

## **Junior Class of 2021 History Summer Reading Assignment**

Hello! We are so glad that you have accepted a position at OSSM and will be joining the Class of 2021!

Over the summer you will complete a series of readings to prepare you for the work you will do in your Humanities classes at OSSM, they are included in this packet. The purpose of these readings is to expand your understanding of the role that the Humanities can play in your STEM education and to encourage the development of the historical thinking skills that will be necessary to perform well in your courses next year.

### **Questions to think about after reading the selections by David McCullough & Peter Stearns:**

1. What does McCullough mean by claiming that “history is not static” and that “nobody ever lived in the past”? Do you agree?
2. What point is McCullough trying to make in relating the story of John Fritz?
3. Explain the statement, “Learning about history is an antidote to the hubris of the present”? How does he support this? Define hubris in your own words.
4. Explain in your own words the importance or non-importance of studying history. Is it truly an “expansion of being alive”?

### **Things to think about after reading the other selections:**

1. How might your Humanities courses, especially history, contribute to your experience at OSSM?
2. How might STEM and Humanities courses work well together at OSSM?

SHOULD YOU HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CONTACT EITHER OF THE JUNIOR HISTORY PROFESSORS:

Doctor McCargish (US History): (405) 521-4610 or by email at [michelle.mccargish@ossm.edu](mailto:michelle.mccargish@ossm.edu)

Professor Baxter (History of Modern Middle East/East Asia): (405) 522-7810 or by email at [Monique.Baxter@ossm.edu](mailto:Monique.Baxter@ossm.edu)

Enjoy your summer; we can't wait to see you in August!

From: Patrick Rael, *Reading, Writing, and Researching in History*.  
*“Predatory” Reading*

2.c.

Reading scholarly material requires a new set of skills. You simply cannot read scholarly material as if it were pleasure reading and expect to comprehend it satisfactorily. Yet neither do you have the time to read every sentence over and over again. Instead, you must become what one author calls a “predatory” reader. That is, you must learn to quickly determine the important parts of the scholarly material you read. The most important thing to understand about a piece of scholarly writing is its argument.

Arguments have three components: the problem, the solution, and the evidence.

Understanding the structure of an essay is key to understanding these things. Here are some hints on how to determine structure when reading scholarly material:

1. **Think pragmatically.** Each part of a well-crafted argument serves a purpose for the larger argument. When reading, try to determine why the author has spent time writing each paragraph. What does it “do” for the author’s argument?
2. **Identify “signposts.”** Signposts are the basic structural cues in a piece of writing. Is the reading divided into chapters or sections? Are there subheads within the reading? Subheads under subheads? Are the titles clearly descriptive of the contents, or do they need to be figured out (as in titles formulated from quotations)? Are there words or concepts in the titles (of the piece, and of subheads) that need to be figured out (such as novel words, or metaphors)?
3. **Topic sentences.** Topic sentences (usually the first sentences of each paragraph) are miniature arguments. Important topic sentences function as subpoints in the larger argument. They also tell you what the paragraph that follows will be about. When reading, try to identify how topic sentences support the larger argument. You can also use them to decide if a paragraph seems important enough to read closely.
4. **Evidence.** Pieces of evidence — in the form of primary and secondary sources — are the building blocks of historical arguments. When you see evidence being used, try to identify the part of the argument it is being used to support.
5. **Identify internal structures.** Within paragraphs, authors create structures to help reader understand their points. Identify pairings or groups of points and how they are telegraphed. Where are they in the hierarchy of the argument? Hierarchy of major points is very important, and the most difficult to determine. Is the point a major or a minor one? How can you tell?
6. **Examine transitions.** Sometimes transitions are throwaways, offered merely to get from one point to another. At other times, they can be vital pieces of argument, explaining the relationship between points, or suggesting the hierarchy of points in the argument.
7. **Identify key distinctions.** Scholars often make important conceptual distinctions in their work.

8. **Identify explicit references to rival scholarly positions.** Moments when a scholar refers directly to the work of another scholar are important in understanding the central questions at stake.
9. **Stay attuned to strategic concessions.** Often authors seem to be backtracking, or giving ground, only to try to strengthen their cases. Examine such instances in your readings closely. Often, these signal moments where authors are in direct conversation with other scholars. Such moments may also help steer you toward the thesis.
10. **Remember that incoherence is also a possibility.** Sometimes it is very difficult to determine how a section of a piece is structured or what its purpose in the argument is. Remember that authors do not always do their jobs, and there may be incoherent or unstructured portions of essays. But be careful to distinguish between writing that is complex and writing that is simply incoherent.

**Finally, remember that you cannot read each piece of scholarship closely from start to finish and hope to understand its structure. You must examine it (or sections of it) several times. It is much better to work over an article several times quickly — each time seeking to discern argument and structure — than it is to read it once very closely.**

## Some Keys to Good Reading

### 2.d.

Three important questions to ask of secondary sources:

- **What does the author say?** That is, what is the author's central claim or thesis, and the argument which backs it up? The thesis of a history paper usually explains how or why something happened. This means that the author will have to (1) tell what happened (the who, where, when, what of the subject); (2) explain how or why it happened.
- **Why does the author say it?** Historians are almost always engaged in larger, sometimes obscure dialogues with other professionals. Is the author arguing with a rival interpretation? What would that be? What accepted wisdom is the author trying to challenge or complicate? What deeper agenda might be represented by this effort? (An effort to overthrow capitalism? To justify Euro-Americans' decimation of Native American populations? To buttress claims that the government should pursue particular policies?)
- **Where is the author's argument weak or vulnerable?** Good historians try to make a case that their conclusion or interpretation is correct. But cases are rarely airtight – especially novel, challenging, or sweeping ones. At what points is the author vulnerable? Where is the evidence thin? What other interpretations of the author's evidence is possible? At what points is the author's logic suspect? If the author's case is weak, what is the significance of this for the argument as a whole?

Broad approaches to essay reading:

- What is the general subject of the author's investigation?
- What are the central problems or questions the author is investigating?
- What is the solution or explanation the author offers?
- How does the author go about convincing us that the solution/explanation is correct?

That is, what is the structure of the argument? What are the major points, and what minor points are subordinated under each major point?

What is the author's argument?

- What is the thesis question?
- What are the premises underlying it?
- What is the thesis?
- What is the "road map"; that is, given this thesis, what are the individual points the author will have to prove to make the thesis be true?
- What assumptions has the author made which remain unaddressed?

There are two general steps to reading scholarship:

**Stage 1: Observation.** What is the author's argument and how is it structured? *This is the first read through the piece. Your objective is merely to understand what the author is trying to do.*

**Stage 2: Evaluation.** Where is the argument particularly strong or weak? What about it is weak? *This is the second read and subsequence analysis of the piece. Your objective is to evaluate the author's success in making her or his case.*

- Evaluating argument structure: What are the steps in the argument? How is the author breaking down sub-points? Why might the author be doing it this way? What other possibilities did the author not choose?
- Does the author do what the author sets out to do?
- Was what the author set out to do the right or a useful enterprise in the first place?

### **Why Study History? (1998) *American Historical Association***

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**By Peter N. Stearns, Professor of History, George Mason University**

People live in the present. They plan for and worry about the future. History, however, is the study of the past. Given all the demands that press in from living in the present and anticipating what is yet to come, why bother with what has been? Given all the desirable and available branches of knowledge, why insist—as most American educational programs do—on a good bit of history? And why urge many students to study even more history than they are required to?

Any subject of study needs justification: its advocates must explain why it is worth attention. Most widely accepted subjects—and history is certainly one of them—attract some people who simply like the

information and modes of thought involved. But audiences less spontaneously drawn to the subject and more doubtful about why to bother need to know what the purpose is.

Historians do not perform heart transplants, improve highway design, or arrest criminals. In a society that quite correctly expects education to serve useful purposes, the functions of history can seem more difficult to define than those of engineering or medicine. History is in fact very useful, actually indispensable, but the products of historical study are less tangible, sometimes less immediate, than those that stem from some other disciplines.

In the past history has been justified for reasons we would no longer accept. For instance, one of the reasons history holds its place in current education is because earlier leaders believed that a knowledge of certain historical facts helped distinguish the educated from the uneducated; the person who could reel off the date of the Norman conquest of England (1066) or the name of the person who came up with the theory of evolution at about the same time that Darwin did (Wallace) was deemed superior—a better candidate for law school or even a business promotion. Knowledge of historical facts has been used as a screening device in many societies, from China to the United States, and the habit is still with us to some extent. Unfortunately, this use can encourage mindless memorization—a real but not very appealing aspect of the discipline. History should be studied because it is essential to individuals and to society, and because it harbors beauty. There are many ways to discuss the real functions of the subject—as there are many different historical talents and many different paths to historical meaning. All definitions of history's utility, however, rely on two fundamental facts.

