

# INFORMATION POLLUTION IN AMERICA

By Frank T. Manheim<sup>1</sup>

*“A people who mean to be their own Governors, must arm themselves with the power that knowledge gives. A popular Government without popular information, or the means of acquiring it, is but a Prologue to a Farce or a Tragedy, or perhaps both” - James Madison<sup>2</sup>*

## ABSTRACT

The U.S. has many distinguished universities and world-renowned research institutions. However, the “publish or perish” culture for faculty in American universities has reduced the relevance of academia to the larger society. The problem began in the 1960s when peer-reviewed publications became prime criteria for promotion and tenure in the sciences. Competition became so demanding that it left little room for producing and networking communication relevant to the larger society – even for those motivated to engage in it. Applied research lost standing in comparison with basic research and became largely abandoned.

An estimated 409,000 science and engineering articles and books a year were published in 2016 in the U.S. Many or most U.S. academic publications are neither designed for nor are used or usable by decisionmakers or the literate public. Their huge volume as well as cost for non-academic use mean that even potentially valuable data or ideas become buried. The excessive and often duplicative proliferation of disciplinary research is a major factor in university costs that have outstripped inflation. Faculty research interests overly influence the education of students not planning academic careers. Universities are supported to study problems of society but they have become part of the problem.

This paper reviews challenges for society that universities have largely ignored except as material for peer-disseminated publication. These include infrastructure, K-12 school deficiencies including lack of historical and civics knowledge critical for democratic systems, public information about politics, problems of a sensation-addicted media and loss of regional newspapers ignorance about foreign experience and affairs, financial affairs, and an overload of fragmented and duplicative articles in science. I trace the history of these developments with special focus on political science.

In short, The United States has a condition of academic information pollution. The humanities and social sciences do not promote a better-informed public. With exceptions, talent drawn into university faculty is constrained from helping resolve national problems. This paper briefly reviews weaknesses that have grown since the 60s. Special attention is given to the origin of the decline in public literacy, the “public or perish” syndrome, and developments in political science as an example of trends in the social sciences.

## INTRODUCTION

<sup>1</sup> Schar School of Policy and Government; prepared for *Leading Change*, Inaugural Conference at James Madison University, Feb. 21-22, 2019

<sup>2</sup> Letter to W. T. Barry, Aug. 4 1822

The overriding problem for American society may not be political gridlock, controversy about immigration and educational policies, poverty, elitism, governmental regulations, income inequality, health care or environmental policy, important as these may be. I suggest it is information pollution and failure by U.S. research universities to bring sound information to bear on national policies and problems.

Let's illustrate the importance of information with an extreme comparison. Haiti has a nominal GDP/capita of \$771, an average lifespan of 64 years, and a history of deprivation and misery for its citizens. With no physical resources besides its location, Singapore has a nominal GDP/capita of \$51,700 (2016), equal to that of the U.S., and an average lifespan of 84 years (U.S. 77 years) (<https://www.statista.com/statistics/270180/countries-with-the-largest-gross-domestic-product-gdp-per-capita/>).

What creates such differences? At the most basic level the key factor is the information decisionmakers and citizens use to guide their affairs. James Madison and other founders were keenly aware of the importance of an informed citizenry for democracies.

The U.S. continues to demonstrate entrepreneurship, capacities for risktaking, and out-of-the-box innovation. These are exemplified by the Internet, applications of information technology like Google, Twitter, and Facebook, and creative marketing (Amazon; Ebay). But the U.S. has fallen behind other nations in many competitive indices.

Examples of inadequate or decayed infrastructure are observed throughout society (Fig1). The U.S. has the most damaging political polarization and gridlock since the Civil War. It has departed strikingly from international scientific consensus with respect to global climate change policy. It was nearly alone among nations in failing to ratify the Kyoto Agreements and is now the only nation outside the Paris Treaty of 2016 (<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>). And polls of citizens show record low ratings for some of the nation's most important institutions like Congress, news media, and large corporations. (<https://news.gallup.com/poll/1597/confidence-institutions.aspx>).

This paper argues that our research universities have a role in these and other adverse developments. They have the potential means and responsibility to play a more constructive role in society than they have done in the decades since the 1960s. Academic leaders generate fine words to describe the role their institutions play or want to play in enhancing society, but up to the present the realities are normally too sensitive to talk about.



Figure 1. Scenes from Amtrak train passing Philadelphia (February 14, 2019).

