

A Liberal Education Matters: A Comprehensive Look at the Hidden Truth on the Value of
Liberal Arts and Sciences Degrees and Why It Will Always Be Needed

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There is an ongoing debate in higher education regarding the value of liberal arts and sciences degrees and the value of a liberal education. As college tuition continues to rise and student debt continues to be a problem, the question of whether a liberal education is still relevant becomes a legitimate concern among current and prospective students. It seems now, more than ever, that liberal arts and sciences advocates continually have to defend their field of studies from the so-called ¹ (science, technology, engineering, and

Universities has defined some of the commonly confused words associated with liberal arts to point out the nuances:

Liberal Arts: While this term is sometimes used to describe all the arts and sciences disciplines, the term refers only to disciplines in the humanities and social sciences;

Liberal Arts and Sciences: Disciplines spanning the humanities, sciences, and social sciences. For example, humanities disciplines include such fields as literature and philosophy; sciences include such fields as biology and physics; and social sciences include such fields as political science and sociology;

Liberal Education: An approach to college learning that empowers individuals and prepares them to deal with change, complexity, and diversity. This approach emphasizes broad knowledge of the wider world as well as in-depth achievement in a specific field of interest. It helps students develop a sense of social responsibility, strong intellectual, and practical skills that span all major fields of study (such as analytical, communication, and problem-solving skills), and the demonstrated ability to apply knowledge and skills in a real-world settings. This approach to education can apply to the full range of majors, including not only humanities and social sciences, but also sciences, engineering, and professional fields;

General Education: The part of a liberal education curriculum that is shared by all students. General education provides broad exposure to multiple disciplines, and forms the basis for developing essential civic, intellectual, and practical capacities. It can take many forms, and increasingly includes introductory, advanced, and integrative forms of learning. (AAC&U, 2013)

It is equally important to be acquainted with the origin of the term *liberal arts*.
from *liberal arts* originally meant
the social and political elite during the classical period (Kids.Net.Au, 2014, para. 1). To put it
another way, a liberal arts education was intended to help distinguish free people from slaves; it
was seen as an education that was suitable for individuals in order to engage in civic life. For
centuries, the liberal arts have represented the opposite of professional or vocational training, i.e.,
the study of liberal arts was devoted to the classics and steered clear of study for a particular
trade (Kids.Net.Au, 2014, para. 1). The

community. For the Greeks, a classical education was seen as a logical progression in a academic studies, with students mastering each art before advancing to the next order of study. The Greeks understood that students must work through the trivium and quadrivium and study the arts in collaboration as preparation for their intellectual and moral developments.

Moreover, in the 1984 book *Politics*, Aristotle emphasizes that the study of the liberal arts is vital for individuals to know, both because of the nature of the disciplines and because of its relationship to other learning. Educational institutions customarily teach students four subjects: letters, drawings, gymnastics, and music (p. 230). He believes that these subjects are capable of more than just being useful for society. The liberal arts subjects were viewed beyond its intended use that promoted excellence, to subjects that individuals can study for their own intellectual enjoyment.

do not aim at production and they do not aim at producing producers, as the servile arts² do (p. 40). Said differently, the liberal arts aim is to produce individuals who can think and make informed decisions for themselves. The goal is not to produce workers whose main motive is to make money through their profession. In James Daniels' (2009) article

the goals of studying the liberal arts. While the servile arts goal is to cultivate skills for a given trade, the goal of liberal arts is to develop general skills that can be applied on a universal scale (para. 2). In short, the study of liberal arts is about more than just teaching students what they need to know for a specific job or trade. Rather, this kind of liberal arts study is fixated on skills that are needed beyond a vocation.

The evidence presented so far implies that a liberal arts education is technically referred to as a liberal education.³ As stated by Robert Balmer, a liberal education has historically

cited in Bevins, 2011, p. 10). Since the time of Aristotle and Plato, Higher education was built on the foundation of a liberal education—a broad curriculum spanning art, history, literature, mathematics, philosophy, sciences, and social sciences—that is intended to prepare an individual to think critically participate in civic life, and continue to be life-long learners (Sandeem, 2013, para. 2). Agresto (1999) note that a liberal education is seen as a *freeing* education, as a movement from opinions

research. A liberal education

teaches individuals to overturn unfounded opinions (Sandeem, 2013, para. 2). Agresto (1999) note that a liberal education is seen as a *freeing* education, as a movement from opinions

in-depth analysis. Hence, the term *liberal* is thought of in the sense of liberating the mind, i.e., freeing the mind from bias, prejudices, and unjustified assumption, and to encourage individuals to not just rely on what they are told, but instead to discover the truth for themselves.

As technology progressed, the purpose of education has slowly shifted from the classical studies to applied studies as a way to support the economic development. This shift in education away from the classics (i.e., the liberal arts) American philosopher Martha Nussbaum (2010) agrees

humanistic aspects of science and social science the imaginative, creative aspect, and the aspect of rigorous critical thought are also losing ground as nations prefer to pursue short

practical at the time (e.g., agriculture, home economics, mechanical arts, etc.) (Bremer, 2008, para. 4). Arguably, u

teamwork and global cultural awareness, all of which allows a person to continue learning and adapt over time. That is a crucial ability in a world where most good jobs will constantly change as technologies continue to evolve. (para. 3)

The concern of students to want to major in a field and to concentrate on courses designed to increase their competencies (and by extension, their financial gain) in a given area has disadvantaged the U.S. as innovative countries begin to adopt a broad-based knowledge learning style. Carol Christ (2012), former president of Smith College, reveals that surveys in China and Japan have shown that employers are not happy with their workforce. The workforce is entering into organizations untrained on creativity and problem solving, and to fix this gap, schools in these countries are turning to a broader education (para. 5). The lack of creativity and problem solving is troublesome, not just for those innovative countries, but also for the United States. Colleges and universities are under pressure from employers worldwide to graduate a generation

liberal arts programs, federal and state governments have no basis for providing funding. Without financial support, some liberal colleges are forced to redefine their identity, or face closure. For example, in March of 2015, Mary Baldwin College, a small, private college in Virginia, announced its strategic decision to create new colleges of education and health professions to stabilize the financial state of the school and to attract more students (Jacobs, 2015, para. 6). Other colleges have merged with other colleges as their strategic approach; for instance, Tennessee Temple University announced in March of 2015 its merger plan with nearby college Piedmont International University (Bidwell, 2015, para. 2). But there are some colleges that are unable to meet its financial obligations and have to resort to closing the school. Financial challenges, along with declining enrollment, has resulted in Sweet Briar College, a 114-year-old small, private college, to make the administrative decision to close the school⁵ (Bidwell, 2015, para. 2). Other liberal arts colleges who are facing similar challenges may soon follow in its steps. These prime examples illustrate the negative effect that lack of funding can have on the survival of some liberal arts and humanities degree programs. Lack of academic funding is not only hurting higher educational institutions in general, but also is hurting growth by depriving them of a liberal education.

The liberal arts tradition may not be able to survive long without enough financial support. But there is a growing consensus among schools to require

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what STEM fields have done so far and what it can potentially do for society, leaving little room to appreciate the world of the liberal arts and sciences beyond its perceived monetary value.

The shift in education (from the classics to applied sciences) has also been the result of _____, and to an extent, the result of _____s and _____ preferences. In a *New York Times* article, national reporter Kate Zernike (2009) describes the _____ perspe_____ Consider the change captured in the annual survey by the University of California, Los Angeles, of more than 400,000 incoming freshmen. In 1971, 37 percent responded that it was essential or very important to be _____ - _____ while 73 percent said the same about developing a meaningful _____ (para. 7). Decades later, in 2009, the values were nearly reversed: 78 percent identified wealth as a goal, while 48 percent were after a meaningful philosophy (para. 8). Zernike observes that t_____ udes _____ curriculum. Colleges and universities have to answer to students and parents who want to know what the return on investment is for an education, especially as the cost of education rises and student debt soar exponentially. It is understandable that schools need to adapt to the demands of their time, but that does not mean that schools should abandon one type of education (i.e., a liberal education) in favor of another (i.e., STEM) because of its growing demand and popularity. Colleges and universities needs to get the correct message out there that students, in order to be successful in the long run, need to be fully educated in their studies by taking courses in both liberal arts and sciences *and* STEM fields.

