2019

In Support of Scholarly Teaching

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Point Of View

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Nervously, I introduced myself, amazed at the pangs causing a crisis of confidence. A few inches shorter than half my new high school science class, I could not help wondering if they could sense my lack of formal training in education. Norepinephrine triggered my flight or fight response—but instead of running home, which every cell was screaming out for me to do, I enrolled in a Foundations of Education course. Those first days turned into weeks, then years.

I felt like I was a good teacher. I earned increasingly challenging roles. My students were successful on assessments. Student and administrative evaluations were positive. Yet I craved the science of teaching— questioning my own biases, knowledge, and approaches. My definition of teaching had expanded beyond the time-limited interaction between instructor and student to encompass the continuous examination of my teaching methods.

Embracing teaching as a discipline, I set out to apply the same scientific rigor from my chemistry and environmental science disciplines toward developing pedagogical knowledge. In my first four years, I taught chemistry, biochemistry, forensic science, algebra, biology, ecology, introduction to engineering, and water/wastewater treatment. For the sake of efficiency, this diverse load steered my efforts toward scholarship of teaching and learning (SoTL) publications to discover solutions worth implementing that were generalizable across disciplines.

Now, as a professor since 2012, I have embraced SoTL as a research line, and I seek problems worth exploring, particularly in online science education. As with my science disciplinary research, I apply the scientific method to identify a focus question, gather data, interpret results, and submit my pedagogical scholarship for peer review and publication. Just like scientific research, the method is almost never linear.

When searching for journals to submit my research, I have considered both discipline-based educational research (DBER) and SoTL venues. In conversations with colleagues, I have learned that the distinction between the two is not always clear. Both are applied research that test theories relevant to teaching and learning. The distinction is that SoTL is applicable across disciplines, whereas DBER is designed and interpreted within a particular context. Being a general medical practitioner or a neurosurgeon does not involve different levels of rigor— one is highly focused while the other serves a broad community. Both are important and necessary. DBER and SoTL are built on theory and prior research. Demonstrated reliability and validity of results is expected. SoTL does, however, tend to give a voice to the students. SoTL also welcomes replication of work to build

a large body of knowledge, with less emphasis on novel outcomes than on identifying successful strategies to enhance teaching and learning.

Interestingly, despite the rigor, many institutions do not support SoTL research lines for tenure track faculty outside of education disciplines. In fact, at my own institution, this very topic was a point of intense discussion in crafting our new tenure and promotion guidelines. Ultimately, I'm happy to report, the SoTL and DBER research will be viewed as equivalent to disciplinary research. This decision respects the academic freedom of faculty, with a word of caution to maintain a clear and focused research agenda.

Regardless of whether pedagogical research is counted toward tenure, there are significant benefits to students, faculty, and the institution. Even more broadly reaching, the dissemination of these works reaches educators around the globe. Whether you are a college science teacher who has embraced education as a second discipline or you are teaching science teachers, the SoTL and DBER publications are key resources to support your scholarly teaching, providing actionable ideas for your classroom.

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