### **History Helps Us Understand People and Societies**

In the first place, history offers a storehouse of information about how people and societies behave. Understanding the operations of people and societies is difficult, though a number of disciplines make the attempt. An exclusive reliance on current data would needlessly handicap our efforts. How can we evaluate war if the nation is at peace—unless we use historical materials? How can we understand genius, the influence of technological innovation, or the role that beliefs play in shaping family life, if we don't use what we know about experiences in the past? Some social scientists attempt to formulate laws or theories about human behavior. But even these recourses depend on historical information, except for in limited, often artificial cases in which experiments can be devised to determine how people act. Major aspects of a society's operation, like mass elections, missionary activities, or military alliances, cannot be set up as precise experiments. Consequently, history must serve, however imperfectly, as our laboratory, and data from the past must serve as our most vital evidence in the unavoidable quest to figure out why our complex species behaves as it does in societal settings. This, fundamentally, is why we cannot stay away from history: it offers the only extensive evidential base for the contemplation and analysis of how societies function, and people need to have some sense of how societies function simply to run their own lives. History Helps Us Understand Change and How the Society We Live in Came to Be The second reason history is inescapable as a subject of serious study follows closely on the first. The past causes the present, and so the future. Any time we try to know why something happened—whether a shift in political party dominance in the American Congress, a major change in the teenage suicide rate, or a war in the Balkans or the Middle East—we have to look for factors that took shape earlier.

Sometimes fairly recent history will suffice to explain a major development, but often we need to look further back to identify the causes of change. Only through studying history can we grasp how things change; only through history can we begin to comprehend the factors that cause change; and only through history can we understand what elements of an institution or a society persist despite change.

### **The Importance of History in Our Own Lives**

These two fundamental reasons for studying history underlie more specific and quite diverse uses of history in our own lives. History well told is beautiful. Many of the historians who most appeal to the general reading public know the importance of dramatic and skillful writing—as well as of accuracy. Biography and military history appeal in part because of the tales they contain. History as art and entertainment serves a real purpose, on aesthetic grounds but also on the level of human understanding. Stories well done are stories that reveal how people and societies have actually functioned, and they

prompt thoughts about the human experience in other times and places. The same aesthetic and humanistic goals inspire people to immerse themselves in efforts to reconstruct quite remote pasts, far removed from immediate, present-day utility. Exploring what historians sometimes call the "pastness of the past"—the ways people in distant ages constructed their lives—involves a sense of beauty and excitement, and ultimately another perspective on human life and society.

### **History Contributes to Moral Understanding**

History also provides a terrain for moral contemplation. Studying the stories of individuals and situations in the past allows a student of history to test his or her own moral sense, to hone it against some of the real complexities individuals have faced in difficult settings. People who have weathered adversity not just in some work of fiction, but in real, historical circumstances can provide inspiration. "History teaching by example" is one phrase that describes this use of a study of the past—a study not only of certifiable heroes, the great men and women of history who successfully worked through moral dilemmas, but also of more ordinary people who provide lessons in courage, diligence, or constructive protest.

### **History Provides Identity**

History also helps provide identity, and this is unquestionably one of the reasons all modern nations encourage its teaching in some form. Historical data include evidence about how families, groups, institutions and whole countries were formed and about how they have evolved while retaining cohesion. For many Americans, studying the history of one's own family is the most obvious use of history, for it provides facts about genealogy and (at a slightly more complex level) a basis for understanding how the family has interacted with larger historical change. Family identity is established and confirmed. Many institutions, businesses, communities, and social units, such as ethnic groups in the United States, use history for similar identity purposes. Merely defining the group in the present pales against the possibility of forming an identity based on a rich past. And of course nations use identity history as well—and sometimes abuse it. Histories that tell the national story, emphasizing distinctive features of the national experience, are meant to drive home an understanding of national values and a commitment to national loyalty.

### **Studying History Is Essential for Good Citizenship**

A study of history is essential for good citizenship. This is the most common justification for the place of history in school curricula. Sometimes advocates of citizenship history hope merely to promote national identity and loyalty through a history spiced by vivid stories and lessons in individual success and morality. But the importance of history for citizenship goes beyond this narrow goal and can even challenge it at some points.

History that lays the foundation for genuine citizenship returns, in one sense, to the essential uses of the study of the past. History provides data about the emergence of national institutions, problems, and values—it's the only significant storehouse of such data available. It offers evidence also about how nations have interacted with other societies, providing international and comparative perspectives essential for responsible citizenship. Further, studying history helps us understand how recent, current, and prospective changes that affect the lives of citizens are emerging or may emerge and what causes are involved. More important, studying history encourages habits of mind that are vital for responsible public behavior, whether as a national or community leader, an informed voter, a petitioner, or a simple observer.

### **What Skills Does a Student of History Develop?**

What does a well-trained student of history, schooled to work on past materials and on case studies in social change, learn how to do? The list is manageable, but it contains several overlapping categories. *The Ability to Assess Evidence.* The study of history builds experience in dealing with and assessing various kinds of evidence—the sorts of evidence historians use in shaping the most accurate pictures of the past that they can. Learning how to interpret the statements of past political leaders—one kind of evidence—helps form the capacity to distinguish between the objective and the self-serving among statements made by present-day political leaders. Learning how to combine different kinds of evidence—public

statements, private records, numerical data, visual materials—develops the ability to make coherent arguments based on a variety of data. This skill can also be applied to information encountered in everyday life.

*The Ability to Assess Conflicting Interpretations.* Learning history means gaining some skill in sorting through diverse, often conflicting interpretations. Understanding how societies work—the central goal of historical study—is inherently imprecise, and the same certainly holds true for understanding what is going on in the present day. Learning how to identify and evaluate conflicting interpretations is an essential citizenship skill for which history, as an often-contested laboratory of human experience, provides training. This is one area in which the full benefits of historical study sometimes clash with the narrower uses of the past to construct identity. Experience in examining past situations provides a constructively critical sense that can be applied to partisan claims about the glories of national or group identity. The study of history in no sense undermines loyalty or commitment, but it does teach the need for assessing arguments, and it provides opportunities to engage in debate and achieve perspective.

*Experience in Assessing Past Examples of Change.* Experience in assessing past examples of change is vital to understanding change in society today—it's an essential skill in what we are regularly told is our "ever-changing world." Analysis of change means developing some capacity for determining the magnitude and significance of change, for some changes are more fundamental than others. Comparing particular changes to relevant examples from the past helps students of history develop this capacity. The ability to identify the continuities that always accompany even the most dramatic changes also comes from studying history, as does the skill to determine probable causes of change. Learning history helps one figure out, for example, if one main factor—such as a technological innovation or some deliberate new policy—accounts for a change or whether, as is more commonly the case, a number of factors combine to generate the actual change that occurs.

Historical study, in sum, is crucial to the promotion of that elusive creature, the well-informed citizen. It provides basic factual information about the background of our political institutions and about the values and problems that affect our social well-being. It also contributes to our capacity to use evidence, assess interpretations, and analyze change and continuities. No one can ever quite deal with the present as the historian deals with the past—we lack the perspective for this feat; but we can move in this direction by applying historical habits of mind, and we will function as better citizens in the process.

### **History Is Useful in the World of Work**

History is useful for work. Its study helps create good businesspeople, professionals, and political leaders. The number of explicit professional jobs for historians is considerable, but most people who study history do not become professional historians. Professional historians teach at various levels, work in museums and media centers, do historical research for businesses or public agencies, or participate in the growing number of historical consultancies. These categories are important—indeed vital—to keep the basic enterprise of history going, but most people who study history use their training for broader professional purposes. Students of history find their experience directly relevant to jobs in a variety of careers as well as to further study in fields like law and public administration. Employers often deliberately seek students with the kinds of capacities historical study promotes. The reasons are not hard to identify: students of history acquire, by studying different phases of the past and different societies in the past, a broad perspective that gives them the range and flexibility required in many work situations. They develop research skills, the ability to find and evaluate sources of information, and the means to identify and evaluate diverse interpretations. Work in history also improves basic writing and speaking skills and is directly relevant to many of the analytical requirements in the public and private sectors, where the capacity to identify, assess, and explain trends is essential. Historical study is unquestionably an asset for a variety of work and professional situations, even though it does not, for most students, lead as directly to a particular job slot, as do some technical fields. But history particularly prepares students for the long haul in their careers, its qualities helping adaptation and advancement beyond entry-level employment. There is no denying that in our society many people who are drawn to historical study worry about relevance. In our changing economy, there is concern about job futures in

most fields. Historical training is not, however, an indulgence; it applies directly to many careers and can clearly help us in our working lives.

