

# Liberal Arts vs. STEM

## Should it be all about the money?

BY KRISTY DEKAT, MJE

### ABSTRACT:

Education officials and politicians place their attention on the economic impact of STEM courses, especially due to support from technological corporations such as Apple and Google. The government has placed importance on STEM courses so students can become competitive in the world's marketplace in fields of math and science. With attention placed upon STEM courses, from preschool into post-secondary education, educators wonder whether students may not be getting a well-rounded education due to the de-emphasizing of liberal arts courses. Research shows students who study liberal arts consistently perform better in their STEM courses than students who solely focus on STEM coursework.

There is a mindset that STEM courses, which focus on science, technology, engineering and math, are more valuable than courses that focus on the arts. Many argue this change has resulted in students not receiving a well-rounded education due to the de-emphasizing coursework that focuses on craftsmanship and creativity.

As the U.S. Department of Education states in "Science, Technology, Engineering and Math: Education for Global Leadership" (2015), students are now encouraged to take STEM courses due to an "inadequate" number of students entering STEM-related professions. To prepare students for these professions, the government has started STEM education in preschool and continues the emphasis through 12th grade.

This initiative was put in place as the result of students entering into post-secondary institutions without the skills to be successful in STEM coursework, according to the five-year strategic plan (2013). As a result, schools are emphasizing an increased focus on math, science and technology courses to better prepare students for these career fields. The shift has had an impact on other courses, such as journalism and liberal arts courses.

Public officials, including former President Barack Obama, have questioned the value of

a liberal arts degree. Obama established a goal of increasing the number of STEM graduates by 1 million by 2022 (Jackson-Hayes, 2015). Others have said that the emphasis is now placed on STEM courses because "that is where the jobs are" and where they will be in the future (Klebnikov, 2016). Officials and politicians place their attention on the economic impact of STEM courses, especially due to the backing of technological corporations such as Apple and Google.

As a result, students are encouraged to study in STEM-related fields because: (1) Individuals in a STEM career field will earn approximately \$35,000 more a year than an individual in a non-STEM occupation; (2) An individual in a STEM field has a lower unemployment rate than those in non-STEM fields ("Building a Science ...," 2011). To reinforce this philosophy, some states have stopped providing state funding to students who want to pursue a liberal arts field in college. Other state officials believe that by no longer funding non-STEM career fields, the revised priority will encourage more to pursue a STEM career and reduce unemployment because those individuals will join the workforce after graduation.

Officials are concerned about the amount of debt students pursuing liberal arts degrees

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**STEM is a curriculum based on the idea of educating students in four specific disciplines — science, technology, engineering and mathematics — in an interdisciplinary and applied approach.**

**STEAM adds the educational concept of arts and promotes a five-word curriculum.**



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*“To an employer, good communication skills are essential. In fact, employers consistently rank good communication skills at the top of the list for potential employees.”* | OFFICE OF DISABILITY EMPLOYMENT POLICY

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accumulate while in college and about students' inability to repay after graduation. The concern deals with an increase of rising tuition costs as well as increasing student debt and lack of skilled workers. As of June 1, 2016, 15 states had established incentives for students entering STEM-related fields and colleges earning incentives to encourage students to pursue STEM careers (Cohen, 2016).

The government has placed an importance on STEM courses so students can become competitive in the world's marketplace in fields relating to math and science. Employers have started to view liberal arts education as an “expendable luxury” that “taxpayers should not be expected to pay for” (Cohen, 2016). An emphasis has been placed on STEM-career fields though the workforce for these areas can range from 5 to 20 percent of all U.S. workers (“STEM Crisis ...,” 2015).

The shift, which has raised concern regarding liberal arts courses, poses important questions: (1) Is this focus on STEM education a disservice to both students and society by stating liberal arts degrees do not provide a viable career option? (2) Are students given a false sense of security when they are prompted to choose a STEM field because it is valued by in-demand professions?

Employers are not only concerned about the technical skills of their employees but also about the soft skills. STEM courses reinforce the hard skills of reading comprehension, active listening, speaking, writing, mathematics and science (Carnevale, Smith & Melton, 2011). While journalism and other liberal arts courses augment the soft skills, which STEM courses sometimes fail to address, the skills employers are seeking include research, communication, adaptability, computer and technical literacy, interpersonal skills, project management, problem solving, strong work ethic and social awareness (Finberg & Klinger, 2016). Soft and hard skills complement one another, and both skills form an individual's “professional competence” and assist employees in completing work-related tasks.”