## THE CHALLENGE FOR UNIVERSITIES

Out of 5300 colleges and universities in the U.S. (Selingo, 2015) 261 are considered research universities (Wikipedia1, 2018). They command the heights of the U.S. educational system. They have access to talent, in-depth knowledge, and financial resources. They train many of America's leaders and experts in virtually every field. They can gain access to major media and also government if they seek it. They have unparalleled opportunities to study problems of society and propose solutions. Eight American universities are among the top ten institutions of higher education in the world according to U.S. News and World Report rankings for 2018 (<https://www.usnews.com/education/best-global-universities/rankings>).

The exceptional resources of American universities suggest that they have special responsibilities to inform the public and help provide constructive solutions to problems in American society. But instead, the most meaningful sources of information have come from outside of universities, e.g. *Google* and *Wikipedia*. If our premier institutions of higher education don't serve as reliable sources of information, synthesizers of major issues, and help guide society, who can? Federal agencies and Congressional committees have powerful information gathering abilities but reversion to patronage preferences in appointments to top policymakers in Executive Branch agencies means that these organizations have lost much of the independence they held prior to the 1960s and that many European ministries enjoy today (Manheim 2009). Congressional committees are likewise strongly influenced by partisan politics and have reduced meaningful fact gathering (Pasarell 2019).

There should always be unconstrained scholarly activity in the arts, culture, philosophy and science at universities. However, I suggest that since the 1960s, American academia has gone out of control and become semi-isolated from society. An inward-oriented

paradigm has curtailed academia's potential role in identifying societal needs and problems, exploring solutions, and preparing students for constructive citizenship in society. New York Times columnist Nicholas Kristof, who earlier considered an academic career in political science, described academic PhD programs in unflattering terms (Kristof, 2014):

*A basic challenge is that Ph.D. programs have fostered a culture that glorifies arcane unintelligibility while disdaining impact and audience. This culture of exclusivity is then transmitted to the next generation through the publish-or-perish tenure process. Rebels are too often crushed or driven away.*

Academics or equivalent scholars have had significant impact on society in the past. The The Father of the Constitution, James Madison, had major influence in its design. At the time of the Constitutional Convention in 1786 there had been no democratic or representative governmental systems since the fall of the Roman Republic in 39 BC. From study of history Madison and other founders were acutely conscious of the usual fate of earlier classical era democracies. This awareness played a key role in developing the U.S.'s unique checks and balances system. In this paper I offer vignettes of national problems on which universities should have had a constructive influence. The paper also offers examples of academic leaders who had significant effects on public education – sometimes in opposite directions.

An underrated root cause of the failure of academia to have a more positive influence on society is the competition of university faculty for recognition within specialized theoretical disciplines. This has affected academic fields to varying degrees but especially applies to social sciences and humanities - fields that relate most directly to the operation of society. Social sciences include political and policy science, government, sociology, psychology, and economics. Key humanities fields are history, jurisprudence and philosophy.

The sciences as a whole produced a deluge of publications estimated at 2.5 million a year in 28,100 scholarly journals in 2014 (Boon 2017). The number of U.S. science and engineering publications has been estimated at 409,000 (Remier, 2014). Many or most of these academic publications are neither designed for nor usable by decisionmakers, the literate public, business, and other societal groups. Individual publications may represent high degrees of workmanship, but I argue that besides absorbing the time and energy of a talented fraction of society they collectively contribute to an information pollution problem<sup>3</sup>.

## **EXAMPLES OF PROBLEMS IN SOCIETAL LEADERSHIP.**

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<sup>3</sup> James Evans, a sociologist at the University of Chicago cited by Boon (2017), suggested that the profusion of papers and associated ease of online access had led to a “narrowing of science and scholarship,” an echo chamber in which many researchers cited the same small pool of more recent studies to support their claims. He surveyed articles with citations from 1945–2005 and showed that, as more articles appeared online, scientists cited fewer of them in total and cited more recent ones with higher frequency, suggesting that older literature was no longer being read and/or cited.”

**Education.** The United States has long been the world leader in years of education and expenditures per student for K-12 education. It remains on top in years of education and is among the top four nations in expenditures (IES-NCES, 2018). Given the foregoing, measures of students and citizens' knowledge are anomalously low.

