - Early field experiences
- Offer TIR's help to the School of Education and other departments (everyone needs help)
  - Helping with methods courses or supervision
- Be flexible (reach perfection one step at a time)
  - Combine disciplines
  - Offer help before you take control

Conclusions

- Being a TIR is a life changing experience
- TIR can glue the teacher preparation program together
  - Give them the right experiences
  - Find the right TIR
- Can be sustainable