Why study history? The answer is because we virtually must, to gain access to the laboratory of human experience. When we study it reasonably well, and so acquire some usable habits of mind, as well as some basic data about the forces that affect our own lives, we emerge with relevant skills and an enhanced capacity for informed citizenship, critical thinking, and simple awareness. The uses of history are varied. Studying history can help us develop some literally "salable" skills, but its study must not be pinned down to the narrowest utilitarianism. Some history—that confined to personal recollections about changes and continuities in the immediate environment—is essential to function beyond childhood. Some history depends on personal taste, where one finds beauty, the joy of discovery, or intellectual challenge. Between the inescapable minimum and the pleasure of deep commitment comes the history that, through cumulative skill in interpreting the unfolding human record, provides a real grasp of how the world works.

## Knowing History and Knowing Who We Are

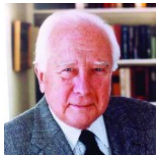
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 [imprimis.hillsdale.edu/knowning-history-and-knowing-who-we-are/](http://imprimis.hillsdale.edu/knowning-history-and-knowing-who-we-are/)

**David McCullough**

Historian

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**David McCullough** was born in 1933 in Pittsburgh, Pennsylvania, and was educated there and at Yale University. Author of *1776*, *John Adams*, *Truman*, *Brave Companions*, *The Path Between the Seas*, *Mornings on Horseback*, *The Great Bridge* and *The Johnstown Flood*, he has twice received the Pulitzer Prize and twice the National Book Award, as well as the Francis Parkman Prize and the *Los Angeles Times* Book Award.

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The following is an abridged transcript of remarks delivered on February 15, 2005, in Phoenix, Arizona, at a Hillsdale College National Leadership Seminar on the topic, "American History and America's Future."

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Harry Truman once said the only new thing in the world is the history you don't know. Lord Bolingbroke, who was an 18th century political philosopher, said that history is philosophy taught with examples. An old friend, the late Daniel Boorstin, who was a very good historian and Librarian of Congress, said that trying to plan for the future without a sense of the past is like trying to plant cut flowers. We're raising a lot of cut flowers and trying to plant them, and that's much of what I want to talk about tonight.

The task of teaching and writing history is infinitely complex and infinitely seductive and rewarding. And it seems to me that one of the truths about history that needs to be portrayed—needs to be made clear to a student or to a reader—is that nothing ever had to happen the way it happened. History could have gone off in any number of different directions in any number of different ways at any point along the way, just as your own life can. You never know. One thing leads to another. Nothing happens in a vacuum. Actions have



consequences. These all sound self-evident. But they're not self-evident—particularly to a young person trying to understand life.

Nor was there ever anything like the past. Nobody lived in the past, if you stop to think about it. Jefferson, Adams, Washington—they didn't walk around saying, "Isn't this fascinating, living in the past?" They lived in the present just as we do. The difference was it was their present, not ours. And just as we don't know how things are going to turn out for us, they didn't either. It's very easy to stand on the mountaintop as an historian or biographer and find fault with people for why they did this or didn't do that, because we're not involved in it, we're not inside it, we're not confronting what we don't know—as everyone who preceded us always was.

Nor is there any such creature as a self-made man or woman. We love that expression, we Americans. But every one who's ever lived has been affected, changed, shaped, helped, hindered by other people. We all know, in our own lives, who those people are who've opened a window, given us an idea, given us encouragement, given us a sense of direction, self-approval, self-worth, or who have straightened us out when we were on the wrong path. Most often they have been parents. Almost as often they have been teachers. Stop and think about those teachers who changed your life, maybe with one sentence, maybe with one lecture, maybe by just taking an interest in your struggle. Family, teachers, friends, rivals, competitors—they've all shaped us. And so too have people we've never met, never known, because they lived long before us. They have shaped us too—the people who composed the symphonies that move us, the painters, the poets, those who have written the great literature in our language. We walk around everyday, everyone of us, quoting Shakespeare, Cervantes, Pope. We don't know it, but we are, all the time. We think this is our way of speaking. It isn't our way of speaking—it's what we have been given. The laws we live by, the freedoms we enjoy, the institutions that we take for granted—as we should never take for granted—are all the work of other people who went before us. And to be indifferent to that isn't just to be ignorant, it's to be rude. And ingratitude is a shabby failing. How can we not want to know about the people who have made it possible for us to live as we live, to have the freedoms we have, to be citizens of this greatest of countries in all time? It's not just a birthright, it is something that others struggled for, strived for, often suffered for, often were defeated for and died for, for us, for the next generation.

## **Character And Destiny**

Now those who wrote the Declaration of Independence in Philadelphia that fateful summer of 1776 were not superhuman by any means. Every single one had his flaws, his failings, his weaknesses. Some of them ardently disliked others of them. Every one of them did things in his life he regretted. But the fact that they could rise to the occasion as they did, these imperfect human beings, and do what they did is also, of course, a testimony to their humanity. We are not just known by our failings, by our weaknesses, by our sins. We are known by being capable of rising to the occasion and exhibiting not just a sense of direction, but strength.

The Greeks said that character is destiny, and the more I read and understand of history, the more convinced I am that they were right. You look at the great paintings by John Trumbull or Charles Willson Peale or Copley or Gilbert Stuart of those remarkable people who were present at the creation of our nation, the Founders as we call them. Those aren't just likenesses. They are delineations of character and were intended to be. And we need to understand them, and we need to understand that they knew that what they had created was no more perfect than they were. And that has been to our advantage. It has been good for us that it wasn't all just handed to us in perfect condition, all ready to run in perpetuity—that it needed to be worked at and improved and made to

work better. There's a wonderful incident that took place at the Cambria Iron Company in Johnstown, Pennsylvania, in the 19th century, when they were building the first Bessemer steel machinery, adapted from what had been seen of the Bessemer process in Britain. There was a German engineer named John Fritz, and after working for months to get this machinery finished, he came into the plant one morning, and he said, "Alright boys, let's start her up and see why she doesn't work." That's very American. We will find out what's not working right and we will fix it, and then maybe it will work right. That's been our star, that's what we've guided on.

I have just returned from a cruise through the Panama Canal. I think often about why the French failed at Panama and why we succeeded. One of the reasons we succeeded is that we were gifted, we were attuned to adaptation, to doing what works, whereas they were trained to do everything in a certain way. We have a gift for improvisation. We improvise in jazz; we improvise in much of our architectural breakthroughs. Improvisation is one of our traits as a nation, as a people, because it was essential, it was necessary, because we were doing again and again and again what hadn't been done before.

Keep in mind that when we were founded by those people in the late 18th century, none of them had had any prior experience in either revolutions or nation-making. They were, as we would say, winging it. And they were idealistic and they were young. We see their faces in the old paintings done later in their lives or looking at us from the money in our wallets, and we see the awkward teeth and the powdered hair, and we think of them as elder statesmen. But George Washington, when he took command of the continental army at Cambridge in 1775, was 43 years old, and he was the oldest of them. Jefferson was 33 when he wrote the Declaration of Independence. John Adams was 40. Benjamin Rush—one of the most interesting of them all and one of the founders of the antislavery movement in Philadelphia—was 30 years old when he signed the Declaration. They were young people. They were feeling their way, improvising, trying to do what would work. They had no money, no navy, no real army. There wasn't a bank in the entire country. There wasn't but one bridge between New York and Boston. It was a little country of 2,500,000 people, 500,000 of whom were held in slavery, a little fringe of settlement along the east coast. What a story. What a noble beginning. And think of this: almost no nations in the world know when they were born. We know exactly when we began and why we began and who did it.

In the rotunda of the Capitol in Washington hangs John Trumbull's great painting, "The Declaration of Independence, Fourth of July, 1776." It's been seen by more people than any other American painting. It's our best known scene from our past. And almost nothing about it is accurate. The Declaration of Independence wasn't signed on July 4th. They didn't start to sign the Declaration until August 2nd, and only a part of the Congress was then present. They kept coming back in the months that followed from their distant states to take their turn signing the document. The chairs are wrong, the doors are in the wrong place, there were no heavy draperies at the windows, and the display of military flags and banners on the back wall is strictly a figment of Trumbull's imagination. But what is accurate about it are the faces. Every single one of the 47 men in that painting is an identifiable, and thus accountable, individual. We know what they look like. We know who they were. And that's what Trumbull wanted. He wanted us to know them and, by God, not to forget them. Because this momentous step wasn't a paper being handed down by a potentate or a king or a czar, it was the decision of a Congress acting freely.

