

School of Physical Sciences Journal Club, Dec. 18, 2020

"Basic measures of physics preparation from high school were the only factors that we found were significant, and they were surprisingly good predictors, explaining about 30% of the variance and much of the failure rate. This was with rather crude measures of preparation. The actual effect is larger, as we see as we extend that work with more complete and detailed measures of incoming physics preparation. After controlling for these measures of preparation, gender, first generation college student, and minority status made no contribution in the predictive model." APS News Back Page: "[It's Not "Talent," it's "Privilege"](#)" by 2001 Physics Nobel Prize Laureate Carl Wieman

1. Reflect on these quotes from the article, and your experience at UCI.
 - a. "When departments attribute differences in student performance to differences in talent, rather than differences in educational privilege, they are sustaining and enhancing these systemic inequities. Often, these inequities are further amplified by departments providing special educational opportunities and support to these more privileged students, in the form of "honors classes," research opportunities, etc."
 - b. "It also is irresponsible to simply blame the K-12 education system and wash our hands of the problem. Every department should examine its student population, its educational practices, and its student outcomes, looking for where and how it is discriminating against students whose only failure is a lack of educational privilege."
2. Consider the following quote: "...most physics departments are likely setting up their courses to cater to the well-prepared students, and in the process, they are sacrificing those less prepared. Such a choice makes sense if you mistakenly attribute the differences to talent. In that case, you want to optimize the educational benefits for the talented students, as they would be wasted on those with little talent."
 - a. Are the classes in our school designed for "prepared" students (often called "talented"), and others can sink or swim? Do we design classes that provide the support and structure needed for eager but less prepared students to reach an A level while also challenging more prepared "privileged" students?
 - b. Where is the deliberate practice in our courses? How do we make deliberate practice¹ available for students of varying incoming preparation?
3. Reflect on the closing line of the article. "It will also likely require shifts in the incentive system, so that teaching small classes with the best prepared students is no longer the prized teaching assignment, but rather *faculty will be competing to show they can teach and achieve the best results with those students who have suffered the greatest educational inequities on their way to college.*" (emphasis facilitators') How would we initiate such a cultural shift at UCI?

¹ "'Deliberate practice' is a particular type of intense learning activity, often present in the best graduate training and some very well taught courses. It leads to changes in neuron connections—changes that embody the enhanced expertise. This view that effortful learning ('deliberate practice') dominates over talent is very much at odds with our cultural myths, but it is strongly supported by the research."