Some individuals caution the danger of getting rid of liberal arts programs. In Martha Nussbaum (2010) book *Why Democracy Needs the Humanities*, she outlines a worldwide crisis in education. According to her, the study of liberal arts helps produce virtuous, whole citizens. But rather than focus on the long term future of America, the current focus is on producing national profits and being ahead of other countries in innovations (p. 2). This focus of trying to be at the fore front of producing a generation of STEM leaders to bolster the economy has inevitably led some colleges and universities to cut funding and slash liberal arts and sciences programs programs that produce virtuous, whole citizens who are needed to help keep democracies (i.e., society) functioning well. As Nussbaum (2010)

system into smaller parts, recognize cause and effect relationships, and defend opinions using facts; mathematic skills for calculations and measurements; attention to detail to follow a standard blueprint, record data accurately, or write instructions; technical skills to troubleshoot the source of a problem, repair a machine or debug an operating system, and computer capabilities to stay current on appropriate software and equipment. (iseek, 2014, para.1)

These types of stock skills can be taught on the job. What is blatantly missing from this list is any mention of soft skills, like creativity and critical thinking. When students only take STEM courses, it deprives them of the soft skills training that is Acquiring soft skills is best achieved through liberal arts and sciences courses. While having the skills gained from STEM courses is desirable and most definitely needed by society individuals with stock skills have a set of skills that is narrowed to a specific profession, and without access to a liberal education, these STEM graduates will experience limited opportunities for growth and advancement. Schools are but society need individuals with soft skills that make them unique and stand out from the crowd. In effect, society needs individuals with a liberal arts and sciences background, not another machine that can make widgets.

In addition to educators advising students to study the liberal arts, employers, too, prefer candidates with some liberal arts training. In Kathleen Haney (2013) article The Liberal Arts and the End of Education, she adds that studying the liberal arts produces a well-rounded individual, a trait many employers look for in their candidates. This type of well-rounded

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collaboration and communication. To be prepared for the future, for jobs that do not yet exist, students need to have a willingness to learn, to have cultural awareness, and to be able to effectively communicate. These are skills that a liberal arts education can help students develop (para. 3). She complains that many

There is

technical skills (such as people skills, positive attitude, team player, communication, etc.), that opens up most of the doors to come. Although there is still less training for soft skills, soft skills are increasingly becoming the hard skills.

After the U.S. Commission on the Future of Higher Education released its report indicating a deficiency in some of highly applied learning areas, STEM has been on the

disciplines of science, technology, engineering, and mathematics (U.S. Government Publishing Office, 2011, p. 4). Other agencies provide some examples of what STEM means. For example, some federal agencies, such as the National Science Foundation, use a broader definition of STEM that includes psychology and the social sciences (e.g., political science, economics) as well as the so-called core sciences and engineering (e.g., physics, chemistry, mathematics). Others, including the Department of Homeland Security, U.S. Immigration and Customs Enforcement, use a narrower definition that generally excludes social sciences and focuses on mathematics, chemistry, physics, computer and information sciences, and engineering. Some analysts argue that field-specific definitions such as these are too static and that definitions of STEM are an assemblage of practices and processes that transcend disciplinary lines and from which knowledge and learning of a particular kind emerges (Congressional Research Service, 2012, p. 2). The definition of STEM⁶ varies considerably, depending on the objectives of such agency or organization.

Besides the federal government supporting STEM programs, state government, too, also understands the pivotal role of STEM and has provided support for

STEM is because of its employability aspect, Scott also acknowledges the value of STEM degrees. He recognizes that many jobs are in the technology and engineering sector, which invariably are the fields that are of most value to society.

those advocating for STEM, and it is no surprise that he is devoting his time and energy into promoting STEM fields and pushing students to study those fields in college. At the cost of liberal arts and sciences programs, h programs, because he believes that fields and he wants to change that situation.

Governor Scott is not alone on his position to deliver more STEM graduates into the workforce. On January 30, 2014, President Obama delivered the same message to Wisconsin citizens I promise you, folks can make a lot more, potentially, with skilled manufacturing or As part gave \$3 billion to STEM education. The increase in federal funding is part of a boarder mission to produce a generation of engineers, scientists, and mathematicians to help the economy of the United States (Strum, 2014, para. 5). The Obama administration wants to produce 1 million additional STEM undergraduate degree holders by 2022 (Robinson, 2014b, para. 3). opinion, and at large, the federal

opinion (i.e., President Obama), warrants the idea that students should only go to college and study fields that can help them land a job (i.e., a high-paying job). But the federal and state government are making a leap of an assumption. They think that the only reason students go to college is to get a high-paying job. While some students may go to college for that very reason, other students may go to college to see what college is about or figure out what they want to do with the rest of their life, among other reasons. Not every student wants a STEM job,

and not every STEM students wants a STEM job. There are students who may want to be historians, teachers, and writers. narrowed view of why students should go to college or how students should go about getting a job is unjustified. What they fail to understand is that students need to attain both soft skills and hard skills to be employable, and obtaining these skills cannot be acquired through studying STEM fields alone.

There seems to be this false belief held by the government that presumes there is a demand for STEM graduates. Contrary to popular beliefs about the need for more STEM workers, multiple studies challenge this notion. The data instead shows a surplus of STEM workers competing for jobs (Vasquez, 2012, para. 10).

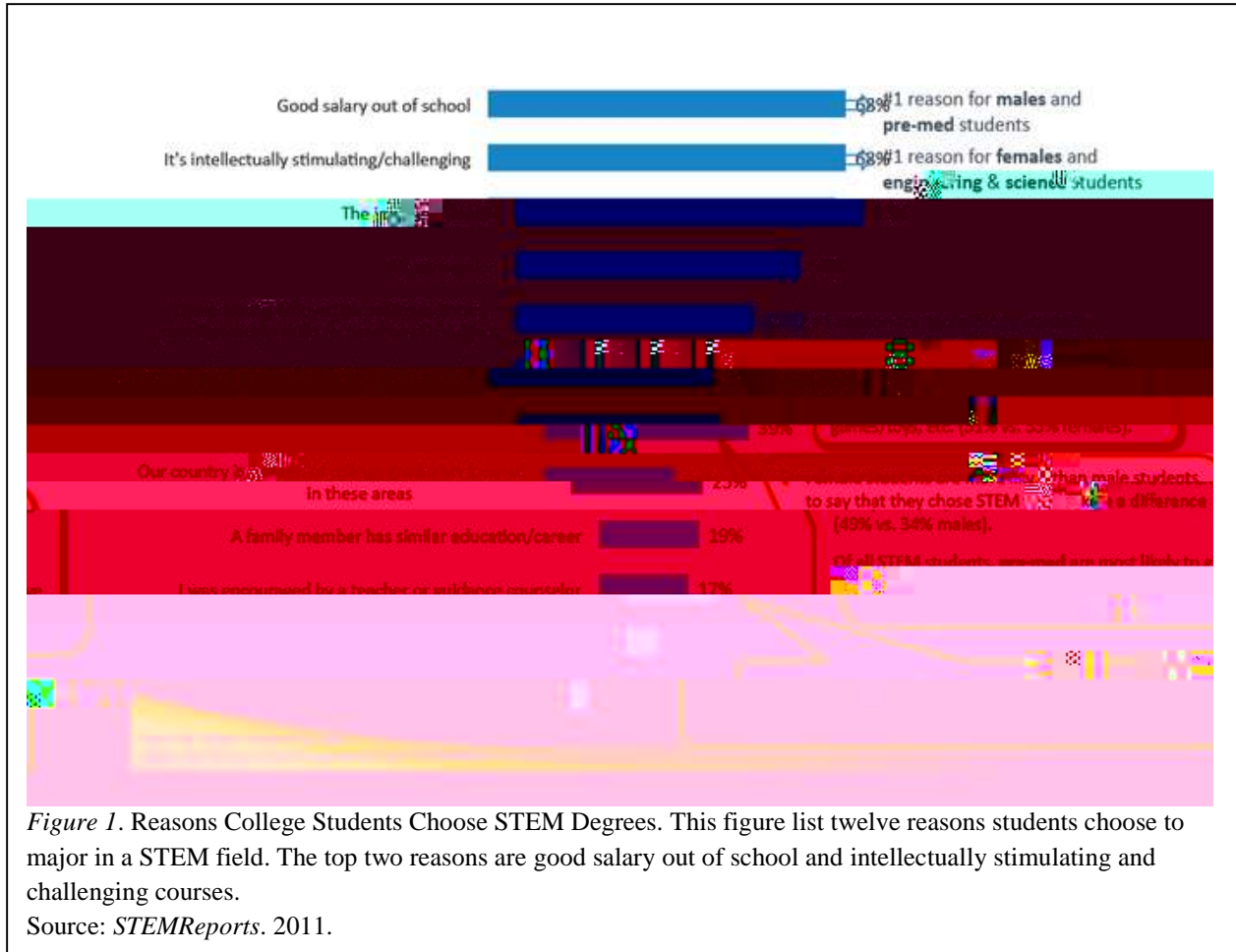
need students majoring in the liberal arts and sciences. What we do need is more students being educated in both fields of STEM and liberal arts and sciences. Having a whole education will definitely help students find the kind of success one generally looks for in a professional career.

