

**The Importance of Humanities  
in a STEM-Centered Society**

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“Mom, Dad, I've decided to change my major from information technology to anthropology.” Such news would cause many parents to kiss their bragging rights—and possibly their early retirement hopes—goodbye. Why the disappointment? In the not too distant past, American families celebrated with pride their newly created anthropologists, teachers, journalists, and lawyers. Today, science, technology, engineering, and math— known collectively by the acronym, STEM—are “in” and the humanities are “out,” at least according to popular perception.

I am pleased to read this Quest paper among friends, people who believe in the importance of the humanities. The Quest directory reveals that approximately 60% of us owe our livelihoods to the humanities or are actively engaged in their advancement. No doubt, some of the other 40% are grateful for their liberal-arts educations. I am not ignorant of the fact, however, that several of our club’s members are personally engaged in the STEM vs humanities struggle. I welcome their insights during the discourse following the paper.

The given topic does not ask me to simply extol the virtues of the humanities—that would have been an easy paper to write—but rather, to set them against the foil of a society that places greater value on STEM. The thesis of this paper is that the humanities are at least as important as STEM and should be treated equitably.

### **A working definition of the humanities**

What are the humanities? Disciplines that examine human culture? Subjects which are speculative instead of empirical? Classical languages and literature? What about blurred lines: at one time the humanities contrasted with divinity, now religion is considered a humanity; math, which expresses absolutes, is a human construct; and is music technology a STEM or humanities discipline? Notable dictionaries and venerable experts are not in agreement. A scholarly, Dutch tome entitled, *The Making of the Humanities*, likens the

search for a definition to what St. Augustine said about attempting to define time: “if you don’t ask, we know, but if you ask, we are left with empty hands.”<sup>1</sup>

The term, “humanities,” did not make an appearance until the 16<sup>th</sup> century. It was coined by the poet Lodovico Ariosto, modeled on an Italian word meaning, “a student of human affairs or human nature.”<sup>2</sup> Over the intervening centuries, time and place have determined which subjects are included or excluded. Some definitions restrict the humanities to the *study* or history of a discipline, such as musicology, while others are broader and include the *practice* of a discipline, for instance, music performance.

For the purpose of this paper, I wish to cast a wide net by combing two lists of disciplines as articulated by The Stanford Humanities Center and The National Foundation on the Arts and the Humanities Act of 1965. The humanities, therefore, include, but are not limited to, philosophy, literature, religion, art, music, theater, performance studies, history, language, jurisprudence, archeology, ethics, and social sciences.

### **A brief history of the rise of the humanities and their unique place in American education**

Studies, which we now regard as the humanities, bloomed in Greece around the 5<sup>th</sup> century BCE, coinciding with the birth of democracy. No longer was it sufficient to merely instruct youth in hunting, farming, the trades, or warfare—what in contemporary terminology we might call voc-tech training. Citizens of a democracy also needed skills for running a society; since, as Pericles stated, “power is in the hands not of a minority but of the whole people.”<sup>3</sup> Education took on new concerns: the search for truth, virtue, inquiry, rhetoric, and morality. The combined mixture of philosophical and practical subjects was seen as essential for maintaining liberty. Education for freedom was given the name *artes liberalis* by the Romans in the first century BCE. The seven liberal arts were divided into two subgroups: the trivium—what we might call the humanities component—consisting of grammar, logic, and rhetoric; and the quadrivium, the science portion, containing arithmetic, geometry, music, and astronomy. The balance between natural science and the

humanities, however, did not remain static over the following centuries due to many factors, such as the rise of Christianity, the Islamic madras, the birth of the university, global trade, and the advent of secular humanism.

Leaping considerably forward to the United States, the curricula at its earliest institutions—modeled on the English college—relied heavily on theology and the classics, or as Fareed Zakaria describes it: “God and the Greeks.” Resisting the pressure to incorporate more modern subjects, an 1828 Yale report explained “that the essence of liberal education was 'not to teach that which is peculiar to any one of the professions; but to lay the foundation which is common to them all.' It described its two goals in terms that still resonate: training the mind to think and filling the mind with specific content.”<sup>4</sup> The industrial economy that emerged from the Civil War, however, renewed calls for more vocational education. This was the period in which land grant schools were launched through the Morrill Acts of 1862 and 1890, Purdue University being one example. The mission of these institutions was “to focus on the teaching of practical agriculture, science, military science and engineering,” though “without excluding ... classical studies.”<sup>5</sup>

A moderating voice during the industrial revolution belonged to Charles William Eliot, Harvard president from 1869 until 1909—forty years. While a scientist, and a proponent of university research, Eliot argued successfully on behalf of liberal education. He introduced a concept that revolutionized education: the elective. Electives allow students to choose subjects that excite their imaginations and permit them to find their own voices. This approach rang true with the American ideal of individual freedom, and it strongly influenced American liberal-arts education.

