"Thinking the Human in the Age of STEM"

New England Association of Schools and Colleges
Plenary Address

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I want to thank Tom Greene for his introduction and commentary following these remarks. I'm also grateful to Barbara Brittingham for inviting me to speak this morning. I'm well acquainted with the good work of the New England Association and its Commission on Higher Education, and I'm honored to have the chance to share some thoughts about the humanities and the work of NEH.

In late October I attended the World Humanities Forum in Suwon, Korea, where scholars and leaders of humanities organizations from many parts of the world shared ideas on how the humanities can help address the extraordinarily urgent problems confronting the global community. Appropriately, the organizing theme of the forum was "The Humanities of Hope."

As I followed the proceedings, I was struck again by a paradox that has become all too familiar. The humanities are under considerable pressure in many places around the world, especially in the education sector, and in some countries education ministers, local governing officials and university administrators are discouraging students from majoring in the humanities in favor of the technical disciplines. Earlier this year, the Governor of Kentucky, Matt Bevin, planted the notion that humanities majors in public institutions should not receive public funding.

And yet, it's clear that many, perhaps most of our most urgent global problems can't be adequately described, never mind resolved, without the knowledge and methods of the humanities. The list of such problems is long: migrations, immigration and the related upsurge of nationalist movements; religious fundamentalism; the cultural significance and roots of environmental change; terrorism; the impact of information technologies on all aspects of contemporary life; the global and national prospects for democracy and democratic citizenship; the role of memory and local history in the emerging global order; and the meaning, impact and ethical challenges of new technologies in every form. And that's just the start.

While I was prepared for conversations in Suwon on the humanities and global challenges, I was surprised by what I heard from Korean government and university officials about the humanities and the liberal arts and sciences. As in the United States, there is a good deal of concern in Korea about the professional prospects of humanities majors in the marketplace. But at the same time, and very much against the grain of what's occurring in the United States, Korean educators are also positioning the humanities and the liberal arts and sciences as cornerstones of national higher education policy.

This has to do in part with the country's rich cultural legacy. Especially in light of the breathtakingly rapid technological and industrial development of the country since the 1960's, the humanities—especially history and the study of languages and literature and philosophy—are seen as essential to the preservation of Korea's impressive cultural heritage.

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But the educators I met and spoke with are also committed to the notion that the humanities and liberal arts are essential in view of Korea's—and the world's—contemporary realities. In this regard, I was struck by the constant references of governmental officials and academics alike to Artificial Intelligence—or AI, for short. AI is a hot topic in this country, of course, but in Korea it appears to function as both an explanatory and critical social theory, underscoring the significance of information technology and the connected network of smart machines to production and the economic system, but also serving as a way of organizing thoughts about what the future holds in store for technological societies, and what they must do to address its most worrisome possibilities.

In this context, the humanities and, more generally, the liberal arts and sciences, are perceived as the means of making sure we grasp the significance of what is going on around us and also as a kind of bulwark against the excessive narrowing of educational practices by the logic and imperatives of technology. Even as STEM marches ahead in Korean higher education circles, there is serious national discussion of how education at the undergraduate level can more fully incorporate the claims and values of liberal and humanistic learning.

By contrast, the conversation in the United States about the purposes of education is becoming steadily narrower and more fragmented. As Chairman of NEH, I've had the extraordinary opportunity to visit dozens of colleges and universities over the past several years, and while the terrain in that realm is certainly varied, it's clear to me that we're moving further and further away from the relatively unified vision of the ultimate purposes of undergraduate education that once gathered around the notion of the education of the whole person. In its place we have a dynamic configuration of approaches taking shape under the rubric of career readiness, embodied in fragmented curricula devoted to highly specialized forms of professional and technical education.

I will concede that the traditional consensus regarding the centrality of liberal learning has been on the wane for decades, and that it was always uneven and partial. It was also much more characteristic of elite private and public institutions than it was of professional schools or community colleges. Still, it was influential throughout the undergraduate sector, even in strong science and technical institutions, for much of the second half of the 20th century, giving form and direction to curricular thinking and reform measures.

The wave of STEM and pre-professional enthusiasm that has that has recently washed over higher education has several causes. As the recent presidential election taught us in an especially graphic and painful way, the recession of 2008-09 was much more severe and destructive than anyone knew, and the recovery has been slower than anyone wanted. At the same time, the price of attending college has continued to rise at a rate above inflation at both public and private institutions. And so parents and students are reasonably anxious about the payoff on the investment in college.

But we've also allowed ourselves to become bewitched by the steady march of science and technology, particularly in the domains of AI and information technology, which are so much more important and impressive now than they were even a decade ago. As more and more of our economic output is attributed to these disciplines and technologies, and as the rest of our lives are inundated by

the digital realm, it's been easier to persuade ourselves that scientific and technical knowledge are the only forms of knowledge worth mastering.

