Making philosophy matter: Strategies for deeper classroom engagement between STEM and Philosophy

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Unlike STEM, which involves much collaboration and practical training, philosophy is often viewed as an independent arm-chair exercise. Yet, despite these perceived differences, teaching philosophy to STEM students can be uniquely rewarding. This workshop is designed for philosophy teachers hoping to engage STEM students. Part 1 describes three challenges STEM students interested in philosophy often face. Part 2 outlines three strategies I've used to help undergraduates overcome those challenges. Part 3 involves an interactive demonstration of one of those strategies in particular: "assignment scaffolding" (AS).

PART 1: Challenges

1.1 Reading philosophy allows STEM students, who are taught to read about 'facts' and formulas, to re-imagine issues within Science, Technology, Engineering, and Mathematics. It also provides a space for them to explore connections between these disciplines, and to see their work as engaging philosophy. But there is a learning curve. The complexity of philosophical ideas and arguments, as well as the sort of creativity and rigor necessary to engage them differs from the complexity of STEM and the creativity and rigor it calls for. Learning how to read philosophy requires patience and time that many (STEM) students just don't have. If students are turned off by philosophical texts they won't prioritize reading them and their work, as well as class discussions, will suffer as a result.

1.2 Thinking and writing like a philosopher. STEM students may have some experience interpreting evidence or writing 'Discussions,' but they are not typically encouraged to view those interpretations as philosophical in nature. This leads many to believe they will do poorly in philosophy courses, which require a lot of writing and exegetical work. If students believe they will do poorly in philosophy courses, they are less likely to seek them out. It is crucial, then, to make success in philosophy more accessible, especially to non-philosophy majors..

1.3 In addition to learning how to write clearly, and to think and read more critically, it is crucial that STEM students leave philosophy courses with a sense of *how those skills are applicable* to other areas of their life and work — especially future STEM research. Without a clear sense of how philosophy is relevant to STEM topics, STEM students have fewer incentives to pursue philosophy, which, for reasons discussed above, they may already perceive as too difficult or abstract.

PART 2: Strategies

2.1 To demystify the struggle of reading philosophy, I offer reading guides that help students prioritize their efforts and ultimately feel more confident in their understanding. As an Instructor, I find preparing these guides helps me to be more realistic about the amount of reading I'm asking undergraduates to undertake – often while balancing five courses, part-time employment, and other social responsibilities – as well as how closely I can expect them to read a text. I offer two examples in this presentation (one general and one specific).

2.2 Making success in philosophy more accessible does not mean sacrificing rigor but it may mean restructuring philosophy courses to include alternative evaluation methods as well as creating opportunities for students to revise work. To achieve this, philosophy teachers can "scaffold" writing assignments. AS helps students plan and complete a successful term paper, for example, by re-envisioning it as an open and ongoing process, rather than a singular task not obviously connected to previous assignments or the course as a whole. I've received positive feedback on this method from both philosophy and non-philosophy majors, particularly in my philosophy of science courses.

2.3 One way to encourage students to see the relevance of philosophy to STEM is to have them write case studies. The case study is an excellent way for students to understand – and demonstrate – the relevance of philosophy to 'real world' issues. In my experience, this format also encourages students to be more enthusiastic about – and satisfied with – the quality of their work.

Part 3: Interactive element

For the interactive element, I use the case study (2.3) as an example of a writing assignment that can be scaffolded (2.2). I then ask audience participants to scaffold an assignment they routinely give and share their insights with the group.