PISA tests. The U.S. ranked 40th in math and 24th and 25th in science and reading among 72 nations, according to the Programme for International Student Assessment (PISA) scores in 2015 (<https://nces.ed.gov/surveys/pisa/pisa2015/pisa2015highlights4.asp>). PISA is designed to provide representative data on 15-year-olds rather than measuring high achievers. The results for the U.S. poses questions about policies and training for teachers and administrators in U.S. universities and teachers' colleges.

Stanford educator Linda Darling-Hammond reported that

*Despite years of attention to “reform” in the United States, overall achievement on international assessments such as PISA has not improved during the period from 2000 to 2012 (Darling-Hammond, 2014).*

NEA President, Dennis Van Roekel, blamed results of PISA data on poverty (Walker, 2013)

*“ . . . .’ the results are certainly not proof that we need to accelerate voucher programs, continue ineffective high-stakes testing, and scapegoat teachers. U.S. students won’t rank higher on PISA’, Van Roekel explains, ‘until the nation properly addresses poverty and its effect on students’”.*

*‘Our students from well-to-do families have consistently done well on the PISA assessments. For students who live in poverty, however, it’s a different story. Socioeconomic factors influence students’ performance in the United States more than they do in all but few of the other PISA countries.’*

The Coleman report of 1966 confirmed the importance of socioeconomic factors, as has the in-depth OECD assessment of the 2015 PISA results (Ikeda, González-Sancho, Mo, & Pacileo, 2016). However, that other than socioeconomic factors are involved is also indicated by the OECD report. For example, the U.S. had lower than average variability between schools but the highest within-school variability. This can be attributed to tracking systems that allow major differences in course material and standards of achievement. Former NY City Superintendent of Schools, Joel Klein (Klein, 2011), disputed the idea that poor children could not be taught with effective teachers and methods. He cited dramatically different results from Harlem schools in the same neighborhood.

Citizen literacy. Of concern is the 2017 poll by the Annenberg Center for Public Policy <https://www.annenbergpublicpolicycenter.org/americans-are-poorly-informed-about-basic-constitutional-provisions/>. It reported that only one of four Americans citizens

could name the three branches of the U.S. federal government. With such low levels of interest and knowledge about the operation of government can we expect citizens to make wise election decisions or have constructive influence on their children? See also (Lupia & McCubbins, 1998).

The U.S. Constitution remains highly respected and has been amazingly prescient in anticipating problems arising 230 years after its ratification. This is partly attributable to the fact that the founders were people of exceptional talent, scholars of history, and representatives of the Enlightenment who recognized that human nature changed little with time. They therefore regarded history as the critical field of knowledge for statecraft and an informed citizenry. Patrick Henry said “*I know no way of judging the future except by the past*” <https://www.memoriapress.com/articles/classical-education-founding-fathers/>.

So what kind of attention is given to student and citizen knowledge of government and history by our universities? A report by the American Council for Trustees and Alumni (Safi, 2018) found that less than a third of top American colleges and universities required that history majors take courses in U.S. history. This meant that courses like “Modern Addiction to Cigarette Smoking in the 20<sup>th</sup> Century” could fulfill history major requirements. At Harvard University core requirements for history can be met by a course on “The History of Foods”<sup>4</sup>. Brown University goes farther, proudly announcing that it has no course requirements at all <https://www.brown.edu/admission/undergraduate/content/what-open-curriculum>.

No or minimal guidance such as meaningful core requirements? This implies that students are mature, well informed and that the university’s role is to offer a cafeteria for students’ educational meal choices. It poses the question of whether universities have not been responsible for some of the societal fragmentation observed in Robert Putnam’s noted book, *Bowling Alone* (R. Putnam, 2001) or former Colorado governor John Hickenlooper’s statement “*There are divisions right now between almost every group in the country*” (Scherer, 2019).

Persistent problems include rise in costs of higher education such that student debt now exceeds credit card debt. While graduates in some fields like engineering and nursing are sought after, a 2017 study by the U.S. Chamber of Commerce found that “*only 11% of business leaders say they are confident college grads will be prepared for the workplace*” (Anonymous, 2017).

## **Financial management**

The U.S. financial crash of 2008 was a traumatic event with global impact. A canvass of all titles and abstracts submitted to the 2018 conference of the *American Economic Association*, the premier professional association for economists, found only one paper that warned of financial danger. Only a handful of papers even dealt with fundamental economic conditions (Frank Manheim, 2013)<sup>5</sup>. What are 17,000

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<sup>4</sup> A student canvasser for Harvard University in 2017 was asked whether Harvard had history

requirements, responded “*Yes, and I fulfilled mine by a course in The History of Foods*”.