This is a serious mistake and we will seriously regret it in the not-too-distant future, if indeed we still have the wits to experience regret. And it's a mistake with consequences in several dimensions that we do or ought to care about.

The first dimension is the economy itself. And here, I believe, we have both overestimated the importance of technical knowledge and underestimated the economic utility and significance of humanistic learning.

I've spent most of my working life in large organizations where technical expertise is highly valued and essential to success. And what I've learned is that technical expertise by itself does not guarantee the success of either individuals or of organizations. Indeed, without the qualities and habits of mind cultivated by the humanities, technical expertise is extremely limiting.

I'm thinking first of all about the intellectual virtues promoted by the humanities, beginning with the mastery of language and the ability to communicate powerfully in both writing and speaking. Language is the foundation of all thinking and of all social relations, and it's foundational to other capacities—the ability to think through complex problems, to analyze, synthesize, criticize; the ability to enter into and comprehend the different dimensions of human experience; the ability to exercise one's imagination across a variety of contexts and problems; and increasingly, as our societies become more diverse, the ability to understand cultural differences and to engage others across lines of difference. Without possessing these language-based or related virtues in some degree, and regardless of the extent of their technical expertise, individuals will have limited success in complex organizational settings where collaboration, communication, and creative thought are essential.

Humanistic intellectual virtues also figure prominently in the success of organizations taken as a whole and, indeed, of entire economies. It is now something of a truism to note that the success of certain digital enterprises has been due as much or more to their close attention to aesthetic matters as to their technological prowess, narrowly construed. I would go further and argue that any successful business organization highly reliant on technology must have, in addition to excellent technologists, leaders and inventors who have a rich appreciation for the ways in which people interact with the company's products, and of how these products and technologies enter into the realm of human uses and needs. Without a clear comprehension of those uses and needs, technology is in effect blind, unguided by the comprehension of the deeper human purposes it serves.

For the very same reasons, it's difficult to imagine a successful economy in the contemporary world that is grounded in technical expertise alone. For the complex forms of interaction that compose economic life are in the end interactions among human beings, in all their enormous variety and complexity. We can postulate a world where only technical knowledge is valued and where economic transactions are organized around purely technical concerns. But such a world is one of automatons, not human beings.

The implications of continuing to narrow our understanding of the purposes of higher education, and of strengthening the STEM disciplines at the expense of the humanities, should also worry our political leaders. Indeed, it should worry anyone who cares about citizenship and the future of American democracy.

I say this in part against the background of the traditional linkage between education and democracy. From the very beginning of the American republic, every serious thinker about democracy has maintained that we can't have a vibrant democratic political culture and institutions without educational practices devoted to what the political theorist Danielle Allen has called "civic readiness".

Civic readiness demands several competencies, including an understanding of our local and national histories; an understanding of the principles of liberal democracy; an understanding of our democratic practices and institutions; and an understanding of the cultural composition and complexity of the world that we actually inhabit. The humanities lie at the very center of these competencies.

This traditional argument is bolstered by the contemporary shape of political life in the United States. And in this regard, the presidential election concluded last month was enormously instructive.

I am sure that most of you saw the very interesting stories in various newspapers over the past several weeks about the posting of false news stories on Facebook and other media during the decisive final weeks of the campaign. The concern about such stories and their impact on voters' opinions and inclinations is but one facet of the remarkable role social media played in the election. Social media were certainly a factor in the elections of 2008 and 2012, but it's fair to say that this was the first presidential election in American history in which political communication was dominated by such media. This includes the Twitter sphere, of course, where presidential candidates and organizations committed enormous amounts of time and energy, and where so many members of the public tuned in for information or inspiration.

This fascinating turn in the nature pf political communication raises many questions, but among the most important are those touching on the nature of political expression and judgment. How are the new forms of communication affecting the formation of political opinion? How are we to evaluate the information and assertions that come by way of new technologies? How must we now conceive, teach and exercise political discrimination and judgment?

However one answers these questions, it seems clear that they should cause us to focus more intently on the linkage between education and civic readiness in our immediate circumstances. But this is not what is happening. On the contrary, in the sphere of secondary education, most schools are devoting less and less time to civic education, if any at all, never mind the topics of political rhetoric and judgment. And in higher education, humanities requirements are becoming progressively less definite and rigorous. Even as the political sphere raises more and more complex questions and challenges posed by the new instruments of communication, the link between our educational practices and democracy is becoming weaker. If we permit this trend to continue for several more decades, we will suffer nearly irreparable damage to our democratic political culture and institutions.