Immigration in the early twentieth century gave a boost to the humanities within higher education. Citizens, educators, and public officials expressed concern that foreigners were causing America to lose its identity and character. The solution to this perceived problem was the so-called a “Great Books Program,” predominantly, but not exclusively, introduced in small undergraduate institutions. The Great Books Program prescribed classic works of history, literature, and philosophy from the Western canon. The goal of this approach, according to John Erskine at Columbia University, was “to provide young people from different

backgrounds with a common culture.”<sup>6</sup> New citizens embraced humanities education as a means to cultural assimilation and thereby to a better life. (The Great Books Program continues to thrive at over 100 schools in the United States.)

The 1944 G.I. Bill was a boon to liberal-arts education. The bill made possible higher education for 2.2 million people. Thanks to the G.I. Bill, humanities graduates include: fourteen Nobel Prize winners, three Supreme Court justices, three presidents, a dozen senators, two dozen Pulitzer Prize winners, 238,000 teachers, 17,000 journalists, and tens of thousands writers and artists.<sup>7</sup>

Many Americans may not be aware that our liberal-arts education is unique in the world and one of prime reasons international students opt for American schools.<sup>8</sup> Typically in Europe, undergraduate programs are focused on a single subject, there are no general education requirements.<sup>9</sup> The same is true for India. Fareed Zakaria recalls, “At age sixteen, we had to choose one of three academic streams: science, commerce, or the humanities. We all took a set of board exams that year—a remnant of the British educational model—that helped to determine our trajectory.”<sup>10</sup> In China, based on Gaokao exam results, students are told where they will study and what major they will pursue.<sup>11</sup> These few references to education abroad, underscore the singularity of our liberal-arts tradition. A tradition valued by nearly 1 million international students annually.<sup>12</sup> According to the Center for World University Rankings, fifteen out of the top twenty universities are in America.

### **The humanities in crisis**

Despite the rich history of the humanities, their place within liberal-arts education, and their importance to democracy, we are led to believe that they are on the decline. The American Academy of Arts and Sciences reports that “the number of bachelor’s degrees conferred in the 'core' humanities disciplines declined 8.7% from 2012 to 2014.”<sup>13</sup> In 1967, 17.2% of all bachelor degrees were in the humanities. By 2014, the percentage

dropped to 6.1%. This has been labeled a crisis by some, but it seems to me that it is inaccurate to declare the humanities to be in a death spiral. I believe that the statistics suggest otherwise. When comparing the 30,000 humanities degrees of 1951 to the 107,000 degrees in 2014, we see a proportional increase which is higher than the population growth of the same period. Doesn't that indicate a positive trend?

The humanities *are* ailing, however. They suffer from an image problem and a funding problem. A barrage of disparaging comments flow from lobbyists, politicians, and tech schools. The powerful and successful lobbying group, STEM Education Coalition, insists that “STEM education must be elevated as a national priority as reflected through education reforms, policies to drive innovation, and federal and state spending priorities.” They claim that “STEM education is closely linked with our nation’s economic prosperity in the modern global economy.”<sup>14</sup> It has been reported that the Republican governors of Texas, Florida, Kentucky, and Wisconsin, and the recently replaced governor of North Carolina bragged that they have no intention of subsidizing the humanities at state-funded universities. Florida's Rick Scott asked rhetorically, “Is it a vital interest of the state to have more anthropologists?” Kentucky governor, Matt Bevin, suggested that students majoring in French literature should not receive state funding for their college education. He said, “All the people in the world who want to study French literature can do so; they’re just not going to be subsidized by the taxpayers like engineers will be.” (This statement, by the way, comes from someone who majored in Japanese and Asian Studies.)<sup>15</sup> On the other side of the aisle, President Obama said in 2014, “I promise you, folks can make a lot more, potentially, with skilled manufacturing or the trades than they might with an art history degree.”<sup>16</sup> Ivy Tech president, Tom Snyder, claims that the economy cannot support more art-history or philosophy majors.<sup>17</sup> At the federal level, the National Endowment for the Humanities appropriation was reduced from \$403 million in 1979 to \$147 million in 2015 inflation-adjusted dollars.<sup>18</sup> The combined appropriations for the National Endowment for the Humanities and the National Endowment for the Arts in 2015 was just \$293 million<sup>19</sup>—out of a \$3.8 trillion budget.<sup>20</sup> Contrast that amount to the 2015 appropriation for the National Science Foundation of \$7.3 billion. That figure does not even include funding for NOAA,

