



Center for Teaching and Learning

CTL - THE #1 PRODUCER OF U.S. PHYSICS TEACHERS

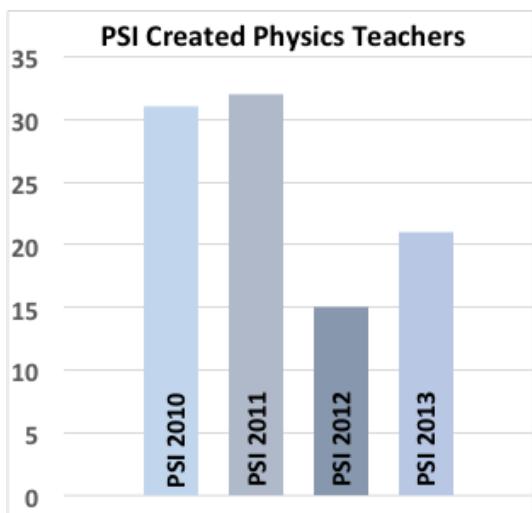
THE NEW JERSEY CENTER FOR TEACHING AND LEARNING, AN INDEPENDENT NONPROFIT, SURPASSES ALL U.S. COLLEGES AND UNIVERSITIES IN CREATING PHYSICS TEACHERS.

Trenton - January 27, 2014 - On the heels of learning that its Progressive Science Initiative® (PSI®) reversed the achievement gap for advanced placement physics participation in a number of New Jersey high schools¹, The New Jersey Center for Teaching and Learning (CTL) has also confirmed that it creates more physics teachers each year than any college or university in the nation.

"The United States is almost alone in the world in not having all secondary school students study physics. NJCTL is breaking down that barrier to advancing America's competitiveness through new paradigms for student study and teacher preparation in that cornerstone of STEM education," according to Ed Friedman, Emeritus Professor, Director Designate of Baharicom Labs, and Founder and Director of the Stevens Center for Technology Management for Global Development.

The nation's shortage of physics teachers is at a crisis level. CTL estimates that 30,000 new physics teachers will be needed to provide physics to U.S. high school students – a key ingredient in boosting science and mathematics achievement. In underscoring the national need for STEM teachers, President Obama has said efforts to improve STEM education are "going to make more of a difference in determining how well we do as a country than just about anything else that we do here."

A recent study titled Transforming the Preparation of Physics Teachers: A Call to Action – A Report by the Task Force on Teacher Education in Physics (T-TEP)² reveals that in 2012 the largest average annual number of graduating physics teachers in any single U.S. college or university was 14. Additionally, the study finds, "In all data sources consulted, T-TEP found very few students graduating from PTE [physics teacher education] programs; the vast majority of programs have fewer than two graduates per year, and the most common number of graduates is zero."



In 2012, CTL's Progressive Science Initiative endorsement program graduated 22 newly minted physics teachers, making it the number one producer of physics teachers in the nation. In fact, this program has graduated an average of 24 physics teachers every year since 2010,

CTL was not included in the T-TEP study, which looked exclusively at college and university physics education programs. As an independent nonprofit, CTL's role in providing physics endorsement training is unique. Similarly, its approach to physics teacher preparation is unique. It is precisely those unique attributes that have allowed CTL's Progressive Science Initiative endorsement

program endorsement program to surpass the rate at which U.S. colleges and universities are delivering physics teachers to classrooms.

CTL's teacher training program invests in good teachers, holding any kind of certification, and prepares them to teach physics. This is made possible by PSI's unique educational paradigm³, which uses technology that allows teachers everywhere access to free, open-source, donor-funded instructional materials. Online materials include presentations, class and homework, labs, and student assessments. They are created by teams of teachers working with CTL and posted online at www.njctl.org.

By starting with already certified teachers from any field, and adding knowledge of physics content and physics teaching methods, PSI shortens the teacher preparation process. It helps committed teachers with significant skills and experience step in, filling the physics teacher shortage much more quickly, and at lower cost overall.

It takes 12 to 18 months for a teacher to add a full physics endorsement to a New Jersey certification, but PSI's program allows teachers to start training as late as in the summer and begin teaching physics that same fall. Teachers continue to study second year AP level physics course material while teaching students the first year material they completed during the preceding summer. They stay well ahead of their students in content mastery while completing their own coursework. This structure takes advantage of the well-founded belief that nothing solidifies understanding so much as teaching that understanding to others.

Though states' certification policies vary with regard to qualification to teach physics, CTL has one consistent, additional standard: teachers should be able to pass the final exams in

the courses they are assigned to teach, and pass them with flying colors. CTL uses the very same free, open-source courseware and teaching methods to train physics teachers that those teachers will ultimately use to teach their own students. Teachers learn physics, and how to teach it, at the same time, contributing to the remarkable efficiency of the program.

To address teacher capacity where certification and endorsement is not a significant barrier, PSI provides professional development in physics content and teaching methods. PSI professional development allows teachers who may be legally qualified to teach physics to do so with stronger physics skills; an understanding of PSI's formative and summative assessment strategies; and the ability to employ PSI's methodology, technology and resources effectively.

CTL's investment in the development of effective physics teachers is based in its commitment to physics for all students. Creating an adequate supply of confident, skillful physics teachers will allow our schools to teach physics to every high school student, giving each student the foundation necessary to move on to more advanced sciences as well as to a multitude of STEM majors...and then careers.

In addition, CTL encourages schools to adopt a physics-chemistry-biology instructional sequence for high school science. CTL has shown this leads to a richer understanding of each of the sciences, stresses reasoning over memorization and democratizes success in the sciences, leading to higher participation of females, students of color, and impoverished students in advanced placement courses.

CTL often works with districts to train new physics teachers and shift to the physics-chemistry-biology instructional sequence at the same time. Imposing any new, universally required course can displace teachers. PSI partners with the district, offering physics training to teachers who would otherwise be displaced, during the summer *before* universal freshman physics is implemented. In that way, PSI trained teachers are ready to teach physics classes in the fall and given continuing professional support to do so. Teachers enjoy job stability and their skills in the classroom are enhanced while the science sequence is modernized. Unlike most college and university programs, PSI does not require its teacher-learners to leave teaching for a period of time to return to school.

Whether the goal is formal endorsement in states where that is required, or professional development around methods and content, PSI's training and online educational resources create good physics teachers and boost student attainment.

Dr. Robert Goodman, Executive Director at CTL said, "CTL's solution is fast, inexpensive, and effective. We teach good teachers to teach rigorous physics by using modern technology and free open-source resources. They come to us understanding students and learning environments. We give them a sound understanding of physics, transformational technology and teaching methods, and materials that work. When they teach physics, their students succeed. It's that simple."

Asked if CTL could increase the number of physics teachers it creates, Goodman explained, “All our programs are scalable and adaptable to variations in local educational policy environments. For us, it’s a matter of partners. Given local interest and resources, we’re there.” For additional information, go to njctl.org/nj-science-certification.

The New Jersey Center for Teaching and Learning is an independent nonprofit founded by the New Jersey Education Association to empower teachers to lead school improvement.

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1. [Reversing the Achievement Gap](#)
2. Transforming the Preparation of Physics Teachers: A Call to Action – A Report by the Task Force on Teacher Education in Physics (T-TEP); edited by David E. Meltzer, Monica Plisch, and Stamatis Vokos; 2012; American Physical Society, College Park MD
3. [The Progressive Teaching Initiative \(PTI\): A New Paradigm for Education](#)