There is a consensus among individuals and organizations who perceive STEM degrees as a pathway to financial security and others who see liberal arts and sciences degrees as a pathway to the unemployment line. As many job seekers can attest to, having a college degree does not guarantee instant success in getting a job. Many students select majors based on which will help them get jobs more so than what they are passionate about. Figure 1 list reasons why students choose to major in a STEM field rather than major in

A 2011 book, *The Coming Jobs War*, by Jim Clifton, the CEO of Gallup, notes that having a good job is the number one social value for everyone. It outranks having a family, peace, freedom, religion, democracy, and numerous other societal goods (Kiley, 2012, para. 38). Financial security is a legitimate reason for getting a college education, but students should not be educated just to get rich. Columbia University professor Andrew Delbanco offers another explanation why students choose STEM fields over the liberal arts:

firepower in the universities is in the sciences, that the important issues that people of all sorts

students, is about choosing the field that they can see real, tangible benefits (e.g., their individual contributions to society, earning potential, and employability).



The conception that college graduates are facing such steep employment challenges because of their choice of major is unsupported. The most prevalent reason for why individuals face a stagnant job market, and as a result, endure the unemployment crisis, is inadequate aggregate market demand. For example, a report by the Georgetown University Center on Education and the Workforce shows that, in comparison to other technical majors, non-technical majors, including the humanities and arts, suffered higher levels of unemployment in the recent recession (Sandeem, 2013, para. 10). This unemployment rate is largely the result of the boom in

technology, resulting in fewer needs for the humanities and art graduates. Many of the in-demand jobs are in the science, technology, engineering, and healthcare sector. While that may not be good news for the liberal arts and sciences graduates, the good news is that as the economy recovers, the unemployment rate does decrease with work experience (Carnevale, Cheah, & Strohl, 2012, p. 5). Based on figure 2, 5.2 percent of liberal arts degree holders are unemployed from 21-30 years of ages, but that rate drops to 3.5 percent when they are between 41-to-51 years of age. A surface level reading of figure 2 indicates that while liberal arts graduates may find a harder time getting a job at first, they can expect their employability to rise over time. More work experiences helps liberal arts graduates with employability compared with recent college graduates (Johnson, 2014, para. 7), a fact students should keep in mind.

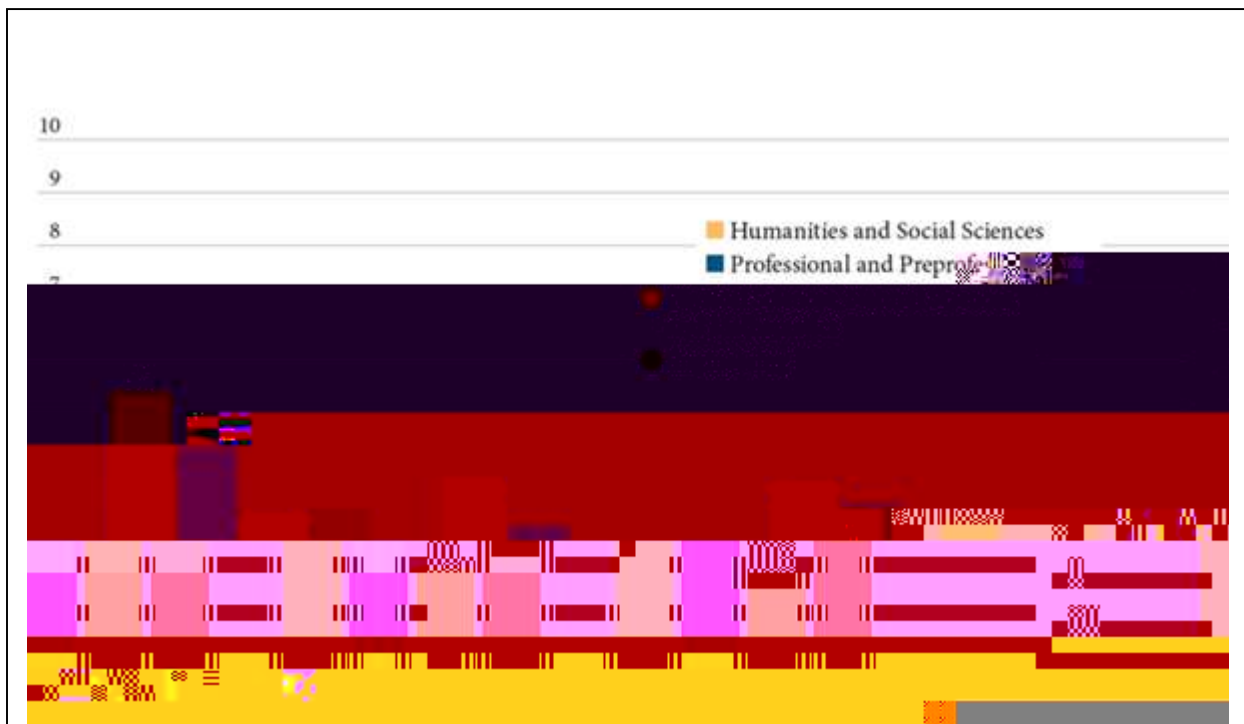


Figure 2. College Graduate Unemployment Rates. This figure shows the unemployment rates of different majors. In all three age groups, the humanities and social sciences had the highest unemployment rates compared to the other majors.

Source: *How Liberal Arts and Sciences Majors Fare in Employment*. 2013.

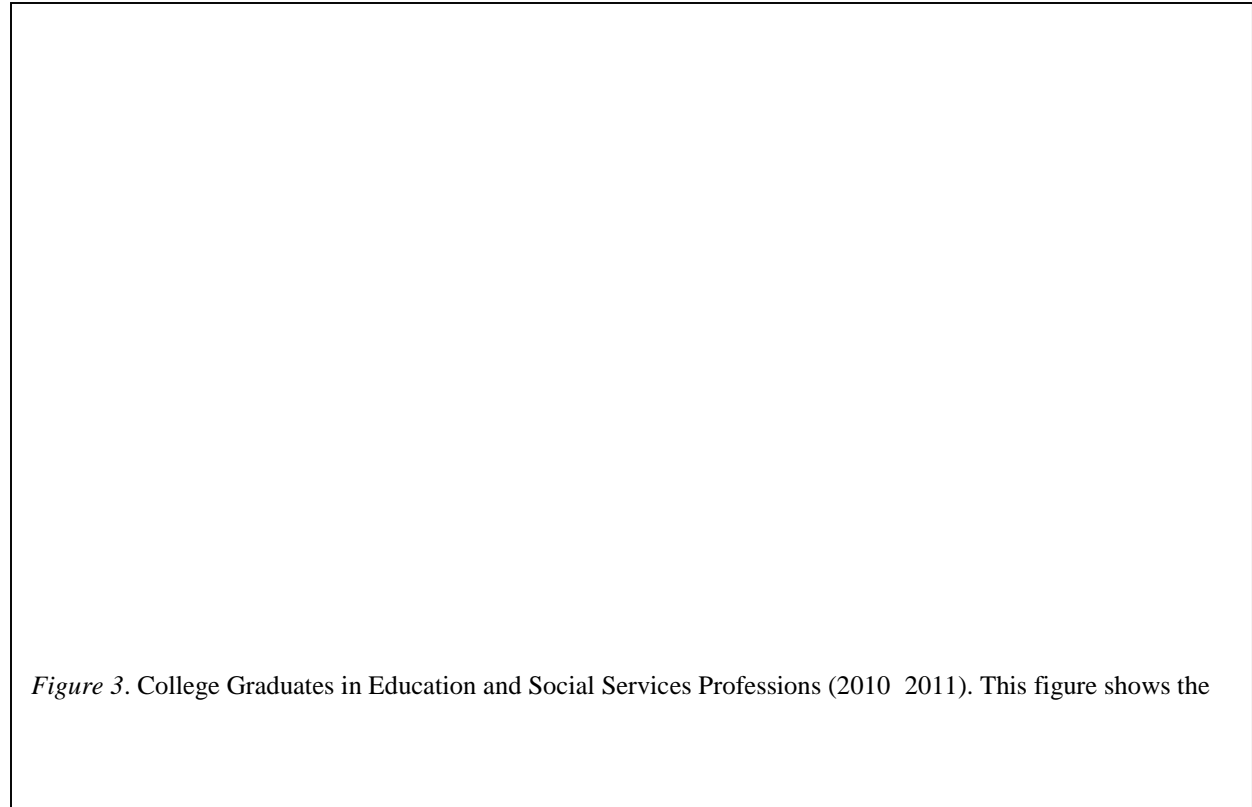
Beside students not wanting to major in unemployment, some students avoid the liberal arts and sciences majors because of perceived low earning potential. Yet research by the National Center for Educational Statistics found that based on income, liberal arts and sciences majors eventually make similar earning wages as their engineering peers a decade after graduation. This ability of liberal arts and sciences majors to close the income gap has to do with the skills gained from a liberal education, which over time become more valuable in many different types of careers (Patnaik, 2012, para. 4). There is consistent evidence that the highest salaries apply to positions that requires skills gained from a liberal education, including inductive and deductive reasoning, judgment and decision making, originality, problem solving, social and interpersonal skills, and writing skills (Schneider, 2011). It is because of these invaluable skills that liberal arts and sciences graduates are able to close the income gap that is seen early on with their income as recent graduates.

