

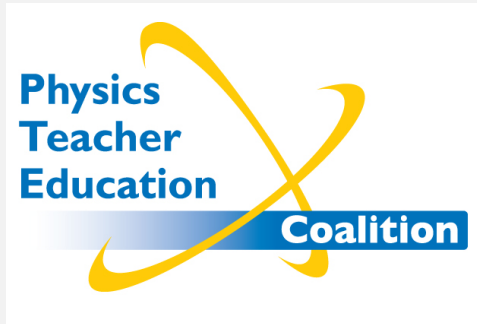
# DEVELOPMENT OF THE PHYSICS TEACHER EDUCATION PROGRAM ASSESSMENT (**P-TEPA**)



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# HOW DO WE DEFINE “EXCELLENCE” FOR PHYSICS TEACHER PREPARATION PROGRAMS?



<http://www.phystec.org/keycomponents/>

**Key Components** of successful physics teacher preparation programs include:

- Champion
- Teacher in Residence
- Collaboration
- Institutional Commitment
- Assessment
- Recruitment
- Early Teaching Experiences
- Pedagogical Content Knowledge
- Learning Assistants
- Induction & mentoring

## OUR SOLUTION: DEFINE EXCELLENCE BY CREATING A SYSTEM TO MEASURE IT.



- The Physics Teacher Education Program Assessment (P-TEPA) is a rubric to systematically categorize what teacher preparation programs do.
- Enables self-study and research.
- Our hypothesis: The P-TEPA measures things that *thriving programs* (large institutions producing 5+ teachers/year) tend to have.

## METHODS

- Started with *Teacher Education Program Assessment (TEPA)*\*
- Reconcile with PhysTEC Key Components, SPIN-UP, T-TEP, SCII, VALUE and PULSE\*\* for creation of items.
- Created scale points for each item (very hard!)
- Applied at 8 diverse "thriving programs" (4 PhysTEC, 4 non-PhysTEC).
- Revised P-TEPA (in progress)

\* *Teacher Education Program Assessment*, C. Coble, through APLU's *Science Math Teacher Imperative (SMTI)*

\*\* *APS Strategic Program... (SPIN-UP)*; *National Task Force on Teacher Education in Physics (T-TEP)*, *Survey of Climate for Instructional Improvements (SCII)*, *AAC&U VALUE Rubrics*, *Partnership for Undergraduate Life Science Education (PULSE)*.

## HYPOTHESES WE ARE EXPLICITLY **NOT** TESTING

- A high score on the P-TEPA\* means you probably produce a large number of physics teachers
- Increasing your P-TEPA score will increase the number of teachers you produce.

\* *Physics Teacher Education Program Assessment*

# WHAT THE P-TEPA LOOKS LIKE

**Standards** >> Components >> Items >> Scale points

## 7 Standards

1. Institutional commitment
2. Leadership and Collaboration
3. Strong Physics program
4. Physics pedagogical knowledge
5. Recruitment
6. Mentoring
7. Assessment

## Each standard has

- A **definition** of that standard
- **Components** of that Standard

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2. Leadership and Collaboration
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4. Physics pedagogical knowledge
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6. Mentoring
7. Assessment

## Each standard has

- A **definition** of that standard (e.g., “**The program recruits many physics teacher candidates from diverse sources**”)
- **Components** of that Standard (e.g., “recruitment success,” “recruitment pool,” “early teaching experiences,” “streamlined and flexible program options”).