NIH, or NASA, among other science-related agencies.<sup>21</sup>

Declining support for the humanities is not unique to our country however. Japan's Minister of Education sent out a letter in 2015 enjoining universities to modify or even completely abolish their social science and humanities departments to better meet society's needs.<sup>22</sup> Britain has completely withdrawn national funding for humanities teaching at the undergraduate level.<sup>24</sup> Harvard's Homi Bhaba claims that "the humanities are more or less dead" in his native India.<sup>25</sup> Israel's Tel Aviv University has closed its French department<sup>26</sup> and Hebrew University has cut dozens of faculty positions in the humanities.<sup>25</sup>

### **STEM myths**

S Ojha, on the faculty of Magadh University, calls technology the "opiate of the intellectuals." She writes, "No other single subject is so universally invested with high hopes for the improvement of mankind generally and of Americans in particular."<sup>27</sup> These high hopes, in my opinion, fall short of STEM propaganda and I wish to expose a few myths.

In 2012, "a report by the President's Council of Advisers on Science and Technology wrote: 'Economic projections point to a need for approximately 1 million more STEM professionals than the U.S. will produce at the current rate over the next decade if the country is to retain its historical preeminence in science and technology. To meet this goal, the United States will need to increase the number of students who receive undergraduate STEM degrees by about 34% annually over current rates.'"<sup>28</sup> Only one year later, IEEE Spectrum (the journal of the world's largest technical professional organization) published "an article with the provocative title The STEM Crisis is a Myth, by Robert Charette. 'Every year U.S. schools grant more STEM degrees than there are available jobs,' wrote Mr. Charette. 'When you factor in H-1B visa holders, existing STEM degree holders, and the like, it's hard to make a case that there's a STEM labor shortage . . . STEM workers at every stage of the career pipeline, from freshly minted grads to mid- and late-career Ph.D.s, still

struggle to find employment as many companies, including Boeing, IBM, and Symantec, continue to lay off thousands of STEM workers.”<sup>29</sup> (Though this article was published in 2013, my research revealed that the three mentioned companies continue to lay off employees.)<sup>30, 31, 32</sup>

It is estimated that there are 11.4 million people who hold at least a STEM-related bachelor's degree and 392,000 more graduate annually, yet there are only 277,000 STEM jobs available each year. The glut of available workers creates a favorable environment for industry. It allows them to hire the cream of the crop, while competition for jobs keeps wages in check.<sup>33</sup> Regarding wages, it is undeniable that STEM graduates earn a higher salary immediately out of school, but these advantages level off by mid-career. This is primarily due to the fact that more humanities majors obtain graduate degrees than do STEM majors.<sup>34</sup>

All of us have heard alarming statistics about how poorly American students perform on international math and science tests. As it turns out, this data may be misleading. A report from Stanford claims that “U.S. Scores . . . are low partly because a disproportionately greater share of U.S. students comes from disadvantaged social class groups, whose performance is relatively low in every country.”<sup>35</sup> When scores are analyzed more closely, it turns out that American students compare favorably to students from like social classes in other countries. What is even more encouraging is that the achievement gap between advantaged and disadvantaged students is closing, while in the countries with whom we are unfavorably compared, the gap is widening. If the STEM crisis and failing math and science test scores are untrue, should we not ask why the federal government continues to fund STEM-related educational initiatives with \$3 billion annually, while the humanities front all but 20 percent of their expenses?<sup>36</sup> The disproportionate funding levels between STEM and the humanities deserves some reexamination, especially since the U.S. Department of Education reports the attrition rate of STEM and non-STEM students is similar. In crude terms, we are not getting much bang for our buck. It seems that not everyone steered toward STEM has the aptitude for it, and not everyone with aptitude has a passion for it.