While the idea of a liberal education thrive in the minds of all students and educators, the skills learned from a liberal education are useful in all industries, placing significant weight to the broad-based application. As stated by Donald Asher, an internationally acclaimed author and speaker specializing in professional development and higher education degree is the major entry

(Patnaik, 2012, para. 4). This survey tells us that most CEOs found success from earning non-technical degrees, which speaks volume as to the type of education that has helped individuals be victorious in their professional career. This survey also tells us that a student does not determine the kind of job he or she is suited to do, much less determine his or her likelihood of success. As long as students receive some kind of liberal arts and sciences training during their college career, they will find success in the end, a concept that confirms the early possible.

That is not to say, however, that success will always equate a high-paying salary. Typically, a good salary is associated with highly-skill positions (e.g., computer scientists, petroleum engineers, statisticians, etc.). That is not always the case for those graduating with a liberal arts degree, though. A plausible explanation for the low-paying salaries of these graduates has to do with the type of job they have. As figure 3 shows, people with liberal arts degrees generally find themselves working in social service jobs, such as counselors, religious, social, and community service workers; and these types of jobs tend to pay lower salaries (Johnson, 2014, para. 8). Many liberal arts graduates, however, know the type of jobs they are eligible to do, including the average salaries of those jobs. The benefit of having a general education is the wide range of career options it gives to students, though. In a 2007 survey by the National Association of Colleges and Employers, liberal arts graduates found themselves dispersed in a variety of industries and career fields, including retail trade, social assistance, sales, and graphic arts (Gehlhaus, 2008, p. 4). It is unclear whether these data tell us if the graduates work in these social service jobs because that is what they want to do, those are the types of jobs they are qualified or, or if those are the only available jobs suited for them. One fact is clear: a liberal

education allow individuals to have multiple career options, which allows for multiple salary options.



Fortunately, liberal arts and sciences graduates will not always earn a low salary compared with STEM graduates. Recent liberal arts and sciences graduates typically start their career with a lower salary (which is typical of any college graduates in their profession). Over time, as these graduates gained more work experiences and strengthen their knowledge, skills, and abilities, eventually they can earn a higher wage, placing liberal arts and sciences graduates on similar wages as STEM graduates in similar situations. Part of the reason for the increase in wages has to do with work experiences. As individuals gain enough experiences, they find themselves qualify for promotions or find themselves qualify to work in a more skilled-level position that pays more. Figure 4 shows College graduates with four-year degrees in a

humanities or social science field (e.g.

There are substantial data that supports the claim that liberal arts graduates do have the potential to earn higher salaries. When liberal arts majors reach their peak earning ages, they can earn up to \$2,000 more. Figure 4 shows that humanities and social sciences graduates come close to earning as much money as their professional and pre-professional peers. In figure 5, the graph shows that individuals at peak earning ages (56-60) with a bachelor degree in a humanities or social science field make up to \$40,000 more than they did when they were recent graduates (Johnson, 2014, para. 6). While it is a known fact that STEM workers do earn more money overall (up to 26% more) than liberal arts workers, the greatest earning difference is seen mainly in the low-level jobs. When individuals possess advanced degrees, leading to a high-level job, there are minimal differences in the earnings. Of the 9.6 million bachelor degree holders in humanities or social science fields, approximately 4 million of these individuals also hold a graduate or professional degree (Johnson, 2014, para. 9). Pursuing additional education post-bachelor degree raises earnings across the board. For those students who major in the liberal arts and sciences and want to make slightly more money as recent graduates, they should consider graduate or professional school in order to boost their earning potentials.

To reiterate the previous point, earning disparity do b64E

). Approximately 28 percent of science and engineering majors say they are definitely or maybe planning to return to school (Taylor, Fry, & Oates, 2014, p. 35). While it is the liberal arts graduates who are more likely to return to school for an advanced degree, this move to obtain further education does not indicate that they believe their undergraduate degrees to be worthless (as the common notion is among those who do not see value in the liberal arts). These students perhaps have a desire to continue their education, i.e., to keep on learning to learn one of the many goals of a liberal education.

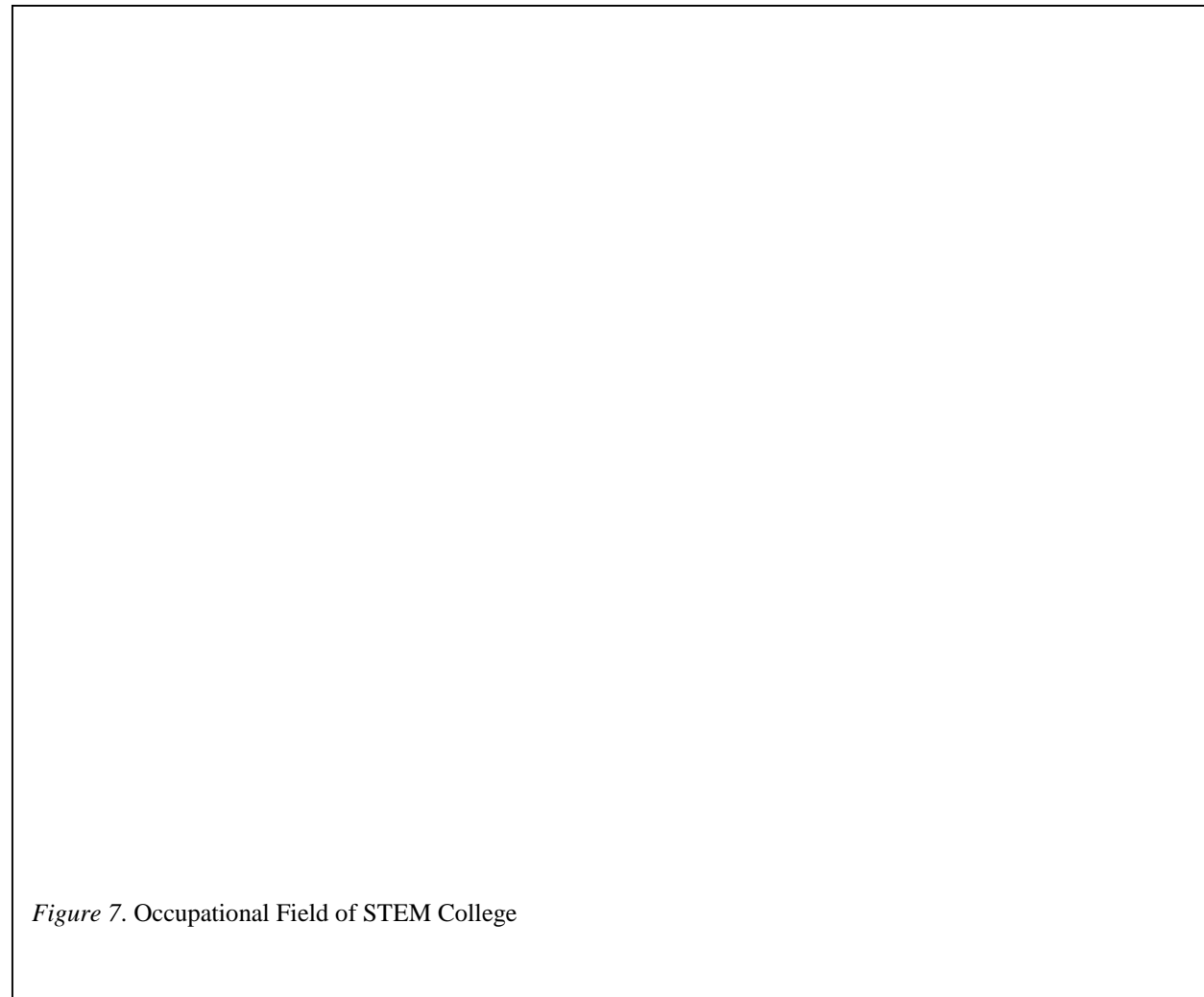
The relationship between income and education runs deeper than what figure 6 initially