Journalism provides the prerequisite skills

for leadership. As a result, many leaders have earned liberal arts degrees. Both Hillary Clinton and Mitt Romney, former presidential candidates, have undergraduate liberal arts degrees (Glaser, 2015). Steve Jobs, Apple's innovative executive leader, knew that technology alone was not enough. “It's technology married with liberal arts, married with the humanities, that yields us the result that makes our heart sing,” Jobs said.

Students trained in liberal arts fields, especially journalism courses, have an advantage — the ability to write — over students trained in other areas. Employers are looking for individuals with the ability of “cross-disciplinary thinking” (Jackson-Hayes, 2015). This is what journalism and liberal art courses provide.

Is following the STEM money trail in the best interest of students? Have the repercussions of focusing on STEM education been considered? Some would say no.

In 2017, ACT reported that approximately 52 percent of 950,000 high school students are not interested in pursuing a college major or a career in a STEM field (ACT, 2017). There are more than 200 multimedia careers with approximately 30 percent expecting more than average growth. These careers require skills that include communication, collaboration and creativity as well as critical thinking and problem solving (Cornelius, 2011). To meet the preference of students, schools need to not solely focus on STEM-related coursework but rather to provide students with a well-rounded education that prepares them for the “real world.”

In its white paper “Digital Media Literacy: A Plan of Action,” the Knight Commission on Digital and Media Literacy stated that citizens need to be able to “access, analyze and engage in critical thinking” about the information they receive and send to make informed decisions regarding everyday issues (Hobbs, 2010).

In a February 2015 *Washington Post* article, Loretta Jackson-Hayes, an associate professor of chemistry at Rhodes College in Memphis, Tennessee, said even though she is supportive of STEM education, the culture has created a separation between the arts and sciences.

**CHARACTERISTICS OF AN EFFECTIVE TEAM MEMBER**

- **Reliable**
- **Effective communicator**
- **Active listener**
- **Participates**
- **Shares openly and willingly**
- **Cooperative**
- **Flexible**
- **Committed**
- **Problem solver**
- **Respectful**

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She explained that this is a divide that did not exist for Leonardo da Vinci and Steve Jobs. “Leonardo’s curiosity and passion for painting, writing, engineering and biology helped him triumph in both art and science; his study of anatomy and dissections of corpses enabled his incredible drawings of the human figure,” she said (Jackson-Hayes, 2015).

David J. Skorton, president of Cornell University, agrees that students who solely focus on science sometimes lack essential communication skills. “Many of us never received the education in the humanities or social sciences that would allow us to explain to nonscientists what we do and why it is important,” Skorton said (Jackson-Hayes, 2015). The National Association of College and Employers surveyed 260 employers, from small firms to large companies such as IBM, and found communication skills are one of the top three sought-after qualities (Davidson, 2017).

The U.S. Department of Labor created the curriculum “Skills to Pay the Bills: Mastering Soft Skills for Workplace Success” to prepare students for employment by teaching “soft” or workplace-readiness skills. The skills that this curriculum nurtures are communication, enthusiasm and attitude, teamwork, networking, problem solving, critical thinking and professionalism (Office of Disability Employment Policy, 2017). This is the skill set taught in liberal arts courses, including journalism.

The Knight Foundation’s digital and media literacy plan outlines these skills, which includes sharing appropriate and relevant information with others as well as analyzing and evaluating messages, creating content with the awareness of purpose and audience, reflecting on communication behavior and conduct and working together and solving problems (Hobbs, 2010).

Because aspects of STEM and liberal arts

courses complement or add to each area of study, it would be beneficial for these areas to work together to improve student outcomes. The South Korean government recognized the possibility and established an education plan with a goal of encouraging learning and imagination through the support of arts, science, technology, engineering and mathematics in primary and secondary education (Ministry of Education, 2010). STEAM education in Korea is referred to as “convergence talent education” (Park, 2012).

This approach involves student experiences that assist logic and learning and logic through mathematical, experimental and scientific thinking; it increases student learning by connecting these areas to the students’ lives (Bybee, 2010). STEAM (Science – Technology – Engineering – Arts – Mathematics) educators in Korea collaborate with a variety of disciplines and create interdisciplinary lessons to benefit students (Jho, 2016).