## Our Failure, Our Duty

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We are raising a generation of young Americans who are by-and-large historically illiterate. And it's not their fault. There have been innumerable studies, and there's no denying it. I've experienced it myself again and again. I had a young woman come up to me after a talk one morning at the University of Missouri to tell me that she was glad she came to hear me speak, and I said I was pleased she had shown up. She said, "Yes, I'm very pleased, because until now I never understood that all of the 13 colonies—the original 13 colonies—were on the east coast." Now you hear that and you think: What in the world have we done? How could this young lady, this wonderful young American, become a student at a fine university and not know that? I taught a seminar at Dartmouth of seniors majoring in history, honor students, 25 of them. The first morning we sat down and I said, "How many of you know who George Marshall was?" Not one. There was a long silence and finally one young man asked, "Did he have, maybe, something to do with the Marshall Plan?" And I said yes, he certainly did, and that's a good place to begin talking about George Marshall.

We have to do several things. First of all we have to get across the idea that we have to know who we were if we're to know who we are and where we're headed. This is essential. We have to value what our forebears—and not just in the 18th century, but our own parents and grandparents—did for us, or we're not going to take it very seriously, and it can slip away. If you don't care about it—if you've inherited some great work of art that is worth a fortune and you don't know that it's worth a fortune, you don't even know that it's a great work of art and you're not interested in it—you're going to lose it.

We have to do a far better job of teaching our teachers. We have too many teachers who are graduating with degrees in education. They go to schools of education or they major in education, and they graduate knowing something called education, but they don't know a subject. They're assigned to teach botany or English literature or history, and of course they can't perform as they should. Knowing a subject is important because you want to know what you're talking about when you're teaching. But beyond that, you can't love what you don't know. And the great teachers—the teachers who influence you, who change your lives—almost always, I'm sure, are the teachers that love what they are teaching. It is that wonderful teacher who says "Come over here and look in this microscope, you're really going to get a kick out of this."

There was a wonderful professor of child psychology at the University of Pittsburgh named Margaret McFarland who was so wise that I wish her teachings and her ideas and her themes were much better known. She said that attitudes aren't taught, they're caught. If the teacher has an attitude of enthusiasm for the subject, the student catches that whether the student is in second grade or is in graduate school. She said that if you show them what you love, they'll get it and they'll want to get it. Also if the teachers know what they are teaching, they are much less dependent on textbooks. And I don't know when the last time you picked up a textbook in American history might have been. And there are, to be sure, some very good ones still in print. But most of them, it appears to me, have been published in order to kill any interest that anyone might have in history. I think that students would be better served by cutting out all the pages, clipping up all the page numbers, mixing them all up and then asking students to put the pages back together in the right order. The textbooks are dreary, they're done by committee, they're often hilariously politically correct and they're not doing any good. Students should not have to read anything that we, you and I, wouldn't want to read ourselves. And there are wonderful books, past and present. There is

literature in history. Let's begin with Longfellow, for example. Let's begin with Lincoln's Second Inaugural Address, for example. These are literature. They can read that too.

History isn't just something that ought to be taught or ought to be read or ought to be encouraged because it's going to make us a better citizen. It will make us a better citizen; or because it will make us a more thoughtful and understanding human being, which it will; or because it will cause us to behave better, which it will. It should be taught for pleasure: The pleasure of history, like art or music or literature, consists of an expansion of the experience of being alive, which is what education is largely about.

And we need not leave the whole job of teaching history to the teachers. If I could have you come away from what I have to say tonight remembering one thing, it would be this: The teaching of history, the emphasis on the importance of history, the enjoyment of history, should begin at home. We who are parents or grandparents should be taking our children to historic sites. We should be talking about those books in biography or history that we have particularly enjoyed, or that character or those characters in history that have meant something to us. We should be talking about what it was like when we were growing up in the olden days. Children, particularly little children, love this. And in my view, the real focus should be at the grade school level. We all know that those little guys can learn languages so fast it takes your breath away. They can learn anything so fast it takes your breath away. And the other very important truth is that they want to learn. They can be taught to dissect a cow's eye. They can be taught anything. And there's no secret to teaching history or to making history interesting. Barbara Tuchman said it in two words, "Tell stories." That's what history is: a story. And what's a story? E.M. Forster gave a wonderful definition to it: If I say to you the king died and then the queen died, that's a sequence of events. If I say the king died and the queen died of grief, that's a story. That's human. That calls for empathy on the part of the teller of the story and of the reader or listener to the story. And we ought to be growing, encouraging, developing historians who have heart and empathy to put students in that place of those people before us who were just as human, just as real—and maybe in some ways more real than we are. We've got to teach history and nurture history and encourage history because it's an antidote to the hubris of the present—the idea that everything we have and everything we do and everything we think is the ultimate, the best.

Going through the Panama Canal, I couldn't help but think about all that I had read in my research on that story of what they endured to build that great path, how much they had to know and to learn, how many different kinds of talent it took to achieve that success, and what the Americans did under John Stevens and George Goethals in the face of unexpected breakdowns, landslides and floods. They built a canal that cost less than it was expected to cost, was finished before it was expected to be finished and is still running today exactly the same as it was in 1914 when it opened. They didn't, by present day standards for example, understand the chemistry of making concrete. But when we go and drill into those concrete locks now, we find the deterioration is practically nil and we don't know how they did it. That ingenious contrivance by the American engineers is a perfect expression of what engineering ought to be at its best—man's creations working with nature. The giant gates work because they're floating, they're hollow like airplane wings. The electric motors that open and close the gates use power which is generated by the spillway from the dam that creates the lake that bridges the isthmus. It's an extraordinary work of civilization. And we couldn't do it any better today, and in some ways we probably wouldn't do it as well. If you were to take a look,

for example, at what's happened with the "Big Dig" in Boston, you realize that we maybe aren't closer to the angels by any means nearly a hundred years later.

We should never look down on those people and say that they should have known better. What do you think they're going to be saying about us in the future? They're going to be saying we should have known better. Why did we do that? What were we thinking of? All this second-guessing and the arrogance of it are unfortunate.

## **Listening To The Past**

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Samuel Eliot Morison said we ought to read history because it will help us to behave better. It does. And we ought to read history because it helps to break down the dividers between the disciplines of science, medicine, philosophy, art, music, whatever. It's all part of the human story and ought to be seen as such. You can't understand it unless you see it that way. You can't understand the 18th century, for example, unless you understand the vocabulary of the 18th century. What did they mean by those words? They didn't necessarily mean the same thing as we do. There's a line in one of the letters written by John Adams where he's telling his wife Abigail at home, "We can't guarantee success in this war, but we can do something better. We can deserve it." Think how different that is from the attitude today when all that matters is success, being number one, getting ahead, getting to the top. However you betray or gouge or claw or do whatever awful thing is immaterial if you get to the top.

That line in the Adams letter is saying that how the war turns out is in the hands of God. We can't control that, but we can control how we behave. We can deserve success. When I read that line when I was doing the research on the book, it practically lifted me out of my chair. And then about three weeks later I was reading some correspondence written by George Washington and there was the same line. I thought, wait a minute, what's going on? And I thought, they're quoting something. So, as we all often do, I got down good old Bartlett's Familiar Quotations, and I started going through the entries from the 18th century and bingo, there it was. It's a line from the play *Cato*. They were quoting something that was in the language of the time. They were quoting scripture of a kind, a kind of secular creed if you will. And you can't understand why they behaved as they did if you don't understand that. You can't understand why honor was so important to them and why they were truly ready to put their lives, their fortunes, their sacred honor on the line. Those weren't just words.

I want to read to you, in conclusion, a letter that John Quincy Adams received from his mother. Little John Adams was taken to Europe by his father when his father sailed out of Massachusetts in the midst of winter, in the midst of war, to serve our country in France. Nobody went to sea in the wintertime, on the North Atlantic, if it could possibly be avoided. And nobody did it trying to cut through the British barricade outside of Boston Harbor because the British ships were sitting out there waiting to capture somebody like John Adams and take him to London and to the Tower, where he would have been hanged as a traitor. But they sent this little ten-year-old boy with his father, risking his life, his mother knowing that she wouldn't see him for months, maybe years at best. Why? Because she and his father wanted John Quincy to be in association with Franklin and the great political philosophers of France, to learn to speak French, to travel in Europe, to be able to soak it all up. And they risked his life for that—for his education. We have no idea what people were willing to do for education in times past. It's the one sustaining theme through our whole country—that the next generation will be better educated than we are. John Adams himself is a living example

of the transforming miracle of education. His father was able to write his name, we know. His mother was almost certainly illiterate. And because he had a scholarship to Harvard, everything changed for him. He said, "I discovered books and read forever," and he did. And they wanted this for their son.