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some countries place on literacy skills to determine wages; the organization highlights literacy skills as the key component that pays off in a the ability to understand and use prose, to analyze docum (Sigurdson, 2005, para. 13). The report, *Literacy Skills for the Knowledge Society*, contains data comparing the literacy skills of people in twelve countries. The organization became aware that in some countries (e.g., Canada and the United States), the ability to comprehend and use words and figures plays a strong role in determining wages

Students who elect to graduate with a major that have a direct occupation and industry link to it (i.e., STEM) generally receive a higher salary and experience lower unemployment rate.

While majorities of science and engineering majors do end up working in a field related to their course of study, research by the Economic Policy Initiative revealed that some STEM graduates work in fields outside their major, not because they necessarily choose to do so, but because employers do not hire them.



The U.S. Census Bureau cites another reason why STEM graduates work in fields outside their major. Based on its study, the organization found that there is a demand for individuals with the right skills, though such skills may not be used in a field related to the . Liana Landivar (2014), a sociologist with the Census Bureau, says that STEM degrees provide a range of skill-leveled career options because of the technical skills students learn. For example, STEM students are working in supply-chain management, inventory control, and quality control (Robinson, 2014a, para. 7-9); these jobs require technical skills and rely less on non-technical skills that students can get from a liberal education. Only half of those with STEM degrees get

STEM jobs and 75

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sciences does not have a direct occupation linked to it, these graduates will have choices when it comes to their line of work, and success can be arguably found in this approach with the number of options they have.

Researchers Taylor, Fry, and Oates explored some of the reasons why some jobs were not very closely related to their field of study. The results of the survey revealed the following information about a quarter (26%) blamed the bad economy or say they were unable to find work in their field. A similar share of them wanted a change or found that the work was not for them (23%), while 16 percent say they are happy with their current job. For others, life got in the way: about one-in-ten say they had children or other life circumstances interfered (9%), and 8 percent say their major was too general or it was useless, they lacked the experience or qualifications to find work in their field, or they chose a non-related job for financial reason (Taylor, Fry, & Oates, 2014, pp. 46-47). Their research led them to uncover some common reasons that we see today regarding why some individuals are unemployed, why some graduates are employed in sectors entirely unrelated to their college majors, and why some individuals go back to school. The ultimate takeaway from their study is that we should not be quick to conclude that the primary reason some graduates do not have jobs is because of their degree. There is a multitude of reason not linked to the major or degree.

In spite of the research conducted by the Economic Policy Initiative, the U.S. Census Bureau, and the Pew Research Center, some individuals do see a link between liberal arts and sciences majors and related jobs, confirming the view that these majors do have value. For example, research by the Bureau of Labor Statistics found that anthropology students know how to conduct ethnographic interviews and studies

is useful for media, public relations, and publishing occupations. And geography majors are well suited to location-based urban planning (Gehlhaus, 2008, p. 5). Additionally, in 2001 the National Center for Education Statistics Baccalaureate and Beyond Longitudinal Survey noted that 41 percent of humanities majors reported a direct link between their jobs and their majors one year after graduation. For psychology majors, it was 37 percent; for social sciences majors, it was 25 percent. Moreover, 60 percent of liberal arts majors said they were in jobs that were the start of their career (Gehlhaus, 2008, p. 6). There are varying reasons why some individuals are in a job related to their major, and others reasons why they are in a completely different field. Most common among these results is that students, who graduated from college, whether they had a liberal arts and sciences degree or a STEM degree, do find some kind of professional success. It is unclear, however, whether the students who found success in the survey were successful because of their major and skills training. There are students who find success (i.e., a job) through networking, and others who find success through a family business; such avenues may not be necessarily accessible to everyone, and so this is an unfair, objective measurement of success for everyone. A critical question has yet to be answered: Can students find even greater career success if they had training in both STEM and the liberal arts and sciences (assuming such student only had one type of training)? In other words, what potential success can students hope to achieve (or expect to achieve) by having training that expands their learning and knowledge in a broader sense (i.e., by having a liberal education on top of a STEM education)?

Aside from having a balanced college education, achieving success in the job market is also partly a result of employers hiring the right candidates. Because employers are the ones seeking

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very or fairly important for students to be exposed to. Moreover, nearly three in four employers (74%) say they would recommend that their own child or a young person they know pursue a liberal education in order to achieve professional and career success in the current global economy

advised against

percent of the employers agree that possessing knowledge and skills for a specific field or profession is most important for college graduate-term success (p. 5). It is safe to assume that employers see that a liberal education does provide students with tangible, practical skills that employers value highly. The world is changing rapidly, and it can be both costly and risky

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within their organization are more complex today than they were before, and a similar proportion say that to succeed in their organization, employees need higher levels of learning and knowledge today than they did in the past

deal with our foreign competitor as well as learn to deal effectively and comfortably with a diverse society at home. In short, globalization depends on learning to communicate with people in their own language and understanding

international relations, languages, moral and political philosophy, and transnational studies (p. 57). The number of supporters that calls for individuals to receive training in the humanistic and social scientific disciplines confirms how crucial human capital is for society. The success of an organization depends on its productivity. Employees must continue to add to their knowledge, skills, and abilities to keep up with

needs. Equally important to keep in mind is that individuals cannot rely solely on specialized, technical skills for their education or job training, because skills needed today might not be needed tomorrow (i.e., some skills may become obsolete); so employees need

summed up the importance of this shift in educational preferences at a conference co-sponsored by Yale University and Pomona College on the future of liberal arts education in India. Nilekani remarked that higher education should not just provide jobs but ways of thinking . . . Liberal arts education provides the ability to walk into new, uncomfortable situations, whether in politics, sociology, or technology (para. 5). Oxtoby and Holt refute the claim that colleges and universities should be a place restricted to training students for a job. They urge colleges and universities to look at why other innovative countries are viewing a liberal education as critical for students to undergo at a time when American institutions want to reduce its emphasis on that type of education.

That is not to say, however, that all U.S. colleges and universities are forgoing the liberal arts and sciences in favor of STEM. Some schools have recognized the merits of the liberal arts and sciences fields. With this revelation, school administrators want its students to have a balanced, whole education. Embedded within a STEM curriculum are 1

risk getting left behind in their industry. And since businesses are composed of employees, he is alluding to the fact that employees must learn how to reinvent themselves, i.e., learn how to use their knowledge, skills, and abilities in new, but similar situations (para.7). Students and employees have a responsibility to educate and train themselves to be ready for any changes in the labor and job market. Students who are a product of a liberal education are in the best position to reinvent themselves. The overarching point article is that some colleges and universities are modifying their teaching style in response to the technological and globalized atmosphere of the new era. Some educators are integrating more key learning outcomes⁹ that are gain from a liberal education in their technically focused courses. While some colleges and universities, whether national or international, are slowly seeing the usefulness of a liberal education, if America, as a whole, does not recognize the role that a liberal education plays in educating a workforce that can do more than just master a particular skill, then America is doomed to fall behind its competitors.