Australia also has found that the arts can drive the STEM courses. The country moved from STEM education to STEAM so concentrations could work in conjunction with one another. This was done because leaders believed collaboration “could encourage creativity and design, drive more engagement and interest in STEM while also enhancing cognitive abilities required for science and technology-focused subjects” (Gardiner, 2015).

The Department of Labor realizes students need to acquire “soft” skills so they are employable. To assist with this need, schools need to establish course sequences that are cross-curricular to allow students to learn both the technical skills in STEM courses and the soft skills in arts courses. Schools could achieve this goal by enrolling students in a pathway of STEM courses that match the career the stu-

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**REQUIRED SOFT SKILLS**

- Communication
- Enthusiasm and attitude
- Teamwork
- Networking
- Problem solving and critical thinking
- Professionalism

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**Loretta Jackson-Hayes**  
**THE WASHINGTON POST**  
**Feb. 18, 2015**

A scientist trained in the liberal arts has another huge advantage: writing ability. The study of writing and analyses of texts equip science students to communicate their findings as professionals in the field. Scientists are often unable to communicate effectively because, as Cornell University president David J. Skorton points out, “Many of us never received the education in the humanities or social sciences that would allow us to explain to nonscientists what we do and why it is important.”



**Dan Glaser**  
**U.S. NEWS & WORLD REPORT**  
**May 11, 2015**

In today’s uncertain world, one of the few certainties is the importance of critical thinking. Interdisciplinary and lateral thinking are vital skills. It’s not specialist degrees versus liberal arts degrees: We need both. Liberal arts teach students how to think, and this is the primary skill needed in all disciplines, especially rapidly advancing technical fields.

# JOURNALISM NEEDS THE RIGHT SKILLS TO SURVIVE

By Howard Spanogle

Poynter's major work, "Core Skills for the Future of Journalism," completed in 2014, surveyed professionals and educators.

Of the 37 results rated by priority, the highest rated qualities were as follows:

**SKILLS:** Curiosity • Accuracy • Knowledge of other cultures • Knowledge of government • Ability to embrace change and innovation • Storytelling • Speaking skills • Ability to work with HTML or other computer languages • Ability to tell stories with design and visuals.

The highest rated actions were as follows:

**ACTIONS:** Handle stress and deadlines well • Handle criticism well • Have broad general knowledge • Have good social skills • Be a team player • Be acquainted with journalistic ethics • Understand the media landscape • Be familiar with copyright laws • Be familiar with journalism laws • Have knowledge of the business of media • Have good news judgment • Have knowledge of current events • Select information based on reliability • Be a team leader • Analyze and synthesize large amounts of data • Network, make contacts and develop sources • Search online information on an advanced level • Master interview techniques • Search for news and check sources without the use of the internet • Look at news with historical perspective • Interpret statistical data and graphics • Write in a fluent style • Write using correct grammar • Master various forms of journalistic writing • Understand audience expectations and needs • Shoot and edit video • Shoot and edit photographs • Record and edit audio.

The Poynter report includes both professional and educator responses to the insights of the research.

Tom Huang, Sunday and enterprise editor of *The Dallas Morning News*, in a 2014 article on the survey by Howard Finberg, said, "So while I recognize the importance of digital skills, if I had to choose, I'd first choose journalists with 'traditional' skills and then train them on digital skills, rather than the other way around. I think the point of the survey, though, is that we shouldn't have to choose. New journalists should come equipped with a whole host of skills, both traditional and digital."

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dent might pursue after high school even though it may not be the actual career path the student may study after graduation.

STEAM is beneficial to students who change their major focus once they are in college, considering 80 percent of college students change their majors at least once (Garton, 2015). The STEAM curriculum is also beneficial when students enter the workforce. According to a Bureau of Labor and Statistics study, individuals held an average of 11.7 jobs between age 18 and 48. Twenty-seven percent held 15 jobs or more while only 10 percent held zero to four jobs (Bureau of Labor Statistics, 2017). STEAM education teaches the skills that are applicable to the various positions an individual might hold in his or her lifetime.

Rather than de-emphasizing coursework that focuses on craftsmanship and creativity, students need to be offered a well-rounded education. Companies, such as Google, have realized the importance of their employees having more than STEM knowledge. Success at Google is based on seven soft skills: "being a good coach; communicating and listening well; possessing insights into others (including different values and viewpoints of others); having empathy toward and being supportive of one's colleagues; being a good critical thinker and problem solver; and being able to make connections across complex ideas" (Davidson, 2017).

These are all skills taught in a successful journalism classroom. ■

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