The final myth I wish to bring light concerns the fear that America is losing its standing in the world of technology. A Time Magazine article reminds readers that of “the 9 largest tech companies in the world, 8 are based in the U.S. [and] . . . that’s a big deal . . .”<sup>37</sup>

### **Why the humanities still matter**

Why do the humanities still matter? For a defense of the humanities that is far more eloquent and comprehensive than anything I can write, I recommend that you read "The Declaration of Findings and Purposes" of the National Endowment of the Art and Humanities Act of 1965. (Appendix I) This public law is a thoughtful and carefully crafted statement on not just the importance of the humanities, but their necessity.

I also offer for your consideration the humorous and metaphorical drawings produced by the College of Humanities at the University of Utah. (Appendix II) Perhaps a more sobering and accurate illustration might read, "Science can tell you how to build a bomb; humanities can tell you about the people you want to kill." The humanities are concerned with what Martha Nussbaum, Professor of Law and Ethics at the University of Chicago, calls the soul. By this term she means, "the faculties of thought and imagination that make us human and make our relationships rich human relationships, rather than relationships of mere use and manipulation."<sup>38</sup> The humanities help us empathize with others, provide ethical guidance, promote social justice and equality, ask critical questions, and even produce better scientists, engineers, and mathematicians.

### **Concluding thoughts**

If, for the sake of argument, we agree that the aim of education should only be for economic growth, the humanities still make sense. Nussbaum writes: “Leading business educators have long understood that a developed capacity to imagine is a keystone of a healthy business culture. Innovation requires minds that are

flexible, open, and creative; literature and the arts cultivate those capacities . . . Again and again, liberal arts graduates are hired in preference to students who have had a narrower preprofessional education, precisely because they are believed to have the flexibility and the creativity to succeed in a dynamic business environment. If our only concern were national economic growth, then we should still protect humanistic liberal arts education.”<sup>39</sup> Employers agree with Nussbaum. “Three-quarters want more emphasis on critical thinking, problem-solving, written and oral communication, and applied knowledge, according to a survey of 318 corporate leaders . . . exactly the kinds of skills advocates for the liberal arts say they teach. Ninety-three percent agree that 'a demonstrated capacity to think critically, communicate clearly, and solve complex problems' is more important than a job candidate’s undergraduate major.”<sup>40</sup>

I contend that the benefits of a liberal-arts education last a lifetime and are of greater value than an education which prepares students only for their first job. Zakaria writes, “Whatever job you take, the specific subjects you studied in college will probably prove somewhat irrelevant to the day-to-day work you will do soon after you graduate. And even if they are relevant, that will change . . . What remains constant are the skills you acquire and the methods you learn to approach problems.”<sup>39</sup> According to Harvard University president, Drew Faust, education should give people the skills “that will help them get ready for their sixth job, not their first job.”<sup>41</sup>

West Point’s academic dean, Brigadier General Timothy Trainor, shares similar viewpoints about the forming of military leaders. He states, “It’s important to develop in young people the ability to think broadly, to operate in the context of other societies and become agile and adaptive thinkers. What you’re trying to do is teach them to deal with complexity, diversity, and change. They’re having to deal with people from other cultures. They have to think very intuitively to solve problems on the ground.”<sup>42</sup> (On the subject of the military, I would like to suggest that those who serve in the armed forces bear witness to the importance of the humanities. Men and women place themselves in harm’s way to defend our nation’s freedom, liberty, and culture—all humanistic values.)

As I wrote this paper, three disquieting thoughts kept returning to my mind. These are, of course, strictly my perceptions and perhaps overly cynical. My first misgiving is that I suspect the government wishes to reduce its responsibility for publicly funded education at all levels—elementary through tertiary. Voucher programs, property tax caps, reduced funding, standardized testing, political posturing, and the influence of for-profit entities, are taking their toll on education. Are the humanities just low hanging fruit—the first easy targets within a larger scheme?

Secondly, economically disadvantaged students are the ones most likely to attend schools with reduced humanities offerings, while being targeted to pursue paths that benefit industry. A full, liberal-arts education, however, remains available to those of greater means at Ivy League universities, private colleges, and public schools with large independent resources, such as the University of Michigan. Is there an element of class inequality at work? Democracy and the humanities grew up together. Is it a coincidence that the humanities and the middle and lower classes are in distress at the same time?