Well, it was a horrendous voyage. Everything that could have happened to go wrong, went wrong. And when the little boy came back, he said he didn't ever want to go across the Atlantic again as long as he lived. And then his father was called back, and his mother said you're going back. And here is what she wrote to him. Now, keep in mind that this is being written to a little kid and listen to how different it is from how we talk to our children in our time. She's talking as if to a grownup. She's talking to someone whom they want to bring along quickly because there's work to do and survival is essential:

These are the times in which genius would wish to live. It is not in the still calm of life or the repose of a pacific station that great characters are formed. The habits of a vigorous mind are formed in contending with difficulties. Great necessities call out great virtues. When a mind is raised and animated by scenes that engage the heart, then those qualities which would otherwise lay dormant wake into life and form the character of the hero and the statesman.

Now, there are several interesting things going on in that letter. For all the times that she mentions the mind, in the last sentence she says, "When a mind is raised and animated by scenes that engage the heart, then those qualities which would otherwise lay dormant wake into life and form the character of the hero and the statesman." In other words, the mind itself isn't enough. You have to have the heart. Well, of course he went and the history of our country is different because of it. John Quincy Adams, in my view, was the most superbly educated and maybe the most brilliant human being who ever occupied the executive office. He was, in my view, the greatest Secretary of State we've ever had. He wrote the Monroe Doctrine, among other things. And he was a wonderful human being and a great writer. Told to keep a diary by his father when he was in Europe, he kept the diary for 65 years. And those diaries are unbelievable. They are essays on all kinds of important, heavy subjects. He never tells you who he had lunch with or what the weather's like. But if you want to know that, there's another sort of little Cliff diary that he kept about such things.

Well after the war was over, Abigail went to Europe to be with her husband, particularly when he became our first minister to the court of Saint James. And John Quincy came home from Europe to prepare for Harvard. And he had not been home in Massachusetts very long when Abigail received a letter from her sister saying that John Quincy was a very impressive young man—and of course everybody was quite astonished that he could speak French—but that, alas, he seemed a little overly enamored with himself and with his own opinions and that this was not going over very well in town. So Abigail sat down in a house that still stands on Grosvenor Square in London—it was our first embassy if you will, a little 18th century house—and wrote a letter to John Quincy. And here's what she said:

If you are conscious to yourself that you possess more knowledge upon some subjects than others of your standing, reflect that you have had greater opportunities of seeing the world and obtaining knowledge of mankind than any of your contemporaries. That you have never wanted a book, but it has been supplied to you. That your whole time has been spent in the company of men of literature and science. How unpardonable would it have been in you to have turned out a blockhead.

How unpardonable it would be for us—with all that we have been given, all the advantages we have, all the continuing opportunities we have to enhance and increase our love of learning—to turn out blockheads or to raise blockheads. What we do in education, what these wonderful teachers and administrators and college presidents and college and university trustees do is the best, most important work there is.

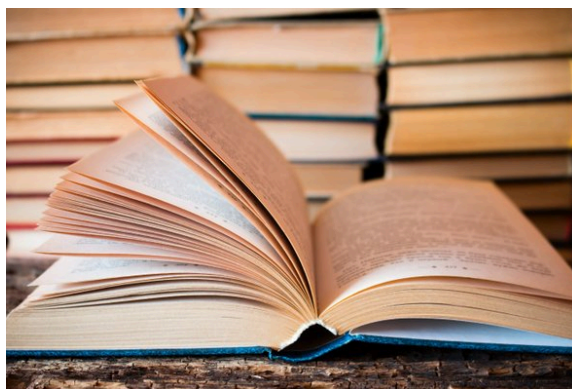
So I salute you all for your interest in education and in the education of Hillsdale. I salute you for coming out tonight to be at an event like this. Not just sitting at home being a spectator. It's important that we take part. Citizenship isn't just voting. We all know that. Let's all pitch in. And let's not lose heart. They talk about what a difficult, dangerous time we live in. And it is very difficult, very dangerous and very uncertain. But so it has always been. And this nation of ours has been through darker times. And if you don't know that—as so many who broadcast the news and subject us to their opinions in the press don't seem to know—that's because we're failing in our understanding of history.

The Revolutionary War was as dark a time as we've ever been through. 1776, the year we so consistently and rightly celebrate every year, was one of the darkest times, if not the darkest time in the history of the country. Many of us here remember the first months of 1942 after Pearl Harbor when German submarines were sinking our oil tankers right off the coasts of Florida and New Jersey, in sight of the beaches, and there wasn't a thing we could do about it. Our recruits were drilling with wooden rifles, we had no air force, half of our navy had been destroyed at Pearl Harbor, and there was nothing to say or guarantee that the Nazi machine could be defeated—nothing. Who was to know? I like to think of what Churchill said when he crossed the Atlantic after Pearl Harbor and gave a magnificent speech. He said we haven't journeyed this far because we're made of sugar candy. It's as true today as it ever was.

## Why STEM Students Need Humanities Courses

The more science and technology dominate our culture, the more we need the humanities

- By [John Horgan](#) on August 16, 2018



What's the point of the humanities? Of studying philosophy, history, literature and “soft” sciences like psychology and political science? This question has become increasingly urgent lately, as enrollment in the humanities continues to plummet. According to one analysis, the number of American students majoring in humanities has fallen from almost 20 percent in the 1960s to less than 5 percent today. One governor recently applauded



the trend, saying that state schools should “produce more electrical engineers and less French literature scholars.”

Some defenses of the humanities leave me cold. *New York Times* columnist Ross Douthat, a Catholic, proposes that the humanities can be revived by “a return of serious academic interest in the possible (I would say likely) truth of religious claims.” With friends like this...

This week an LA-based public radio station, WUTC, asked me to join a discussion about the plight of the humanities. I couldn't say everything I wanted to, so here's an updated pitch for the humanities I posted in 2013.

I started teaching a required freshman humanities course at Stevens Institute of Technology a decade ago. The syllabus included Sophocles, Plato, Shakespeare, Descartes, Kant, Marx, Nietzsche, William James, Freud, Mead—you know, Western Civilization's Greatest Hits.

I love teaching the class, but I don't assume students love taking it. So on the first day I ask, “How many of you would skip this course if it wasn't required?” After I assure the students they won't hurt my feelings, almost all raise their hands.

They say they came to Stevens for engineering, computer science, math, physics, pre-med, finance, digital music production, etc. They don't see the point of reading all this old impractical stuff that has nothing to do with their careers. When I ask them to guess why Stevens inflicts this course on them, someone usually says, smirking, To make us well-rounded.

Whenever I get the “well-rounded” response...I say, “I don't really know what ‘well-rounded’ means. Does it mean being able to chitchat about Hamlet at cocktail parties? I don't care about that.” Then I give them my pitch for the course, which goes like this: We live in a world increasingly dominated by science. And that's fine. I became a science writer because I think science is the most exciting, dynamic, consequential part of human culture, and I wanted to be a part of that.

But it is precisely because science is so powerful that we need the humanities now more than ever. In your science, mathematics and engineering classes, you're given facts, answers, knowledge, truth. Your professors say, “This is how things are.” They give you certainty. The humanities, at least the way I teach them, give you uncertainty, doubt, skepticism.

The humanities are subversive. They undermine the claims of all authorities, whether political, religious or scientific. This skepticism is especially important when it comes to claims about humanity, about what we are, where we came from, and even what we can be and should be. Science has replaced religion as our main source of answers to these questions. Science has told us a lot about ourselves, and we're learning more every day.



But the humanities remind us that we have an enormous capacity for deluding ourselves. They also tell us that every single human is unique, different than every other human, and each of us keeps changing in unpredictable ways. The societies we live in also keep changing--in part because of science and technology! So in certain important ways, humans resist the kind of explanations that science gives us.

The humanities are more about questions than answers, and we're going to wrestle with some ridiculously big questions in this class. Like, What is truth anyway? How do we know something is true? Or rather, why do we believe certain things are true and other things aren't? And how do we decide whether something is wrong or right to do, for us personally or for society as a whole?

Also, what is the meaning of life? What is the point of life? Should happiness be our goal? Well, what the hell is happiness? And should happiness be an end in itself or just a side effect of some other more important goal? Like gaining knowledge, or reducing suffering?

Each of you has to find your own answer to these questions. Socrates, one of the philosophers we're going to read, said wisdom means knowing how little you know. Socrates was a pompous ass, but there is wisdom in what he says about wisdom.

If I do my job, by the end of this course you'll question all authorities, including me. You'll question what you've been told about the nature of reality, about the purpose of life, about what it means to be a good person. Because that, for me, is the point of the humanities: they keep us from being trapped by our own desire for certainty.

## Oh, The Humanities! Why STEM shouldn't take Precedence over the Arts – Arizona State University, Project Humanities

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As much trouble as the education industry is in, every state continues to witness the dissolving of the very funds intended to help it. Major cuts in education have been directed toward the arts and humanities where millions of students are being deprived of these subjects and outlets. According to the [National Center for Education Statistics \(NCES\)](#), nearly 1.5 million elementary students are without music, nearly 4 million are without the visual arts, and almost 100% of them, more than 23 million, are educated without dance and theatre.

