

PERSPECTIVE

This is Not Your Grandmother's Faculty Development Program

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For decades, our nation has called upon higher education to create a more competitively-trained and diverse STEM workforce. While recent efforts to improve undergraduate STEM education have been successful, they have largely focused on “fixing” students and been devoid of the kind of effort needed to build institutional change capacity, moderate STEM departmental climate, and/or provide professional development for faculty. As a result, U. S. global preeminence in science and technology remains threatened, and the prevailing systems of oppression that continue to marginalize students from underrepresented groups remain intact. Redressing this particular trend calls

not only for a deeper understanding of what works in STEM higher education reform, but also for an understanding of what works best for whom and under what conditions. To this end, my presentation for the 2017 FUN Workshop at Dominican University explored the most important advances in culturally responsive undergraduate STEM teaching, as well as the outcomes thereof. Attendees were invited to interrogate their own motivations for teaching and training future generations of diverse neuroscientists, and to contribute to developing both immediate and future next steps for national STEM higher education reform.

Like other national organizations and alliances around the country, Faculty for Undergraduate Neuroscience (FUN) has partnered with Project Kaleidoscope (PKAL) of the Association of American Colleges and Universities to discuss, develop, and refine undergraduate STEM education. With its central focus on neuroscience, and an appreciation for shifting undergraduate student demographics, FUN, like PKAL, now recognizes that merely knowing “what works” for the reform of STEM higher education, while necessary, is insufficient if we are to meet the national demand for a competitive and diverse STEM workforce. Indeed, the contemporary complexion of higher education now calls for us to both know and understand – with specificity – not just what works, but for whom it works and under what conditions it works best.

For us, it means inventing new and radical ways to empower faculty in the neurosciences – and across all STEM disciplines – to competitively train and liberally educate our majors. More specifically, it means that we have to lose our affection for conventional approaches to faculty development that only address pedagogical reform. Indeed, for us, mastery of pedagogy is only the beginning of the journey to undergraduate STEM reform.

The recent shifts in undergraduate student composition now make it increasingly likely that all of us will experience significant increases in students of color in our classrooms. However, more often than not, STEM faculty report significant levels of discomfort with discussing, addressing, and integrating culture and cultural difference into core STEM content. Clearly, the time has come for a different kind of approach to pedagogical reform – one that is squarely grounded in cultural responsiveness.

The recent 2017 FUN Workshop, which was held at Dominican University, represents such an approach. With its keen focus on developing, assessing, and sustaining inclusive curricula, FUN has begun to ensure that its faculty development efforts reach a level of excellence that

promises to place its head and shoulders above other organizations and alliances that also work toward meeting our national imperative for a competitive and diverse STEM workforce.

Like FUN, we must all challenge and hold ourselves accountable for ensuring that we are providing the most relevant professional development opportunities to STEM faculty. This will require that we continue to reach beyond the typical workshop model of STEM faculty professional development and find unique ways to effectively pair cultural consciousness with advanced pedagogy. The PKAL STEM Leadership Institute, through its *My Tenure Trek*™ simulation (<https://www.aacu.org/mtt>), serves as one example where the use of real world simulations has proven to be effective in awakening and sensitizing STEM faculty to the influences of power, privilege, microaggressions, and implicit biases that oftentimes undermine national attempts to diversify the STEM workforce.

This special issue of the *Journal of Undergraduate Neuroscience Education* offers us a unique perspective into inclusive undergraduate neuroscience curricula. It captures a narrative that is based in ingenuity, tenacity, creativity, and empathy. Whether it is an institutional change initiative, specific teaching strategies, or rigorous discourse on diversity and inclusivity at the university level, this journal issue helps us to see beyond numbers and statistics; and to fully accept and understand the root causes of underrepresentation in STEM.

Whether you are already proficient in culturally responsive undergraduate STEM pedagogy, or just learning about it, this issue is for you. In it, you will be inspired and awakened to an entirely different view of what effective undergraduate STEM teaching actually looks like when the perspective of a non-dominant group is unmasked. In this journal issue, neuroscience faculty offer us an untethered look into their classrooms, departments,

and institutions. Their courage and candor serve as an incredible gift to STEM higher education reform and to the nation, at large. Here, if we care to look deeply enough, they have provided us with a clear blueprint for designing the kind of STEM faculty professional development that will safeguard our nation's global competitiveness in science and technology.

Received March 19, 2018; revised May 25, 2018; accepted July 03, 2018.

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