There is an overwhelming amount of research that supports the value of a liberal education, along with supporters that advocates for students to major in the liberal arts and sciences. Regardless of those supporting evidence, some individuals and groups still consider the liberal arts to be an impractical field. These groups include Millennial Branding, a Gen Y research and consulting firm, and Beyond.com, the career network focused on helping people grow and succeed professionally. The purpose of Millennial Branding is to help companies understand the emerging Gen Y employee and the purpose of Beyond.com is to connect job seekers with

⁹ Key learning outcomes refer to the seven learning outcomes discussed in the section *What Employers Think About a Liberal Education: A Summary of the Research Data*.

employers. Their study revealed how personality can influence hiring and long-term career prospects. Entitled *The Multi-Generational Job Search*, the study discloses what employers look for in their ideal candidate and what they think about job prospects for those with liberal arts majors. Following a national survey of job seekers and HR professionals, 43 percent of t

STEM courses to their liberal education. Often times STEM courses are taught in isolation from the liberal arts and sciences, giving students one set of skills and not both; this approach to education will _____ ability to reach their full learning potential, but also put America at a disadvantage in the global market with a half-educated workforce. The world is too interconnected to avoid the liberal arts and sciences altogether. For those liberal arts and sciences students, they need to combine their broad-based training with technical courses. This approach to learning will help ensure that these students possess similar skill sets as those of their STEM peers, but also that they will have a liberal arts background, making them more valuable and useful to employers.

But combining such broad-based training with technical training is not as easy as it is for some students, namely engineering students. In fact, naysayers would rebut such a combined educational approach and say that engineering students do not have the time to take liberal arts and sciences courses. Typically, most undergraduate degrees take approximately four years to complete. Engineering is the exception – it takes approximately five years to complete. Why is this so? Author Sebastian Alamo (2014) explains that an engineering curriculum is jammed pack with so many required classes that students are not able to take liberal arts and sciences courses, much less electives, and thus are deprived of the broad-based learning (para. 3). This jammed-pack curriculum for engineering students is a valid point to consider, and it raises several critical questions: How can STEM students, particularly engineering students, receive some form of a liberal education when their degree audit

allow students to immerse themselves in a new culture, expose them to a new perspective on life, and provide countless opportunities to test their people and communication skills with a diverse audience. Another solution is for STEM students to join student organizations that relates to the liberal arts and sciences (e.g., language clubs, poetry clubs, service clubs, etc.). This route will allow students to interact with individuals outside their disciplines, enter new discussions that they might not otherwise be engaged in through their regular classes, and participate in civic projects for the benefit of the community. These are just some proposed solutions that allow STEM students to have some exposure to the world of the liberal arts and sciences without the added burden of such formal training in a traditional classroom setting.

Unfortunately, the shortfall for why the liberal arts and sciences majors are considered impractical does not stop there. As long as STEM programs continue to be at the center of technological breakthroughs and scientific discoveries, students would think less about majoring in the liberal arts and sciences and more about which majors will allow them to contribute to the breakthroughs and discoveries. With federal dollars constantly supporting STEM programs, students would see the weight the government places on these fields. Moreover, the rising cost of tuition, along with the economic state of the country, has led students, parents, and stakeholders demanding a better return on investment. Not all college majors are created equally, and thus not all college degrees are equally good investments. Figure 8 shows data from the 2012 American Community Survey that estimate the rate of return for thirteen college majors. The rate of return to college varies across the different majors. In general, majors with a more technical focus training (a) engineering and (b) math and computers earned the highest return, 21 and 18 percent, respectively. Majors that do not have a focus on quantitative and analytical skills i.e.,

the rate of return is lower for the liberal arts, but typically, students who majored in these fields are not vocationally oriented, and consequently are not so concerned with being well off financially. Nonetheless, a college education, no matter whether students are STEM major or liberal arts and sciences major, is still a good investment overall. The rate of return on the thirteen listed majors exceeds 9 percent, which is undoubtedly higher than a high school diploma or no degree at all.

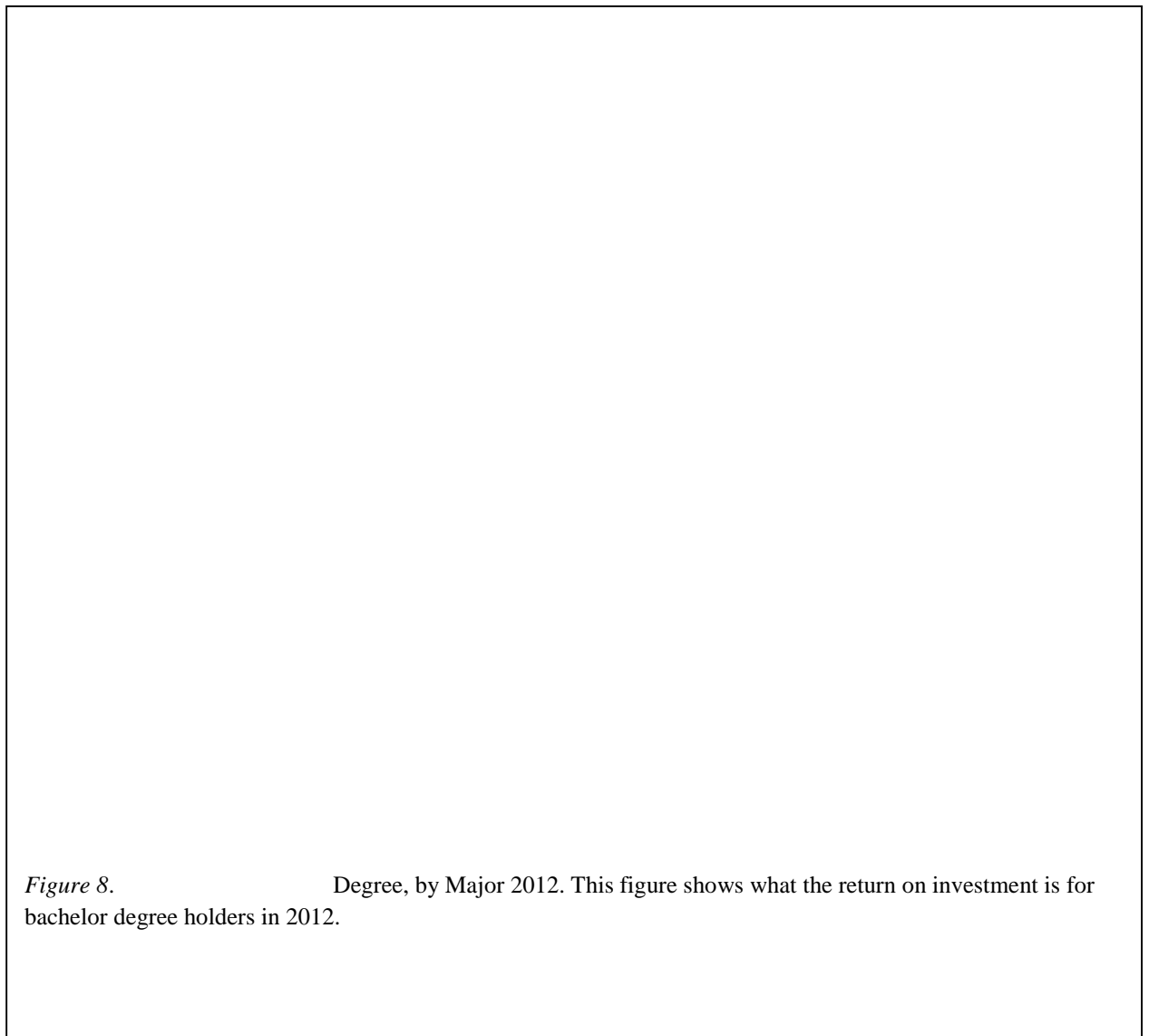


Figure 8. Degree, by Major 2012. This figure shows what the return on investment is for bachelor degree holders in 2012.

value . (Goldman, 2012, para. 4). However, this absence of economic value is not grounds to abandon the liberal arts and sciences altogether. Proponents against the liberal arts and sciences on economic standpoint. Neem concedes that the skills cultivated by the liberal arts and sciences do not make students richer, more productive, or more innovative. At the same time, however, the liberal arts and sciences is not a waste of time. In truth, liberal arts and sciences programs provide indispensable training for responsible citizenship, a point that corresponds closely to the classical understanding of the liberal arts as the studies worthy of a free man with the leisure to participate in his community (Goldman, 2012, para. 5). Studying the liberal arts and sciences give students perspective and an understanding of the world around them. Most students who choose to study the liberal arts and sciences are in the program for the love of the subject. These students understand (and accept) that they will not make as much money as an engineer. The true value of their liberal arts and science degree is the type of long-term skills and virtues they will develop and use for the rest of their life.