What's going on in our politics is of course just one part, one facet, of the ways in which information technology is changing us. There are many others. Consider, for example, how our digital devices affect the mundane routines of our daily lives. Today, there is almost no social or private activity or space, including this one, that is not entirely mediated by digital instruments—cell phones, computers, tablets—and the programs and practices they enable. This constant mediation, so recent by historical standards, is surely changing us in important ways by interrupting our most fundamental social interactions. We have to understand this phenomenon. And to do so, we need desperately to cultivate the kind of sensitivities and methods that distinguish the humanities. These include the patient exploration of our lived experience of the world and engagement with questions of meaning.

Other kinds of enormously important questions are emerging from the STEM fields. One I have thought and written about is the technology known as CRSPR/Cas9, which gives us the power to manipulate and control the human genome. The biologist E.O. Wilson has described this invention as the most significant event in human history, and he may be right. Its special importance consists in the extraordinary power this new technology gives us regarding the very nature of human being. But as Wilson himself notes, this is not a scientific question, and science can be of no real help in answering it. It's a philosophical question (and for some a religious question) about what it means to be human. Biological science gives us this new power, but it cannot tell us what that power means, how we should deploy it, or what standards should govern its use.

There are many other less dramatic examples of the challenges that science and technology pose, but they all point back to this basic truth: the STEM fields have made extraordinary things possible, but they cannot by themselves give us perspective on what they have created, or indeed even on the fundamental nature of their own practices. Such perspective is attainable only through the investigation of the experience, meaning and consequences of scientific and technical progress for our individual and collective lives.

This leads me to make a very specific suggestion, which is applicable to colleges and universities in all advanced countries. Instead of remaining in their separate domains, the humanities and the sciences should attempt to integrate their activities. So many dimensions of contemporary life could benefit from the cooperative engagement of scholars and teachers in the humanities, the natural sciences, and applied fields like engineering and medicine.

But no amount of integration of the humanities with the natural and technical sciences will be sufficient or meaningful unless and until we are willing and able to restore at the heart of our educational practices the ambition to educate students for the full array of professional, civic and personal responsibilities they will have as adults. As I noted earlier, we used to refer to this ambition as the education of the whole person. If that language no longer suits, let's find a term that does work and that clearly unites work readiness with political and moral readiness—that equips students with the intellectual tools they will need to be political and moral as well as economic agents.

Several things need to happen if we are to recover this way of thinking talking about our educational purposes and aspirations.

First, and as I've been saying, a forward looking vision of liberal learning is one wholly committed to the liberal arts *and* sciences. Notwithstanding the lip service paid to the STEM disciplines, we can't be terribly pleased with the state of science education and literacy in this country. Science literacy must be integral to liberal learning.

Second, we must make sure that a refurbished vision of liberal learning is a fully democratic vision. With some reason, the liberal arts and the humanities are still associated in some quarters with the education of cultural and social elites. We must make the case for why the liberal arts and sciences provide the best foundation for the education of *all* of our students, irrespective of their backgrounds and social standing and career prospects.

Third, we must have strong leadership in these directions from college and university administrators, faculty and governing boards. There is very little chance, in my view, that prospective students and their parents will pressure institutions for a more generous and aspirational vision of higher education. There are just too many obstacles in their way. It's the responsibility of institutional leaders to own the question of educational purposes and of our obligations to our students, not just as members of the economic order, but in their roles as members of democratic society and the array of human communities where all of us actually live.

Fourth, institutions of higher education must be more thoughtful about the signals they are sending to secondary schools and to prospective students and parents. In a number of important ways, institutions have been riding the STEM wave and contributing to the perception that STEM knowledge is what really counts. This signaling is exacerbated by the ever increasing cost of higher education, which makes career consciousness more likely as students try to sort out their interests. Underscoring the importance of the liberal arts and sciences within the framework of greater cost and price sensitivity would certainly reduce the pressures on young people who are contemplating or making their way through college.

Let me conclude these remarks with an appeal that might generate further conversation, today or at some point in the future.

It's not easy to imagine how we begin a new conversation in this country about the purposes of higher education in the age of STEM, but I think there is probably an important role for accrediting agencies to play in any such beginning. Unlike the educational landscape in homogenous societies and cultures like Korea, the higher education community in the United States is highly decentralized and extraordinarily diverse in terms of institutional type and mission. This diversity has been one of our strengths, and it has meant that accreditors have had to assess institutional effectiveness in terms of the remarkable diversity of educational purposes that have evolved in this country over time.

But within this complex and heterogeneous context, it's not unreasonable to imagine accreditors at least pressing the question of how we educate students for the full lives that they will actually live, within their professions and also beyond them, in the wide open spaces of public life. This would be a great service to higher education and to the country as a whole, especially as the demands of technology accelerate and the forces of specialization strengthen even further.

In the spirit of the World Humanities Forum in Korea, I am cautiously hopeful that a national conversation returning to the first principles of higher education might be possible. I'll be interested to learn what all of you think. In the meantime, thank you for listening.