I offer my third point a little tongue-in-cheek, but with an ounce of seriousness. As technology marches forward, increasing numbers of people are being replaced by automation, robotics, and artificial intelligence. Instead of focusing on the demise of the humanities, should we be more anxious about the obsolescence of humanity? Pope Francis challenges world leaders to ensure that scientific and technological innovations do not “lead to the destruction of the human person.” He cautions, “Man must guide technological development, without letting himself be dominated by it!”<sup>43</sup>

Another musing is less dark. Without a doubt, escalating costs are causing many to rethink higher education. Education requires a lot of labor that cannot easily be outsourced or automated, and humans are expensive. Additionally, the number of colleges and universities in the U.S. has increased from under 1,000 in 1900 to over 5,000 today, while competing for a declining youth population.<sup>44</sup> It is likely that we have more humanities departments than we need. But, we probably have more than the necessary athletic programs and administrators too. I hope that cuts in all areas are proportional and that humanities funding is equitable.

I wish to conclude this paper on a few hopeful notes for lovers of the humanities:

-Remember Japan's edict to abolish humanities education? Within months of the letter, the national and international reaction was so pronounced that the responsible Ministry had to walk back its words. In a series of damage-controlling articles, the Ministry was adamant that the letter was a mistake and that they were only calling for some reforms.<sup>45</sup>

-Universities in South Korea, Japan, and Singapore have recently made major investments in liberal arts education as an alternative to their traditionally highly specialized and technical university programs.<sup>46</sup>

-Within the past five years, American-style liberal-arts degree programs have been introduced into European universities, among them: St. Mary's, Belfast; University College London; King's College London; New College of the Humanities, London; Gothenburg & Uppsala Universities in Sweden; and Chavagnes Stadium in France.

-As of 2016, Italy is giving its citizens €500 on their 18<sup>th</sup> birthday to be spent on books, concerts tickets, theater tickets, cinema tickets, and museum visits. This "cultural bonus," according to parliamentary undersecretary Tommaso Nannicini, "sends a clear message to youngsters, reminding them that they belong to a community . . . It also reminds them how important cultural consumption is, both for enriching yourself as a person and strengthening the fabric of our society."<sup>47</sup>

-Closer to home, in 2016, Indiana passed a law that provides \$30,000 scholarships to students majoring in education.<sup>48</sup>

-The best publicized positive change, however, is the morphing of STEM into STEAM by adding art & design. This movement, being championed by the Rhode Island School of Design (RISD), is becoming increasingly adopted by institutions and corporations.<sup>49</sup> STEM is enriched by this interdisciplinary approach which places creativity, individuality, and personality at the forefront. STEAM makes for better engineers by encouraging them to think artistically.<sup>50</sup> Though STEAM is being touted as the wave of the future, it only promotes what Vitruvius knew 2000 year ago. The father of Western architecture believed that an architect

required not only training in math and the hard sciences, but “in all the departments of learning,” including history, philosophy, music, and art.<sup>51</sup> Vitruvius confronts us with a truth: choice between STEM and the humanities is a false choice.

I close with the words of Jim Leach, former Chairman of the National Endowment for the Humanities: “a misconceived psychological cleavage is fast developing between the humanities and the STEM disciplines. Bizarrely, a potential rupture may be emerging that could affect our quality of life and, potentially, American leadership in the world . . . the humanities and fields of inquiry related to science, technology, engineering and math are complementary rather than competitive. Each set of disciplines is essential. Each bolsters the other. Indeed, the humanities without STEM define economic stagnation, and STEM without the humanities could precipitate social disaster.”<sup>52</sup>

## Appendix II

### **National Foundation on the Arts and the Humanities Act of 1965** (P.L. 89–209) [As Amended Through P.L. 113–76, Enacted January 17, 2014]

#### DECLARATION OF FINDINGS AND PURPOSES

SEC. 2. The Congress finds and declares the following:

