Push for STEM in High School

The changes to technology have risen exponentially in the recent years. The advancements in technology we have created in the last 5-10 years were just dreams to others over a decade ago. As a result, many companies are now recruiting engineers and scientists who possess the ability to understand modern technology and advance it even further. The common acronym for these people is called STEM (science, technology, engineering and math). The need for STEM majors has risen greatly over the past few years, but in contemporary society, being just STEM is not enough. STEM majors with a background in something non-STEM (typically liberal arts) is much more desirable. In business, the combination of technology and communication are equally important, and the powerful combination of STEM and liberal arts accomplishes this.

My research plan is mostly looking at articles related to topics of STEM, and linking them together with liberal arts. I will use the online database that was shown in class on Monday to try and find published or reviewed articles from scholarly people or sources. I think, in order, the steps will be to gather information, connect them together, and then start a formal outline. Gathering information and starting a formal outline are the easier tasks of the three.

I think the most difficult task is to link the information with liberal arts. Mrs. Jackson says, “Our culture has drawn an artificial line between art and science” (STEM Majors with Liberal Arts Training). Rather than solidifying that line, I want to make it vanish by showing how the combination between the two fields of study is powerful and effective to businesses. This is difficult because of the assumed “battle” between liberal arts and STEM.
Working Thesis

There needs to be a push for the combination of STEM majors with liberal arts education.

High School Preparation: Pushing Students Towards STEM Fields for College: An Annotated Bibliography


Bottia explains how the underrepresentation of women in STEM (science, technology, engineering and math) fields is problematic. This paper’s focus is on analyzing and examining the demographic composition of high school faculty (specifically the proportion of female high school science/math teachers) on prospective students’ decision to declare a major in a STEM field. Results indicate that although the proportion has no effect on male students, it definitely affects female students’ decision likelihood of entering or graduating somewhere in STEM.

Bottia’s explanation seems to be reliable because supplies many references to where she received her information. Her research is also very extensive and goes into great details describing females and the STEM field. This is also reliable because it is considered as a primary source. Bootie wrote this herself, so the information has gone through less “layers.”

Glaser explains how the combination of both STEM fields and liberal arts fields are what the world needs - not just more STEM majors. Glaser strongly believes that the over-hype of STEM majors is making the other majors underrepresented. While STEM majors are definitely important, shunning the other majors is something of concern for Glaser. He believes that the combination of both STEM and liberal arts is very important and that shunning liberal arts majors is wrong. While STEM majors give students technical knowledge, liberal arts expands students’ minds and gives them a good glimpse of how the world runs. This is something Glaser strongly believes in.

Glaser’s article seems to be a bit less reliable as he mostly mentions his own thoughts on the matter. He does link a few other articles, but they are on the same website and it is not clear whether Glaser obtained his information from those links. However, given Glaser’s reputation and position as CEO of a company, it adds some credibility to his thoughts. Glaser seems to be a scholar in the field and presents what he thinks is best.


This is a short article explaining merely the difference in tuition in relation to what you study. Typically, STEM majors must pay more to study their fields versus
liberal arts majors. The article explains how this is not an efficient way to generate money for universities because the price is now pushing away some students from STEM. Charging more money for popular majors should not be a trend universities should follow.

This article seems to be somewhat unreliable as it was written by a journalist who wished to remain anonymous. However, the only information on the journalist is that he was been doing journalism for over 10 years. The other point is that the article does mention where it used its data from in the comparisons. This adds to the credibility.


At a high level, this study examines the within-field persistence of science/engineering students compared with those in life science, business, social science, education, and humanities. The data are drawn from a nationally representative sample of college matriculates and includes students’ transcript information from high school and college. The study clearly displays that students in science and engineering are some of the best, having much higher scores in mathematics and English compared with those to the rest of their peers. However, the same students often earn lower scores within-field college grades than students earn in other fields. The results of logistic regression analyses show that the gap in college grades, net of background and preparation, partly explains why students in
business, education, and humanities have higher persistence rates than students in science/engineering.

This article seems to be very reliable based on two aspects. The author goes into extensive details about her research and how it adds to her thoughts. She even accounts for research that either is very little or does not exist, so she looks at both sides. The other point is that the author Barbara King is a professor at the International University of Miami. This adds to her credibility as being a professor is a respectable position. It is also a primary source with no censoring, so it harbors the author’s direct thoughts.


Legewie believes that women still seem to pursue STEM majors at a much lower rate than men do. This study extends existing explanations for the gender differences and examines the role of high school context for plans to major in STEM. The author strongly suggests that gender-specific formation of study plans is shaped by the local environment of the school. The study divides its content into two sections. The first focuses on a high school’s curriculum and explains how that is a factor for decision. The second examines gender segregation of extra curricular activities analyzes how women are not exactly being pushed to pursue STEM-related subjects. The study seems to strongly agree with Bottia’s paper regarding females in math and science.
Legewie and DiPrete’s article seems to be very reliable. They use several pieces of outside information (all cited) in their work and go into extensive details about a lot of them. The other point that makes this article valuable is that it was published on the Sociology of Education. The SoE is a reputable and respected online database that publishes articles from scholars, so this adds to the article’s credibility.


Liberal arts majors have been in the decline ever since the rapid changes in technology have taken over the economy. Florida’s Gov. Rick Scott stated that he would try to lower the costs for students interested in STEM, which would definitely add to the decline in liberal arts degrees considering how valuable STEM degrees are in the market nowadays. She also states the few requirements universities have towards English and rhetoric. Many universities require less than two courses as a requirement to graduate, regardless of the degree chosen. This is hurting the encouragement of liberal arts degrees and should change immediately.

This article seems to be very reputable. It was hosted on EBSCOHost, an online database containing lots of data dedicated to research. EBSCOHost is a scholarly place to get information for research, so this article is credible. Another point is based on the author’s background. Riley is a former Wall Street Journal editor and is the author to many books and online articles. This shows that she is proficient in researching and gathering data.

Sahin describes a study that was done among high school students and its relationship to students picking STEM majors. The first part of the study was focused on how related matriculation of this specific school system was with the national average. The second half showed the relationships between students’ science fair and STEM club participation and their STEM major selection was investigated. The findings indicated that HPS schools (schools with focus on math, science, engineering and computer technologies) outperformed the national average of post-secondary admissions and STEM major selections. There was also a statistically significant between the number of STEM clubs students participated in and their choice of STEM major.

This information seems to be credible based on a couple reasons. Alpaslan Sahin is a respected professor at Texas A&M University. Upon further investigation, Sahin has received his PhD in philosophy and is known for lots of research projects. He titles himself as a research scientist. Alpaslan also documents all of his findings into organized tables and charts. He then carefully analyzes the data, explaining his views and potential other topics.

Stein here argues that STEM majors are definitely over-hyped and that liberal arts majors are still very important. Similar to Glaser’s view, Stein strongly believes that liberal arts degrees hold value and even goes into detail on how progress in history was made mostly with liberal arts majors (the Renaissance, the Enlightenment, Romanticism, etc). However, Stein does get a bit extreme with comparing science to other fields. He mocks it by saying how scientists say one thing, but then years later say a different thing. This indecisiveness can be a problem.

This article seems to be a bit less reputable. Joel Stein only seems to be ranting on how he despises the hype of STEM fields. He doesn't provide too much evidence (besides the quick “evidence” he had based on past history), so it is difficult to correctly make a judgement. However, Stein is a Stanford graduate. Stanford is a very respectable university and this does add to his credibility. Overall, I would say that Stein, while he is a graduate from a respected university, does not seem to provide sufficient background information or other evidence of his claims.