<sup>5</sup> Papers for the Conference were submitted well before the crash.



academic professors and researchers doing that supersedes the importance of the underpinnings of the economy?

## **Media**

From a peak in public respect for news media in the Edward R. Murrow era during and after World War II, a Gallup blog of June 2018 reported polls of public attitudes to the effect that

*“62% of the news they see in newspapers, on TV and hear on the radio is biased, 44% of it is inaccurate and 39% is misinformation”*

During the 2016 election unprecedented numbers of untruths by candidate Donald Trump were reported by fact checkers (Kessler, 2016)<sup>6</sup>. However, New York Times political analyst, Nicolas Kristof, made a rare acknowledgment that the media had played into candidate Trump’s bold strategies and was a key factor in his success in the election. Notwithstanding editors’ overwhelming revulsion against Trump (Manheim, 2016), the media gave him an estimated 2 billion dollars in free publicity. Major media’s coverage of the campaign did not involve lies or made-up news, but it created bias difficult to discern by the general public. It did this through omission or simplification of news in order to increase sensation and reader impact.

For example, when Donald Trump announced his candidacy for the Republican nomination in June 2015 the media pounced on his inflammatory statements about illegal immigrants. Leading papers and online media ignored the fact that Trump had previously supported Democratic politicians and policies and enthusiastically greeted President Obama’s first year in office in a book in 2009 (Trump & McIver, 2009). Given the influence by the Tea Party and other conservative influences on the Republican Party in recent years, highlighting this background might have changed the course of the election. By the time Trump’s history was brought to light in a dedicated issue of the *National Review* some six months later, Trump already held a commanding lead.

With exceptions like Harvard sociologist, Theda Skocpol (Putnam & Skocpol, 2018), a Ukrainian-American political scientist (Korostelina, 2017) and a blow-by-blow account of the 2016 elections, (Ceaser, Busch, & Pitney, 2017), academic experts largely avoided Trump and his campaign in their professional publications, notwithstanding the unprecedented nature of his impact on American politics.

## **Economics**

The record rise in U.S. inequality in income and wealth was reported in new detail by French economist, Thomas Piketty and coworkers beginning in 2003 (Piketty 2014). By utilizing records from the Internal Revenue Service, they gained much finer detail than had been available in Census Bureau data (Fig. 1). Why did it take French- trained rather than some of the estimated 17,000 American economists to achieve these breakthroughs?

<sup>6</sup> False statements by other politicians were reported but Trump's lack of concern for truth was by far the most blatant.

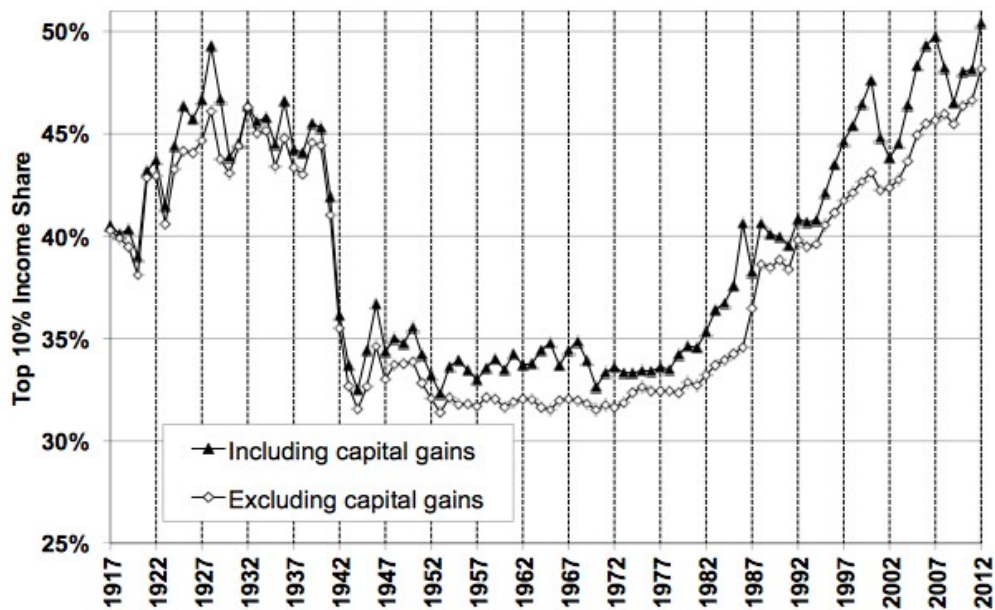


Fig. 1 Share of national income by the top 10% of earners. Data of Saez and Zucman, (2014).