A sector that appreciates these long-term skills and virtues is the technology sector, an area dominated by individuals with technical skills. Many of the in-demand jobs are technology-related jobs. At first, liberal arts and sciences graduates do not seem to be the ideal candidate because most technology jobs require technical skills. In actuality, many CEOs of tech companies, according to Dr. Segran, want candidates with a liberal arts background. One of the reasons for this preference includes individuals bringing alternative point of views in many every day decisions. However, a more persuasive reason for studying the liberal arts is that many tech CEOs prefer to hire candidates who have similar educational backgrounds as themselves. In other words, tech CEOs are generally inclined to hire individuals trained in the liberal arts,

because a large proportion of CEOs have liberal arts background themselves; a third of all Fortune 500 CEOs have liberal arts degrees (Segran, 2014, para. 14). Tech CEOs strongly believe that liberal arts graduates bring value to their companies. For example, Steve Yi, CEO of web advertising platform MediaAlpha, says that studying the liberal arts train students to thrive in subjectivity and ambiguity, a necessary skill in the tech world where few things are black and white, and where there is generally more than one right decisions (Segran, 2014, para. 4). Likewise, Danielle Sheer, vice president at Carbonite, a cloud backup service, agrees with Segran. Sheer studied existential philosophy at George Washington University, where her college major distinguished herself from her technically trained colleagues. Her academic background gave her an edge because she always considers a number of different options and outcome in every situation, compared to her co-workers who are trained to assume there is always one correct answer (Segran, 2014, para. 6). From these examples, it can be inferred that being only technically trained limits individuals' ability to think critically and creatively, and survey research points out that critical thinking and creativity is vital to the success of businesses. Candidates that have a technical *and* a liberal arts background are highly desirable to tech companies and to other companies across the sectors.

Knowledge is the new building block of success. Thinking critically and creatively are skills that are needed to fuel innovations to help build and maintain a successful society. It is true that STEM graduates drive innovations and help create jobs. It is also true that some can think critically and creatively. But these skills are useless without the ability to communicate their ideas effectively and without the ability to think ahead to the future. I

where students choose only to have a technical, narrow education. Innovation is on the rise

thanks to the fields of STEM. Yet STEM courses do not concentrate heavily on effectively

if we focus them on the career needs of today without giving them a strong liberal arts foundation, they will be trained for jobs that (as cited in Vasquez, 2012, para. 31–32). There is no better preparation than a broad education to accommodate people frequent career changes and to prepare them to take on jobs that have yet to be invented. Having a background in the liberal arts and sciences helps individual learn to become life-long learners, a necessary skill for the new millennium and the emerging workforce.

Many state governors view science, technology, engineering, and mathematics majors as the key to economic growth and innovation. The National Governors Association, along with many state governors, is producing legislation and initiatives intended to increase the production of STEM degrees at public institutions of higher education. Dr. Scott Bevins (2011), former Director of Institutional Research at t , admits the importance of the STEM disciplines, but points out that the liberal arts should not be studied independently from STEM. New discoveries, breakthroughs, and innovations have generated higher living standards and improved quality of life (p. 12). The resource most vital to attaining this higher living standards and this improved quality of life has been, and continues to be, labor, specifically human capital. Dr. Bevins believes in a working relationship between the two disciplines. The liberal arts serve to aid human comprehension, while STEM has the ability to solve real-world challenges. It is foolish to think that STEM graduates can sustain economic growth and innovation without a liberal arts background or soliciting help from the liberal arts and sciences graduates. A STEM education has its advantages, but it is not as conducive to problem solving or creativity as a liberal education. There are knowledge, skills, and abilities that STEM graduates do not possess because of a lack of a complete training (i.e., no liberal education), and for which liberal arts and sciences graduates can fill the gaps.

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result that makes our heart sing, and nowhere is that more true than in these post (as cited in Patnaik, 2012, para. 5). There is a deep, intertwined relationship between the liberal arts and sciences and the functioning of society. Colleges and universities are constantly being called upon to connect a college education with the needs of the economy. The examples illustrated

engineering, and mathematics), he discovered a growing disconnect between the types of competencies sought by industry and the learning focus of most co[3

speed at which skills can be outdated lends compelling support for why students need to be well rounded and be trained to possess a wider array of skills. It is common for individuals to change jobs often in their lifetime. These job transitions call for transferrable skills (or soft skills).

The best help that we can give students is to encourage them to be flexible and entrepreneurial by innovating and embracing new technology, and moving in and out of sectors in response to changing industry trends. Students should no longer prepare for one role or train in a single discipline. They need to develop collaborative skills and understand that they may have many different jobs (para. 5). This quote sums up perfectly why students are highly encouraged to have a liberal education, and why this type of education is beneficial for everyone.

how the brain works; and technology that was imagined in science fiction decades ago is now science fact (para. 9). Organizations across a range of industries are seeking individuals who can bring a different and unique approach to solving problems. But this unique approach is hard to reach because the arts, a key ingredient, is missing from the current STEM curriculum (para. 12). Innovation is not just reserved for engineers and scientists. There must be room for artists, designer, and creative individuals alike to collaborate to bring solutions to societal and global issues. An art education will help bring in the next wave of innovators, inventors, and entrepreneurs.

Priorities in education are shifting. More emphasis needs to be placed in helping students

The STEAM (science, technology, engineering, arts and mathematics) movement has been picking up traction in the government circle, in addition to schools around the world. John Maeda is a pioneer in the STEAM movement. As former president of Rhode Island School for Design, he has been instrumental in pushing for the arts in education (Brady, 2014, para. 6). Maeda believes that artists and designers ask questions that scientists and engineers might not be apt to ask. Artists and designers help provide that innovative edge that society needs to lead the world in innovation, and organizations are seeing this vision too:

as

the right side of the brain that supports creativity. Exposure to writing assignments, classical novels, art history, etc. will help students develop the critical and innovative thinking they need to thrive in a rapidly changing and highly competitive world: Like the liberal arts in general, training in the arts improves our ability to pull together and synthesize seemingly disparate ideas and information into a coherent and meaningful whole. Further, taking a studio art course or studying art history help

(Prey, 2014, para. 16). The arts positively affect the brain in terms of learning. In a 2008 study, the DANA Arts and Cognition Consortium, a philanthropic organization that supports brain research, found that training in the arts improve attention, cognition, working memory, and reading fluency (Pomeroy, 2012, para. 8). According to Dr. Jerome Kagan, an emeritus professor at Harvard University, the arts combine the motor skills, perceptual knowledge, and language, which, in combination, contribute to several areas of learning (Pomeroy, 2012, para. 9). The focus of STEM needs to be expanded to include an equal emphasis on the arts. The pedagogy needs to promote interdisciplinary and multidisciplinary teaching and learning. As Dr. Mitchell Reiss, former president of Washington College puts it, we need to understand the interconnections between and among the science, the arts and humanities (Prey, 2014, para. 12). One of the goals of a liberal education is to graduate well-rounded students who have a whole education. By integrating the arts, students will use both sides of their brain: STEM is based on skills using the left half of the brain, and activities based on art uses the right side of the brain (White, 2010, para. 2). Similar to the debate that the liberal arts and sciences should not be separated from STEM education, arts, too, should not be separated from STEM itself.

More importantly, the United States is not just a knowledge-based economy anymore. The United States is morphing into a creative economy.¹³ Thus, the need for the arts. U.S. Secretary of Education Arne Duncan says: "Arts education is essential to stimulating the creativity and innovation that will prove critical for the future of our country" (Duncan, 2010, para. 2). It is vital that federal and state government consider incorporating the arts into the curriculum. The nation will be at a serious disadvantage to those countries that require their students to study the arts in combination with STEM fields. For example, competitors in Asia and Europe have a rigorous arts curriculum as a national priority in their school system (White, 2010, para. 3). The United States is in no position to let its competitors take the lead in innovation and leadership. Countries worldwide understand the pivotal role that the arts play in providing their workforce with the necessary skill sets that help them thrive as professionals, and the United States must follow in suit.

