Many education reforms are aimed to strengthen science, technology, engineering, and mathematics (STEM) in the workforce and the community. The focus on STEM came from the view that by grouping these fields, a stronger political voice can be managed to drive the growth of pedagogical reform [Mohr-Schroeder *et al.* 2015]. Legislation and reforms have focused on creating a STEM literate workforce, increasing interest in STEM, narrowing the gender gap, and increasing the participation from persons of color [Kelly *et al.* 2013]. Going hand and hand with these conversations and reforms comes the debate of STEM versus liberal arts education [Bevins 2011, Lurz 2018]. Unfortunately, such conversations have put a STEM focus education as an opposition to a liberal arts education, resulting in a collection of siloed undergraduate majors and a weakening of the pedagogy in both educational settings. In order to strengthen the pedagogy and to advance our reformation goals for 2040, we need to embrace a unified liberal arts STEM educational mindset.

Before we dive into how we define a Liberal Arts STEM (LA-STEM) education, we want to break down what a Liberal Arts education is, as well as STEM education. From this, we will see that the goals of a STEM education align with the core fundamentals of a Liberal Arts education. To be clear, we are referring to the mindsets of a STEM/Liberal Arts educations, and not individual fields. Ultimately, we are going to suggest a restructuring of the common general education (GE) program structure commonly seen at Liberal Arts institutions to further advance STEM education.

Liberal arts institutions and faculty are focused on creating critical and creative thinkers that transform into responsible citizens devoted to the advancement of our society through service, education, and acceptance of others and their insights. This understanding of a liberal arts education closely mirrors the desired qualities of STEM education. A STEM education intentionally melds the science, technology, engineering, and mathematics disciplines into a more unified approach to encourage hands-on experiences. One of the principal ideas is to cultivate strong interdisciplinary relationships, however, this idea has not been fully realized as we typically have siloed undergraduate programs.

Now the question we need to ask is what does it mean to have a unified LA-STEM education? A LA-STEM education strives to educate and develop versatile, technically competent, and socially aware citizens for a fluid economy and job market. While some will argue this is not much different from a current STEM curriculum at a liberal arts institution, it is imperative that we do not see this as an approach to a singular curriculum, but as an approach to the entire educational system for undergraduate studies. By viewing this curriculum by curriculum, we will fall back into the trap that STEM has currently fallen into.

An effective LA-STEM educational approach would be one where undergraduates are not exposed to diverse materials on a course by course basis, but by a curriculum where every course is fully integrated among numerous disciplines. While this ideal would require a drastic restructuring of the educational system, which would not be attainable by 2040 in a meaningful way, we are proposing a reinvention of the GE program to make meaningful progress towards this goal.

The current model GE programs have students taking various singular or short series of courses across disciplines. While this model does have benefits it does not lend itself to the high integration of material that we desire. We propose that the GE model is replaced with a double major model alongside a high-impact experience (*e.g.,* funded internships or in-depth scholarship) to act as a capstone. Every student must enroll and complete two contrasting majors (*e.g.*, Computer Science/Finance or Biology/Criminal Justice).

As a more concrete example, a student may choose to major in Computer Science and Business, with a concentration in Communications. This student would then be directly exposed to the humanities, STEM, and business. It is evident that a student with this background would be set up for success in many integrated fields (*e.g.,* entrepreneur, upper-level management in software development).

Through this reimagination of GE, undergraduates will be able to take a deeper dive into contrasting fields and be able to bring those fields into the discussions with their classmates. Students will have much more flexibility in the job market and progressing towards graduate school. As the landscape is rapidly changing, our students will be more adept at growing and applying their knowledge to various fields.

There are clearly numerous questions and dilemmas to be discussed in the development of this idea as well as many curricular and faculty mindsets to be changed. For example, how do we define contrasting majors or how do we still make sure students can graduate on time and without increasing debt. Additional thought will also need to be given to how do we encourage the cross-collaboration between the majors, as this is critical to the success of this idea. Even with all of these open questions, this approach gives us a tangible gateway for redefining our STEM education in a meaningful way by 2040. Paramount to any approach, we need to be a community of scholars with the aim of an honest revisiting of the ideals of a college education.

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