### **Government Push for STEM**

While the Department of Education (DoE) attempts to find a one-size-fits-all solution for more than [14,000 public school districts](#) through its Common Core Standards, the STEM subjects (science, technology, engineering, and mathematics) have been placed as the focal point for education, well ahead of arts and humanities.

Dave Csintyan, CEO of the educational non-profit organization [See the Change USA](#), feels taking away from the arts and humanities programs is the wrong answer but said the push for STEM may actually have a positive effect on arts and humanities students who are exposed to STEM learning.

"Rigorous STEM exposure is equally applicable to professional success no matter the field of choice," he said.

Education reform has been a major part of Barack Obama's presidency, who has proposed a bill called the STAPLE Act, which would provide immigrant PhD students in STEM fields a green card upon graduation. The argument is that these students, who commonly return to their home country to develop companies and businesses, should be given the option to remain in America and help boost the economy.

This potential law is a major player in the push for STEM. It voices the government's insistence that the education system is not producing enough Master's and PhD STEM graduates.

But the major push for STEM education in America may, in fact, not be that necessary after all. [A Georgetown University, Rutgers University, and Urban Institute-collaborated study](#) found that "U.S. colleges and universities are graduating as many scientists and engineers as ever before...[and the] findings indicate that STEM retention along the pipeline shows strong and even increasing rates of retention from the 1970s to the late 1990s. Over the past decade, U.S. colleges and universities graduated roughly three times more scientists and engineers than were employed in the growing science and engineering workforce."

It seems the great migration toward STEM by the government will indeed have adverse effects and not solely in regards to the cuts in education funds. There is the economic impact to consider, as well.

The Americans for the Arts [Arts and Economic Prosperity IV](#) study showed that the nonprofit arts and culture industry accounts for more than four million full-time jobs and more than \$135 billion in economic activity. It also generates over \$22 billion in revenue for local, state, and federal governments each year.

But access to the arts for students of all ages continues to shrink as more government officials continue to solely invest in STEM, forcing the arts and humanities to fend for themselves.

According to Florida's governor, Rick Scott, picking a degree shouldn't be up to the student. It should be up to what is best for the student, or at least what he thinks is best for the student.

"I want to spend our money getting people science, technology, engineering and math degrees," he said in a [radio interview](#) on WNDB-AM in Daytona Beach. "That's what our kids need to focus all of their time and attention on: those type of degrees that when they get out of school, they can get a job."



### **Stronger Together Than Apart**

Eric Darr, president of Harrisburg University of Science and Technology, said he doesn't think arts and humanities students are being turned off from pursuing those particular degrees, although some of the recent press may help sway some of their decisions – in particular articles about salary comparisons.

"The social sciences — communications, pre-law, journalism — continue to be very popular," he said.

As much as the DoE encourages the increase in STEM, it is aware that education needs the influence of the arts and humanities.

The American Academy of Arts and Sciences formed its [Commission on the Humanities and Social Sciences \(CHSS\)](#) at the request of Congress. The group, comprised of scientists, engineers, leading business executives, philanthropists, jurists, artists, and journalists, were asked to find the answers to a question posed by Congress: What actions should government officials take to maintain national excellence in humanities and social science education in order to better improve the economy and civil society?

Darr believes it is a mistake to try to separate STEM and the social sciences. He said they are both stronger together.

Recent moves by government officials looking to improve education, however, have done just that via budget cuts.

One of the more obvious statements in the STEM push is the Obama Administration's [Race to the Top](#) initiative, which places all 50 states in an academic competition to be the best and be eligible for additional education funding, has STEM emphasis as one of its seven point factors. Arts and humanities, however, is not on the list.

Many have gravitated to the idea that STEM is the best source for innovation and job creation. But according to the [Americans for the Arts](#) organization, their studies show that children involved in the arts are four times more likely to be recognized for academic achievement and four times more likely to participate in a math and science fair.

These same students are also three times more likely to be elected to class office in their school, giving them early leadership skills and making them more apt to become leaders in the business world.

Karl Eikenberry, a fellow at Stanford's Center for International Security and Cooperation, former ambassador to Afghanistan and a retired general was reported saying during a CHSS discussion at Stanford that knowledge of history, foreign languages and cultures can help America more

successfully navigate the increasing number of multinational issues that need multinational solutions.

The need for advancements in science, technology, engineering, and mathematics will never cease, as will the need for the study of social sciences like human behavior, languages, linguistics, and philosophy. The answer is the continual interworking of both.

"The new economy requires that we continue to improve and encourage STEM education because mastering existing and new technologies is vital," said Edward Abeyta, director of K-16 Programs at the University of California-San Diego Extension. "It also requires that arts be included in the curricula to capture the full potential of the whole-brain."

He said the education industry needs to take a STEAM approach.

"It is using the combination of all these capabilities that drives creativity and innovation," he said of STEAM. "The future economic cost of not having a whole brain education system that fosters creativity and innovation is immense. It requires retraining instructors to teach how to deal with ambiguities and nuances – how to think creatively and how to construct or deal with abstract issues instead of so much of the emphasis being on teaching facts. Teachers will need to teach our students to ‘think’ – not memorize."

One of the major components of STEM is rote memorization which can hinder a student's ability to think freely on subjects. When social sciences and arts are provided, students are able to understand problems rather than simply accepting solutions.

Even if the STEAM approach is best, funding cuts to arts and humanities programs remain an inescapable reality. In the face of such cuts, arts and humanities students will have less career counseling and professional guidance in school than their STEM peers. As such, these students need to become their own career coaches and figure out for themselves how to convince employers of the relevance and value of their degrees.

### **How Humanities Students Can Help Themselves**

Humanities students need to educate themselves on how to communicate their abilities and ideas. Also, having a firm business foundation along with understanding the importance of their own craft is essential to impressing an employer and landing a job.

Darr said students must place themselves in the best position to secure a job coming out of college and gave some tips on how to do it:

- Keep a portfolio of your work. Through your education, internships, and early career, continue to catalog documents, audio and video recorded projects, and any other materials showing your work. Not having proof that you are talented in your field can be costly.
- For those in the arts field, creating a portfolio of your work – whether art, music, film – gives employers an insight into your established work and where you are headed in your field. The portfolio needs to show the quality and complexity of your work and how it has progressed over time. A portfolio should mimic a timeline providing visual evidence of professional growth.

- Get an internship – at all costs. Earning a degree is a must, but obtaining internship work related to your industry is vital. When applying for a job, nearly every professional opening requires some experience. It is very important to have on a resume to show that you have some idea of what it is to work in your area. Even a short history of understanding how to conduct social science research or working in an arts industry is steps ahead of someone who only has a degree. A philosophy major may consider interning with a law firm or a consulting firm to become comfortable in a business environment.
- Take classes that help you become a good communicator. At the end of your college career, take a course on communication, preferably one that will count toward your degree. Most degree programs give students the ability to take upper level courses of their choosing. For example, a student studying philanthropy may consider taking a business course to help them understand the business side of non-profit work.
- To fully participate in today's society, you need to have some knowledge of technology – even if you're a fine arts student. Most schools offer courses in social media. Knowing how to use and manage social networking sites will go a long way in helping you land a career job.

There is no denying the importance of STEM education and the economic and technological impacts it has on the world. But STEM standing alone, or by itself atop the educational mountain, will soon prove counterproductive.

"The idea that we must choose between science and humanities," Abeyta said, "is false."

- Grace Richards

## **Why everyone should study the liberal arts—even future doctors and engineers : Students in STEM, medicine, need liberal arts education to succeed – EAB Blog**

8:03 AM - August 17, 2016

Even with an increased focus on teaching students technical skills, an education steeped in the liberal arts is essential for students in medicine and other STEM disciplines.

In a piece for *The Conversation*, Dartmouth College professors Leslie Henderson, Glenda Shoop, and Lisa Adams explain that as the cost of higher education continues to rise, institutions are under more pressure than ever to demonstrate the value of the liberal arts. That becomes particularly important to prove as the demand for workers with technical skills grows.

How colleges can close the skills gap

Some may ask why a student pursuing a career in medicine would bother learning about history, politics, or language. According to the authors, these disciplines are not only complementary to STEM education—they're fundamental.

One reason why the liberal arts are so important for physicians is because learning about subjects such as ethics, sociology, and psychology helps medical providers break down cross-cultural barriers.