# EXAMPLE COMPONENT

Standards >> Components >> **Items** >> Scale points

## Component 5C: Early Teaching Experiences

		NP	Possible attributes at BASIC LEVEL	Possible attributes at BENCHMARK LEVEL	Possible attributes at EXEMPLARY LEVEL
<b>Essential 5C-1</b>	<b>Number of early teaching experiences*</b>	<input type="checkbox"/>	<input type="checkbox"/> There is at least one early teaching experience	<input type="checkbox"/> There is at least one sustained early teaching experience (e.g., STEP1 course, LA program)	<input type="checkbox"/> There are several early teaching experiences, at least one of which is sustained.
<b>5C-2</b>	<b>Availability of early teaching experiences</b>	<input type="checkbox"/>	<input type="checkbox"/> Early teaching experiences accommodate the number of students who typically enter the program	<input type="checkbox"/> Early teaching experiences accommodate slightly more than the number of students who typically enter the program.	<input type="checkbox"/> Early teaching experiences can accommodate many more than the number of students who typically enter the program.
<b>5C-3</b>	<b>Quality of early teaching experiences</b> <i>New V10</i>	<input type="checkbox"/>	<input type="checkbox"/> Students receive some level of mentorship in teaching	<input type="checkbox"/> Students are exposed to the expertise of teaching	<input type="checkbox"/> Students are explicitly exposed to and mentored in the expertise of teaching
<b>Enabling 5C-4</b>	<b>Marketing of early teaching experiences</b>	<input type="checkbox"/>	<input type="checkbox"/> Early teaching experiences are informally marketed (e.g., in advising appointments, passive notices)	<input type="checkbox"/> At least one of the early teaching experiences is well- marketed (e.g., posters, brochures, announcements)	<input type="checkbox"/> At least one of the early teaching experiences is aggressively marketed as an entry point to a teaching career
<b>5C-5</b>	<b>Recruitment within early teaching experiences</b>	<input type="checkbox"/>	<input type="checkbox"/> Students participating in early teaching experiences may be informed about the PTE program and credentialing options	<input type="checkbox"/> Students participating in early teaching experiences are informed about the PTE program and credentialing options	<input type="checkbox"/> Students participating in early teaching experiences are strongly encouraged to consider teaching as a career

# EXAMPLE COMPONENT

Standards >> Components >> Items >> **Scale points**

## Component 5C: Early Teaching Experiences

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5C-2	Availability of early teaching experiences	<input type="checkbox"/>	Three levels – basic, benchmark, exemplary – plus “not present”		
			Items each measure <i>one dimension</i> .		
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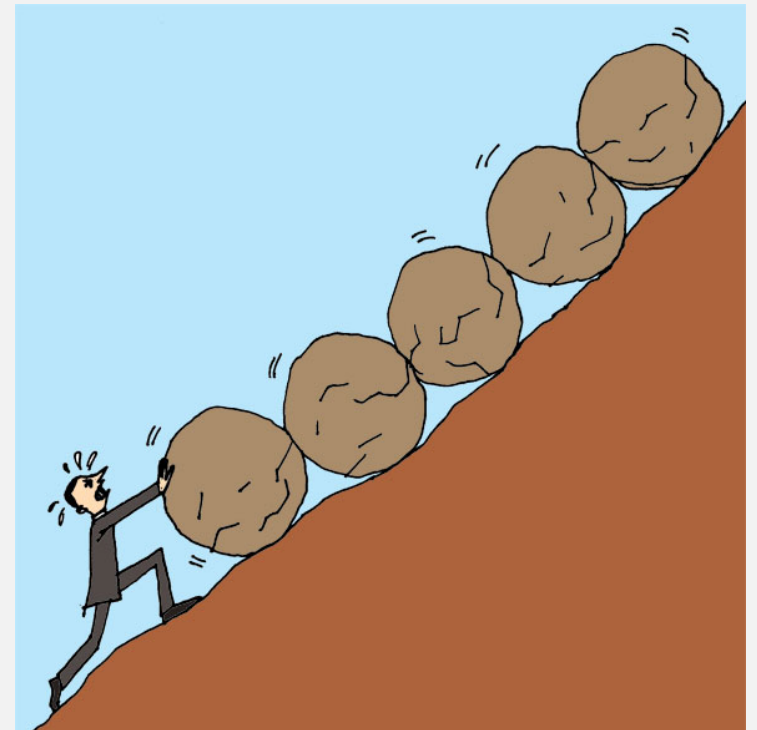
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# CHALLENGES

- Programs achieve excellence in many ways and we do not want to be prescriptive.
- Defining scale points that are valid and reliable is very hard.
- Figuring out how to score an institution without “bean-counting” to excellence.



## NEXT STEPS



- **Report with final P-TEPA due out in February 2018**
- Test with site leaders for validity and reliability
- Assess whether P-TEPA is useful for self-study and program improvements
- Apply to low- and high- producing sites to test predictive validity.

Many thanks to PhysTEC for funding this study.