David Hestenes stresses that models should guide projects, and that "one model can solve an infinite number of problems". He envisions after-school project-based science clubs and 2nd year high school physics courses that are project-based. Many modelers incorporate projects with Modeling Instruction in their first-year high school physics course. Below are insights of Eugenia Etkina & Carl Wieman.

PHYSICS TODAY article:
College-level project-based learning gains popularity
by Toni Feder
Physics Today 70, 28 (June 2017)
I quote:
Carl Wieman, physics Nobel laureate and education researcher at Stanford University, says [about college physics] that "most instructional labs courses would be much improved" in a project-based format. But he worries that it is impractical to apply the approach across the full physics curriculum.
Rutgers University's Eugenia Etkina specializes in physics and astronomy education. "In complex subjects such as physics and math," she says, "the fact that ideas build on each other prevents the real project-based approach from being implemented." But her research on curriculum reform, like the limited versions of project-based learning at Illinois, UTEP, and York, suggests benefits for physics students even when the approach is a small part of the overall curriculum.

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Then scroll down to <Issues and Events>, etc.

[David Hestenes ... envisions after-school project-based science clubs.]

I've been involved for the past three years in an outstanding after school project-based physics club that prepares my students for the USAYPT (United States Association for Young Physicists Tournaments). This program is like modeling on steroids for your most motivated students. I think it may have a similar impact on my teaching career as my introduction to modeling.
USAYPT (https://usaypt.org) gives us four truly difficult physics problems to solve each year (https://jkeohane.wordpress.com/usiypt-2018-problems). The problems are original (I've encountered maybe one or two of the 12 problems over the past 3 years before), require building of an apparatus and careful taking of data, and delving into theory beyond what's usually taught at the high school level and getting it to agree with and explain the data. The building of the apparatus and taking of the data is the project part, but these projects are closely tied to physics concepts and understanding. That direct connection to physics theory is what I have found missing - and in fact a great challenge - in other project-based work I've tried.

The format of the competition is a debate tournament. In each one-hour round, a student from one school presents their solution to one of the problems and a student from the second school then questions them about all aspects of their work. This is just like the student-to-student dialogs I want to take place in my classes, but at a much higher level. The values of the organization are outstanding. They emphasize collaboration among the students first, and friendly competition second. They don't want nit-picking about following the exact rules or specifications to score debate points, but rather to generate a deep conversation about the physics between the students.

In scoring a round, all presenters are compared to all other presenters, and all opposition is compared only to other opposition. The opposition may not refer to their own research, but can only ask questions of the presenter (sound familiar?). So both presenter and opposition in a round could be outstanding, demonstrate deep understanding of all of their physics, handle all of the questions and uncover no mistakes or weaknesses in the other and yet both get top scores. In fact, this is the preferred outcome. Students score well by demonstrating mastery, not by deliberately tearing each other down (although that can happen just because the teams are well-prepared and the process is rigorous).

When students participate in USAYPT, I see differences in how they approach discourse during group work and discussion in class, and this example spreads to other students as well. I've learned new physics from each of the 12 problems I've attempted, so I'm really learning and researching with my students rather than teaching them things I already know. But the debate format penalizes the team if I do too much of the work and the students don't emerge from the process able to explain everything themselves.

USAYPT is not for the faint of heart. It has required a huge commitment of time and resources on my part to get a team to do even a minimal amount of preparation, enough to make it to the tournament and not be embarrassed. My goal right now is to improve enough to place closer to mid-way through the pack rather than near or at last place. It is that challenging, but very rewarding.

Matt Greenwolfe
Physics Teacher, Upper School Science, CARY ACADEMY
1500 N. Harrison Avenue, Cary, North Carolina 27513
P: 919.228.4545    caryacademy.org