- (1) The arts and the humanities belong to all the people of the United States.
- (2) The encouragement and support of national progress and scholarship in the humanities and the arts, while primarily a matter for private and local initiative, are also appropriate matters of concern to the Federal Government.
- (3) An advanced civilization must not limit its efforts to science and technology alone, but must give full value and support to the other great branches of scholarly and cultural activity in order to achieve a better understanding of the past, a better analysis of the present, and a better view of the future.
- (4) Democracy demands wisdom and vision in its citizens. It must therefore foster and support a form of education, and access to the arts and the humanities, designed to make people of all backgrounds and wherever located masters of their technology and not its unthinking servants.
- (5) It is necessary and appropriate for the Federal Government to complement, assist, and add to programs for the advancement of the humanities and the arts by local, State, regional, and private agencies and their organizations. In doing so, the Government must be sensitive to the nature of public sponsorship. Public funding of the arts and humanities is subject to the conditions that traditionally govern the use of public money. Such funding should contribute to public support and confidence in the use of

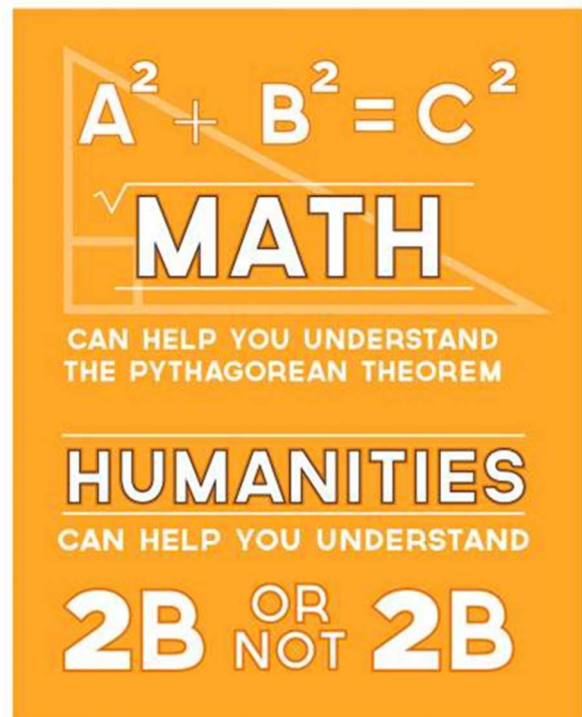
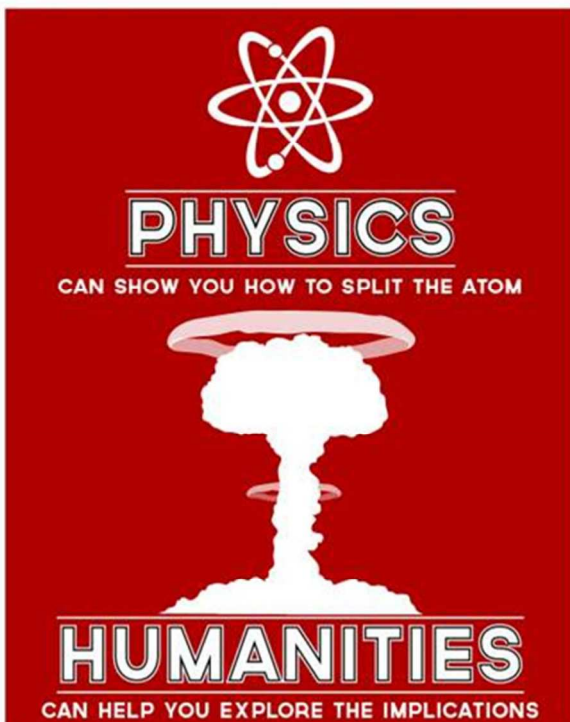
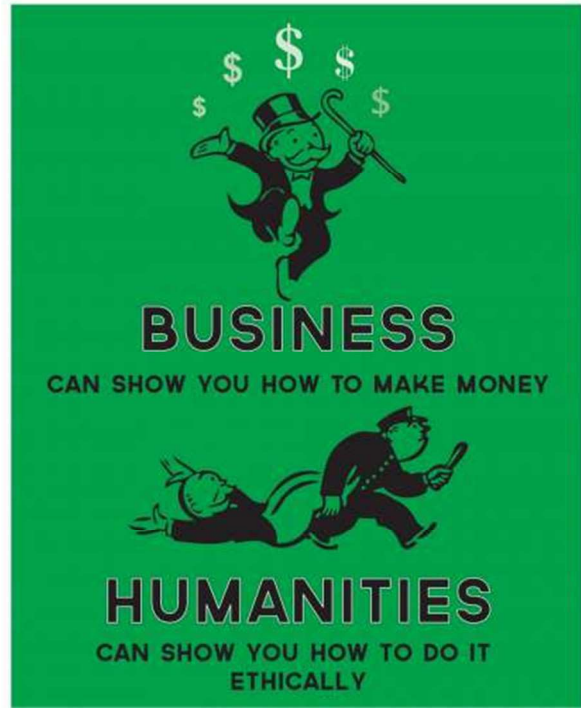
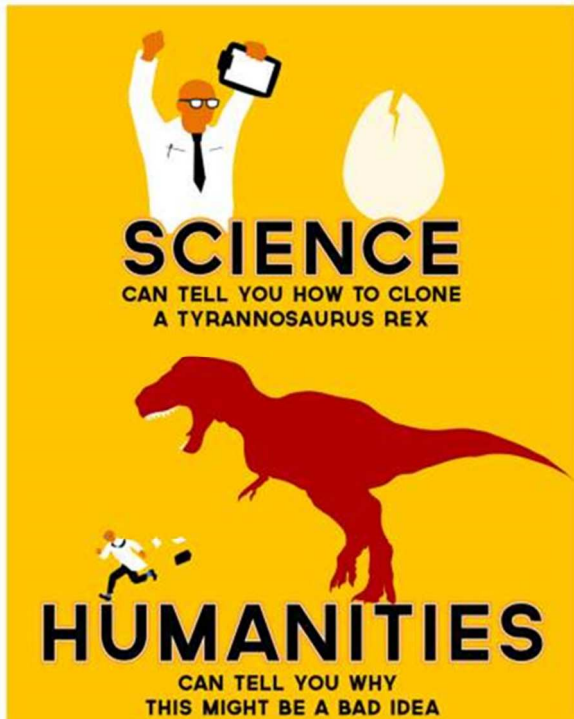
taxpayer funds. Public funds provided by the Federal Government must ultimately serve public purposes the Congress defines.