## Environment

A sense of national crisis over federal environmental management was triggered by an offshore oil spill in January 1969. Pictures of oiled ducks and blackened sands of Santa Barbara beaches flashed on nightly news TV screens throughout the nation. Loss of confidence in federal regulators led to unprecedentedly rigorous environmental laws and regulations in the 1970s (Fig.2 ) (Manheim, 2009, 2014a) The laws achieved rapid reduction in pollution, but unanticipated byproducts led to an industrial-economic slump in the 1970s (Kendrick & Grossman, 1980) and a new level of litigiousness in American society (Fig. 2).

The issues have gotten only rare exposure in media or academic publications, though the associated conflicts have dramatic impact on both the U.S. economy and global climate change policy (Manheim, 2016). Academic environmental books and programs with rare exceptions fail to question the 1970s and subsequent laws, even though they differ fundamentally from more balanced, cooperation-promoting environmental policies of advanced European nations.

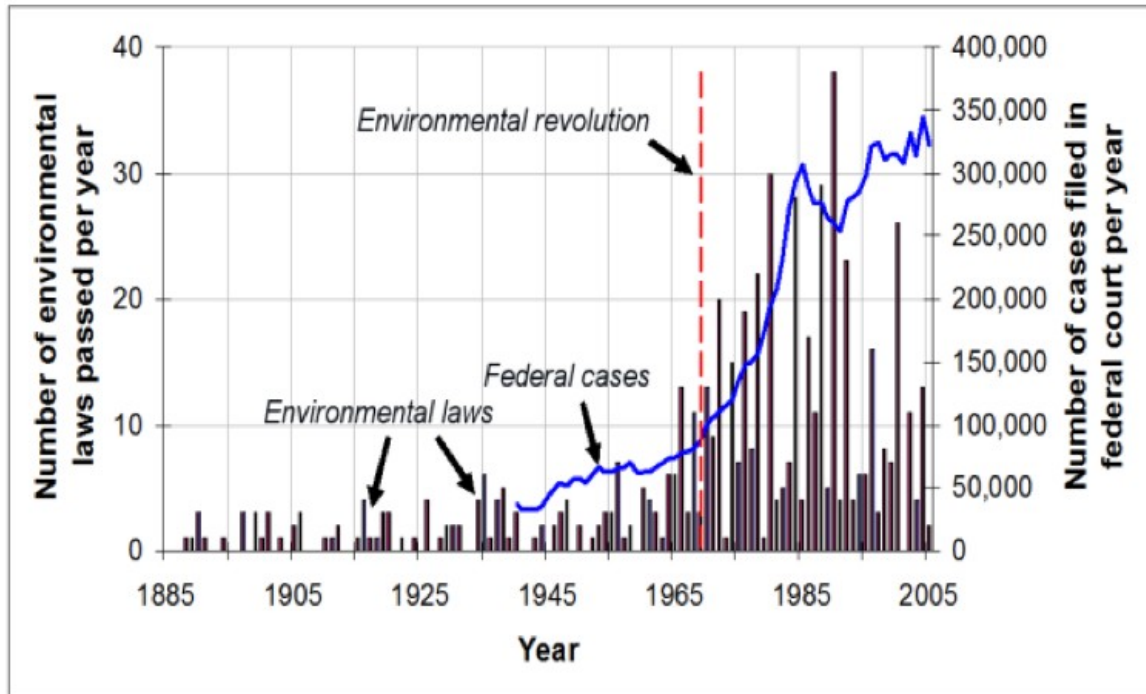


Fig. 2 Historical plot of environmental laws passed per year and lawsuits filed in federal court (Manheim, 2014b).

### Medical research vs health

The U.S. conducted 29% of the world's medical research in terms of published medical reports between 1995 and 2014 (Boon, 2017). Americans are heavily represented among Nobel Prize laureates in medicine. But this stellar record contrasts with less favorable news. For the second year in a row in 2018 the U.S. was the only advanced nation to decline in life expectancy since World War II. U.S. life expectancy in 2017 was 77.1 years, compared with Japan at more than 85 years (CIA, 2018).