Learn more about creating T-shaped professionals

"To succeed at their trade, doctors not only need to have a sophisticated knowledge of biology, they also must master the complex clinical micro- and macro-systems in which their patients live and they work," the authors write. "Physicians must also fully understand social constructs such as class, gender, and race, explicit and implicit, that mold both how they make medical decisions and how, in turn, patients receive their care."

At Dartmouth, students take part in international service projects that expose them to the "social, political, environmental, and economic factors" that affect delivery of health care—topics that go beyond medicine alone. Meanwhile, institutions such as Harvard University, Yale University, and the University of Texas at San Antonio are incorporating the arts and humanities into their medical curricula.

Dashboard: See the hottest jobs, skills, and employers in your state

In another article for *The Conversation*, Muhammad Zaman, a professor of biomedical engineering and international health at Boston University, argues that STEM students must learn the historical context behind scientific developments to fully appreciate and understand them. Zaman points to research showing that historical narratives help students link scientific theory with practice. This experience also exposes students to how past scientists overcame early failures and challenges to make monumental discoveries.

"Looking at the story of science over centuries enables students to understand that research and discovery are continuous processes," Zaman writes. "The findings they arrive at today ... are the fruits of the hard work of real people who lived in real societies and had complex lives, just like the rest of us."

Henderson, Shoop, and Adams argue that now is the time for medical schools to place a greater emphasis, not less, on developing well-rounded students (Zaman, *The Conversation*, 8/15; Henderson et al., *The Conversation*, 8/15).

## Why STEM majors need the humanities, and vice versa

8:06 AM - May 2, 2018

Despite debates about the comparative value of the humanities and STEM, the two are more compatible than you may think, argues Marcelo Gleiser, a theoretical physicist, in NPR.

Gleiser, a professor of natural philosophy, physics, and astronomy at **Dartmouth College**, teaches a course that culturally contextualizes scientific thought. Commonly referred to as "physics for poets" by students, the course treats science and humanities as complementary ways of understanding the world, writes Gleiser.

When the lecture ventures into equations or philosophy, it's easy to guess each student's academic background—and that's not a good sign, he writes. Humanities students tend to deflate when math appears, whereas STEM students perk up. And when the class reads philosophy, the opposite happens.

The differences in how students interact with the course reveals the underlying divide between STEM and the humanities in higher ed, he argues. As the gulf between STEM and humanities widens, both disciplines lose nuance, he argues. Scientists may overlook the social consequences of technological innovation, and humanists may lose sight of technology's effect on the world.

To expose students to other disciplines, science courses should grapple with original texts, while humanities classes should tackle scientific concepts, he recommends. Research topics like climate change or artificial intelligence don't fall neatly into STEM or the humanities—to fully understand any concept requires an interdisciplinary investigation, he argues.

Some institutions recognize the importance of humanities-trained scientists and vice versa. **Cornell University**, for example, recently debuted a [data science ethics course](#) that explores the ethical gray areas data scientists face every day.

Similarly, **Wellesley College** and **Davidson College** have [incorporated more STEM](#) courses into traditionally humanities-focused curriculums (Gleiser, [NPR](#), 4/2).

AAC&U News, June 2014

## **Perspectives -At MIT, the Humanities Are Just as Important as STEM**

By Deborah K. Fitzgerald, *The Boston Globe*, April 30.

MIT is known around the world as a bastion of STEM education (science, technology, engineering, and mathematics), so it may surprise—and hopefully please—many to learn that the university believes the arts and humanities are essential elements of an MIT education, says Deborah K. Fitzgerald, a professor of history and dean of the MIT School of Arts, Humanities, and Social Sciences. MIT's mission is to prepare students to solve the world's most challenging problems, and while this does require scientific knowledge and technical skills, “the world's problems are never tidily confined to the laboratory or spreadsheet,” she says. Urgent challenges like poverty, climate change, and disease “are always embedded in broader human realities.”

To keep up with these challenges, MIT's curriculum has evolved over the years, and all undergraduates spend time studying subjects such as literature, history, and music—about a quarter of their total class time. Studying these subjects helps MIT students gain historical and cultural perspectives and develop the communication skills that allow them to listen to the concerns of others and explain their own perspectives and reasoning. Students also learn, Fitzgerald says, “that most human situations defy a single correct answer, that life itself is rarely, if ever, as precise as a math problem, as clear as an elegant equation.”

Many MIT graduates—from doctors to engineers to entrepreneurs—have testified to the usefulness of studying a broad range of disciplines, citing courses in history, literature, and philosophy as crucial to developing their empathy and critical thinking skills. AAC&U's [recent surveys of business leaders](#) confirm these testimonies—most employers are more concerned with graduates' creativity, teamwork, and communication skills than their field-specific knowledge. Developing these cross-



cutting capacities is especially crucial in a time of rapid globalization and economic change. “The stakes are high these days — for individuals, societies, for the planet itself — and we cannot be complacent,” Fitzgerald says. “Calling on both STEM and humanities disciplines — as mutually informing modes of knowledge — we aim to give students a toolbox brimming over with tools to support them throughout their careers and lives.”

## DIGITAL LEARNING IN HIGHER ED

# As Tech Companies Hire More Liberal Arts Majors, More Students Are Choosing STEM Degrees

By Sydney Johnson

Nov 13, 2018



The number of students choosing liberal arts majors is dipping. At the same time, more STEM employers are hiring workers with humanities backgrounds, according to a new [report](#) by researchers at Strada Education Network and Emsi, a labor market analytics firm.

Bachelors of arts degrees in the humanities decreased from 36 percent in 1970 to 23 percent in 2016, according to data from the Integrated Postsecondary Education Data System. Over the same time period, career-oriented majors in science, technology, engineering and mathematics crept from 64 to 77 percent.

According to the paper’s researchers, the number of workers in STEM fields with a liberal arts background is simultaneously increasing. “We are clearly seeing an uptick in the data in terms of percent growth increase in liberal arts backgrounds into technical areas,” says Rob Sentz, chief innovation officer at Emsi and one of the authors of the report.

The study points to estimates from LinkedIn that suggest “between 2010 and 2013, the growth of liberal arts majors entering the technology industry from undergrad outpaced that of computer science and engineering majors by 10 percent.”

The parallel trends are caused by a mismatch between job seekers and employers, the study argues. “The disconnect is that employers are not always great about articulating the skills they are looking for,” says Michelle R. Weise, chief innovation officer at Strada Institute for the Future of Work and another author of the report. “Even if they prioritize skills like communication, the job posting might mostly describe the technical skills.”

The report, which was released Tuesday, suggests the disconnect comes back to the difficulty employers have signaling the broad “human skills” they are looking for.

That inefficiency has been the selling point for what the report estimates to be a \$2.9 billion industry around “workforce technology.” Companies specializing in this area focus on connecting talent to opportunity, and startup accelerator LearnLaunch estimates more than 240 such companies have already been funded.

But those fragmented solutions and companies haven’t yet solved the challenges they think exist. “Everyone is building their own proprietary solution for the skills-gap problem,” says Weise.



She sees opportunity in the **increased emphasis** from the labor market for humanistic skills, such as emotional intelligence and ethics: “To say at a very granular level that this is what a human skill entails breaks down the false dichotomy we have between hard and soft skills. It’s more around how do we think about these uniquely human skills that will resist automation. It gives us a different mindset for the challenges that are ahead.”

Government leaders and education reformers alike have pushed back on the value of a liberal arts education. The report reads that “policymakers have been particularly down on the outcomes of liberal arts, questioning the value of these majors as relevant to the challenges ahead.”

And major tech companies including Google and Apple recently announced that **employees are no longer required** to have a degree on their resume.

Weise believes the tech industry’s move away from four-year degree backgrounds is a sign that more employers are looking toward skills-based hiring. “A lot of entrepreneurs moving away from this as a proxy for skills because it tends to prioritize the privileged,” she says.

Still, Sentz urges students and job seekers to not interpret those shifts as rationale to skip college, and that employers will continue to look for degrees. “Employers are getting realistic that a degree from an elite university is limiting. Will they still prefer the top talent? Yes. Are they willing to broaden their search? Yes. It’s both.”

Authors of the report say the study isn’t intended to defend the liberal arts, but fill a gap in research around quantifying the value of a humanities education. “In the past, liberal arts outcomes have always been harder to quantify because they lack of career specificity embedded in the program,” says Sentz. “If you look at nursing or computer science, the name of the outcome is in the program.”

The study found that unlike STEM majors, who are more likely to enter their field after graduation, liberal arts students experience rapid wage growth in their 30s and 40s, after working in their second or third job where they learn to articulate how their skills translate to technical fields, and after gaining some technical skills along the way.

“People coming from a liberal arts program who possess good human skills that translate to a variety of jobs are appealing because they are already good thinkers, and can be trained vertically on say, social media or programming,” says Sentz.