- (6) The arts and the humanities reflect the high place accorded by the American people to the nation's rich cultural heritage and to the fostering of mutual respect for the diverse beliefs and values of all persons and groups.
- (7) The practice of art and the study of the humanities require constant dedication and devotion. While no government can call a great artist or scholar into existence, it is necessary and appropriate for the Federal Government to help create and sustain not only a climate encouraging freedom of thought, imagination, and inquiry but also the material conditions facilitating the release of this creative talent.
- (8) The world leadership which has come to the United States cannot rest solely upon superior power, wealth, and technology, but must be solidly founded upon worldwide respect and admiration for the Nation's high qualities as a leader in the realm of ideas and of the spirit.
- (9) Americans should receive in school, background and preparation in the arts and humanities to enable them to recognize and appreciate the aesthetic dimensions of our lives, the diversity of excellence that comprises our cultural heritage, and artistic and scholarly expression.
- (10) It is vital to a democracy to honor and preserve its multicultural artistic heritage as well as support new ideas, and therefore it is essential to provide financial assistance to its artists and the organizations that support their work.
- (11) To fulfill its educational mission, achieve an orderly continuation of free society, and provide models of excellence to the American people, the Federal Government must transmit the achievement and values of civilization from the past via the present to the future, and make widely available the greatest achievements of art.
- (12) In order to implement these findings and purposes, it is desirable to establish a National Foundation on the Arts and the Humanities.

(20 U.S.C. 951) Enacted Nov. 5, 1990, P.L. 101-512, sec. 101, 104 Stat. 1961.

## Appendix II

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## Notes

<sup>1</sup> Bod, Rens, Maat, Jaap & Weststeijn, Thijs, eds., The Making of the Humanities, Volume I, (Amsterdam:Amsterdam University Press, 2010). <sup>2</sup> <<http://www.dictionary.com/browse/humanist>>, retrieved 21 November 2016.

<sup>3</sup> history from Fareed Zakaria, In Defense of a Liberal Education, (New York: W.W. Norton, 2015) see note, p. 41. <sup>4</sup> Zakaria, p. 51. <sup>5</sup> <[https://en.wikipedia.org/wiki/Land-grant\\_university](https://en.wikipedia.org/wiki/Land-grant_university)>, retrieved 29 November 2016. <sup>6</sup> Zakaria, p. 57. <sup>7</sup>



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