Creativity skills have been proven to be fostered through a liberal arts education. Because a liberal arts education involves learning across multiple disciplines (e.g., natural sciences, social sciences, humanities, arts), the ability to draw connections between the disciplines significantly helps students with getting in touch with their imaginative and artistic side. As the world continues to become more complex, more interconnected, and involve more governmental regulations, among other major shifts, creativity holds the key to handling such volatile changes.

In a 2010 IBM study of over 1,500 people, 90% of respondents said that creativity is one of the most important skills for the future of work. (IBM, 2010)

IBM study revealed that less than half of global CEOs believe their companies are equipped to handle industry transformation in the business environment (para. 2). Students educated in the arts, along with other STEM fields, can adequately prepare themselves to become competent employees that can assist their organizations in a volatile, uncertain, and complex environment.

Sandra Ruppert, president of Art Education Partnership, believes [a]rts learning experiences

and innovation. These capacities are increasingly recognized as core skills and competencies all students need as part of a high-quality and complete 21st-

13). An education in the liberal arts challenges students to be curious about a number of things and to ask analytical and philosophical questions. This kind of curiosity is substantially similar to how artists and designers think, and will be a major factor in helping organizations successfully compete in the dynamic and ever-changing marketplace.

damaged our competence to deal with complex global problems. And the loss of these basic capacities jeopardizes the health of democracies and the hope of a decent world (Nussbaum, 2010, back cover). Students are not being taught how to think critically nor are they being shaped to become competent, knowledgeable citizens. What we see instead are schools graduating a product incapable of leading a meaningful and considered life.

Since the economic crisis of 2008, the direction that higher education has been heading in is one towards accountability from students, families, legislators, governmental officials, and other stakeholders. This demand has inevitably resulted in the clear-cut notion of colleges and universities being at the forefront for training students for a profession. Possibly because of the recession, and possibly because of the fear of being unemployed, students do not want to take a chance on their professional future. As such, these fears play a strong role in why a majority of students attend college. Earlier on in figure 1, we learned that the top reason students study STEM is to make a good salary. In figure 9, the graph echoes that top reason. Figure 9 shows a trend from 2010-2012 that reveals the reasons first-year students decided to attend college was to be able to make money when they graduate. That reasoning has been the same for students entering college in 2011 and 2012. It is that reason that continues to shy away from the liberal arts and sciences and move toward the STEM fields, with the hopes of getting a job that pays well upon their leaving college.

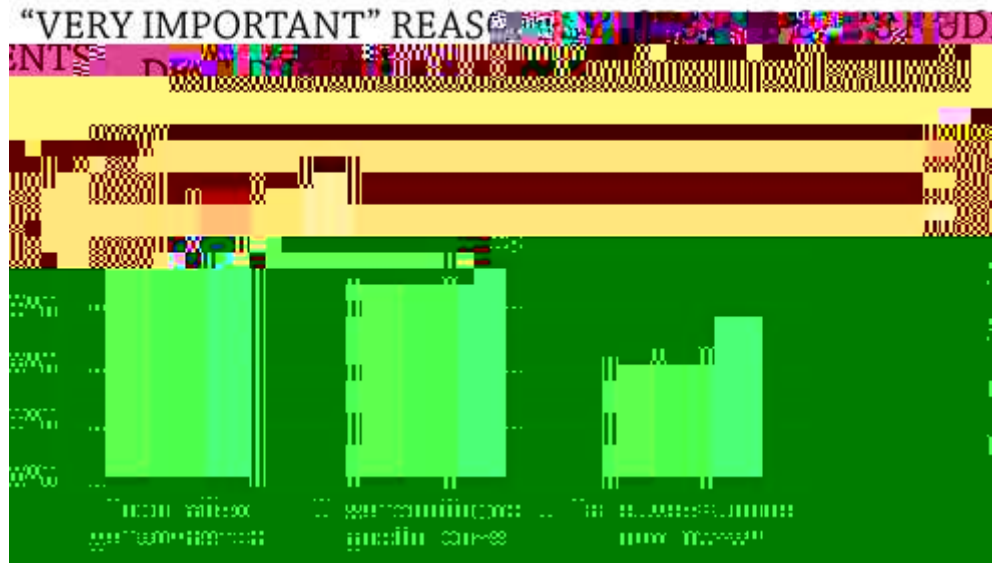


Figure 9. *Very Important Reasons for Attending College, Overtime.* This figure shows an increasing trend, where students are seeing college as a place to prepare them for a job.
Source: *The Lawlor Group*. 2014

But encouraging these economic, profit-motive reasons to attend college is short-sighted. Students should not just select a major and take classes to help them prepare for their vocationally oriented life post-graduation. Sure, getting a job and making money is important. But there is a lot at stake if STEM programs get widely implemented. For example, what is at lost is reading classic novels, such as *Wm. James's Travels*, *Little Women*, and *Paradise Lost*. Students should have some background knowledge about some of the greatest authors of our time and read why their work is highly regarded by scholars in academia. In addition, as educated citizens, students need to have some foundation for how the American government system works. For example, students should have some idea about how Congress operates, how bills are passed, and how the federal government system works overall. And learning about these

to have a complete framework of concepts. As stakeholders, we want individuals

critically, but also have speci1 0 (nk10(i1 sk(nk2-23(y3(s)-3at mnk2-ke)4(hold)-3emJETBT1 0 0

a global and innovative economy. There is no either/or when it comes to deciding between the two types of education. STEM graduates are valuable to our society, but the obsession with having only STEM graduates will only lead to a workforce that all serve the same purpose. There is room to have both STEM and liberal arts and sciences workers. Students need both types of education. Higher education needs to be aligned with the future job market, not just developing skills for specific career paths. We should be cautious of only looking at the economic value of an education. Christopher Nelson declared that when we have a narrowed view of education in a purely economical way, it distorts our judgment about the true worth of higher education. College is a place where students are molded into mature, analytical thinkers. When students graduate, they are expected to be independent learners, be able to seek out answers to whatever questions arise, and able to direct their own learning in accordance with the challenges that life presents (Douglas-Gabriel, 2014, para. 8-9). As it stands, we are conveying the wrong message about the purpose of a college education. Students worry too much about how their college major will translate into a job. When students are focused on -discovery or self-development, and this is a disservice to students and to society.

The movement away from a liberal education is partly because there is no visible impact that otherwise would be noticeable in STEM degrees. As John Nehauser, president of St.

College, says,

The humanities tend

. Nehauser statement speaks volume

as to one of the reasons students are opting to study the STEM fields. But students should not fall

the right direction to give them opportunities for engagement in the real world from a practical and personal perspective. It is crucial for students to have this balanced curriculum because a fully balanced curriculum provides opportunities for integrative thinking and imagination, for creativity and discovery, and for good citizenship (American Academy of Arts and Sciences, 2013, p. 13). This type of learning helps individuals become more valuable to all organizations. With a liberal education, students will not just be qualified for any job, but a high-paying job. As it stands though, on science, technology, engineering, and mathematics to purpose of this liberal education.

There is a growing trend where many U.S. colleges and universities have turned their undergraduate focus to preparing their students for a specific profession (e.g., law, medicine, engineering, etc.). Traditionally, the purpose of college is to learn. It is to immerse students in subjects in the humanities, social sciences, and natural sciences. Schools have drifted away from this purpose on its quest for global dominance, a costly mistake that needs to be corrected. If schools continue on this path, not only will they slowly morph into being vocational trainers, but they will just be producing an ill-educated society.

Society needs STEM graduates, but what society needs more is STEM graduates trained in the liberal arts and sciences. While STEM graduates are prized by society because of their contributions, the liberal arts and sciences are prized, too. Keep in mind, though, that it is the liberal arts and sciences, especially, that will keep civilization going and democracy alive. Colleges and universities are expected to send into the world exceptional teachers, scientists, engineers, and professionals alike. We do not need to keep sending into the world trained to make widgets. not learned to see both self and other in that way, imagining in one another inner faculties of

particular areas for their career development, which do not exercise the mind beyond a broader horizon. A liberal education helps students develop strength of mind that enables them to enhance their intellectual skills. It is this type of broad education that teaches students to live a life that is rich with meaning and with purpose.

It will not be long, however, before STEAM becomes the new STEM. The arts are being seen as crucial for students to have. According to some leaders from well-known corporations, creativity is now considered one of top skills to have. Creativity is best derived from not just any arts education, but from a liberal arts education.

ask not just whether something is, but why it is, and what it means. It teaches you to look to the larger world and to figure out how something fits into the greater patterns of human life. It helps you figure out how

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