The report also notes shortcomings associated with a liberal arts education. Students who majored in the liberal arts were less likely than other majors “to report that their coursework was helpful or that they acquired important life skills.” And average earnings for students who major STEM fields are higher than those who study liberal arts.

Still, research shows liberal arts majors do well in the labor market. According to the study, 82 percent of workers with a liberal arts degree are employed, with the average full-time worker earning \$55,000 annually.

The authors suggest that better translating human skills such as leadership, collaboration, creativity and critical thinking—all important pillars of a liberal arts education—will be key in signaling the value of a humanities education to employers and naysayers in an increasingly tech-driven workforce.

“If you’re going to major in liberal arts, it’s not bad,” says Sentz. But “you need to spend more time thinking about how you apply that in the market.”



# STEM and the Humanities

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## Abstract

Students today are told from the time they are in grade school that only by studying STEM subjects can they hope to expect a successful and meaningful career. Many people today question the value of a Liberal Arts education as outdated and elitist, insisting that students who study the Liberal Arts do not develop the skills necessary for the modern work force. To be fair, many faculty members in STEM subjects have acknowledged the importance of a well-rounded education, but we in the Humanities have our own shortcomings in this discussion. Instead of expecting the STEM subjects to recognize the importance of the Liberal Arts, the Humanities needs to reclaim its historical foundation and end this division. STEM subjects are part of the Humanities.

## Subject Areas

Education, History

## Keywords

Stem, Humanities, Liberal Arts, History

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According to at least one university undergraduate catalog, the study of the Humanities “should be the foundation upon which every person bases his or her professional career” [1]. Yet students are told from the time they are in grade school that only by studying STEM subjects can they hope to expect a successful and meaningful career. Many people today question the value of a Liberal Arts education as outdated and elitist, insisting that students who study the Liberal Arts do not develop the skills necessary for the modern work force. To be fair, many faculty members in STEM subjects have acknowledged the importance of a well-rounded education, but supporters of the Humanities have their own shortcomings in this discussion. Instead of expecting the STEM subjects to recognize the importance of the Liberal Arts, the Humanities needs to reclaim its

historical foundation and end this division. STEM subjects are part of the Humanities [2].

In fact, recent concerns with the decline in Humanities education are nothing new. In 1908, the American literary critic Irving Babbitt insisted that the humanities studies, particularly the study of classical literature, had to be defended “against the encroachment of physical science, as they once needed to be against the encroachments of theology” [3]. In 1937, the Spenser Trask Lectures at Princeton University were devoted to the general question of the meaning of the Humanities. For his part, Ralph Barton Perry, philosopher and a student of William James, defined the Humanities as those studies conducive to human freedom [4]. From 1947 to 1949, the University of Kansas held a series of lectures concerning the Humanities in which all the contributors adamantly defended the study of history, literature, and philosophy in higher education. A 1949 “Symposium on the Humanities in American Society” held at the University of Wisconsin, lamented the decline of the Humanities in College curricula in order to make way for studies in the sciences [5].

In 1959, the British novelist and scientist, C. P. Snow, delivered a lecture at the Senate House in Cambridge, subsequently published as *The Two Cultures and the Scientific Revolution*. Snow insisted that the division of intellectual life in Western society into the separate realms of the sciences and the Humanities was a major hindrance to solving the world’s problems. Admittedly Snow was criticizing the British educational system for over-emphasizing the Humanities over the sciences, and he called for Britain to emulate German and American schools which sought to prepare their students equally in both areas [6].

Finally, in 1964 the federal “Commission on the Humanities” insisted that the expansion and advancement of the humanistic studies was in the national interest and deserved governmental financial support. This commission determined that the study of the Humanities included the following areas: the English language, literature, philosophy, modern and classical foreign languages (in their literary and historical aspects as opposed to communication skills), history and the social sciences, the visual arts, music, the performing arts, and those aspects of science and mathematics which widen man’s understanding of his environment [7].

In response to this report, federal legislation in 1965 established the National Endowment for the Humanities. This act also included a list of the subjects accepted to be humanistic; one somewhat different from that of the commission. The National Endowment for the Humanities was to oversee the study of language (both modern and classical), ethics, comparative religion, archaeology, philosophy, jurisprudence, history, linguistics, the arts, and those aspects of the social sciences which are deemed to be humanistic. Somewhere in the legislative process, mathematics and the sciences lost their humanity [8].

As technology has advanced during the ensuing half century, the separation of the Humanities from STEM subjects has become increasingly stark. Unfortunately, recent attempts to recognize the importance of a liberal education in

partnership with STEM subjects maintain a separation of the Humanities and STEM subjects instead of reclaiming a historical legacy of unity. The foundations of contemporary STEM subjects are found in the Humanities. In the classical world of Greece and Rome, an essential education prepared the individual for participation in public life. Initially the Liberal Arts included only three subjects: grammar, rhetoric, and logic, collectively known as the *Trivium*. But even here the foundations of western science and mathematics were established. Rhetoric involved more than simply persuasive eloquence. Rhetoric demanded the establishment of an argument, backed by rational criteria, elements necessary for any scientific inquiry. Similarly, all mathematics and science is founded upon the elements of formal logic. As such, in medieval times, the Liberal Arts were extended to include four additional subjects: arithmetic, geometry, music, and astronomy, named the *Quadrivium*. Admittedly, the seven liberal arts were presented in order; the *Trivium* being considered foundational for the *Quadrivium*, which was considered preparatory for the study of theology and philosophy, but a Liberal Arts education has always sought to prepare well-rounded individuals with a breadth of knowledge in all aspects of life; literary, artistic, mathematical, and technological, with a mastery of communication and critical thinking skills.

This inclusive understanding of the Liberal Arts was acknowledged and celebrated in a “Report on the Course of Instruction” at Yale College in 1828.

This document begins with these words.

In laying the foundation of a thorough education, it is necessary that *all* the important mental faculties be brought into exercise. It is not sufficient that one or two be cultivated, while others are neglected. A costly edifice ought not to be left to rest upon a single pillar [9].

This, of course, is the argument for the importance of the Liberal Arts, but the report goes on to say that the object of instruction at Yale College was to form in their students a proper character, established by a proportional balance of inquiry into the different branches of literature and science. The student was to learn deductive reasoning from mathematics and the process of induction and critical thinking from the physical sciences. English, literature, logic, philosophy, rhetoric, oratory, writing, and oral communication existed in a symbiotic union with science and mathematics, following the words of Cicero, extolling a “knowledge of many things” [10].

The original 1964 report, by the Commission on the Humanities, simply states that “the humanities are the study of that which is most human”. In today’s world, science, technology, engineering, and mathematics cannot be divorced from everyday life. The report also insists that the interdependence of science and the Humanities needs to be better understood to expand the possibilities, experiences, ideals and achievements for all humankind [11].

In an article in the *Chronicle of Higher Education*, entitled “Why Stem should care about the Humanities,” Kira Hamman, instructor of mathematics at Penn State Mont Alto, clearly presents the new plan for scientists and mathematicians to rescue the Humanities. In today’s world, one in which educational pragmat-

ists have argued that the Liberal Arts are outdated and a waste of time, one in which politicians never argue against the teaching of STEM subjects, Hamman's arguments are both necessary and appreciated. She provides three cogent reasons why individuals in STEM subjects should "stick their necks out" and stand up for the Humanities. One: being outside the disciplines under attack lends credibility to their support. Two: "We're not as different as they think," acknowledging the common goals of creativity and critical thinking in both the sciences and the Humanities. And three: the true purpose of an education is to prepare students to lead a fuller life as global citizens; that material wealth is not the primary criterion by which an education should be judged [12].

Clearly Kira Hamman is not alone in expressing these sentiments. She and others in the natural sciences openly acknowledge the importance of the Humanities and understand that a university is a place where all knowledge is celebrated, not for its monetary utility, but for its role in expanding the pantheon of ideas. Nevertheless, the Humanities should not be looking to the STEM subjects to be rescued from obsolescence. Teachers of the Humanities must stand up and reclaim their historic legacy. The core aims of all education, from the classical world of Greece and Rome, through the medieval universities, to the modern era has always been to prepare students with a breadth of knowledge in an increasing range of subjects, and a mastery of communication and critical thinking skills. As Rens Bod argues in his book, *A New History of the Humanities*, the current opposition between the sciences and the Humanities derives from the failure to recognize the pattern-seeking that lies at the heart of all learning [13].

Mathematics, and science, and geometry have always been part of a Liberal Arts education. It is no less elitist to proclaim the importance of the Humanities over science and mathematics, than it is for STEM to pronounce the death of the Humanities. The historic spirit of "university," the coming together as one, does not seek to "rest on a single pillar," but to provide students with the skills to build not just a career, but a life of value to themselves and the global community.

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