The U.S.'s health costs exceed those of advanced nations (Fig. 3), although the U.S. fails to provide comprehensive coverage available in EU member nations. Finally, instead of training an adequate number of physicians to meet domestic needs, the U.S. is increasingly siphoning off immigrant doctors and nurses whose training is paid for by poor nations that desperately need their services (Parsi, 2008). Would not the problems referred to above be appropriate subjects for concerted research and reform initiatives by leading university medical schools and policy programs?

Health consumption expenditures per capita, U.S. dollars, PPP adjusted, 2017

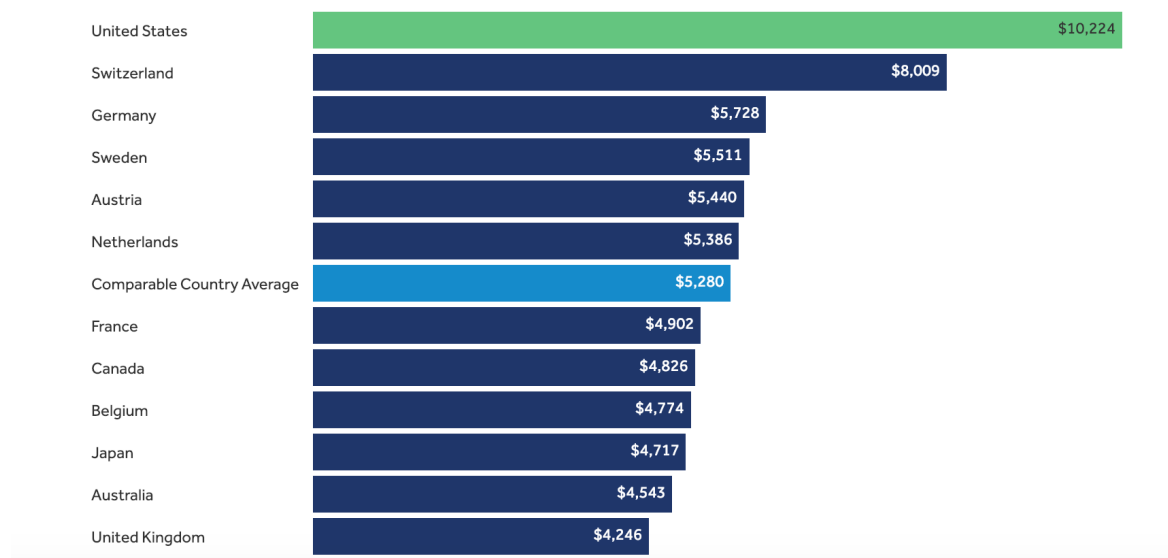


Figure 3. International health care costs per capita. Data from Sawyer and Cox (2018) <https://www.healthsystemtracker.org/chart-collection/health-spending-u-s-compare-countries/#item-average-wealthy-countries-spend-half-much-per-person-health-u-s-spends>

## TRANSFORMATIONS: LEADERS WHO INFLUENCED AMERICAN PUBLIC EDUCATION

Two Harvard educational leaders, now mainly forgotten, had profound impact on U.S. education – in different directions.

### **Charles William Eliot: creating the research university and the classical high school curriculum**

Eliot (1834-1926) was Harvard’s longest serving (1869-1909) and most influential president. A chemistry and mathematics professor at Harvard, he travelled to Europe in 1863 to study educational institutions and systems. Eliot explored every aspect of education, including finance and public service. On the strength of his report in *Atlantic Monthly Magazine* in 1869, the youthful Eliot (35 years of age) was nominated for the open position of President of Harvard University in the same year. Historian Samuel Morison reported on his inaugural address: “The delivery lasted an hour and three-quarters, during which one might have heard a pin drop”. Eliot began:

*“The endless controversies whether language, philosophy, mathematics, or science supplies the best mental training, whether general education should be chiefly literary or chiefly scientific, have no practical lesson for us today . . . We would have them all, and at their best.”*

Eliot further declared that:

*“The poorest and the richest students are equally welcome here, provided that with their poverty or their wealth they bring capacity, ambition, and purity. (Warner & others, 1918).”*

Eliot is credited with transforming Harvard from a provincial college to the preeminent research university in America. His first major action broke with existing university practice in allowing undergraduates to choose a large proportion of their courses<sup>7</sup> Subsequent innovations were widely emulated by other universities (Wikipedia<sup>2</sup>, 2018).

Responding to a commission from the National Educational Association (NEA) in 1892, Eliot convened the “Committee of Ten” that oversaw development of the “classical” high school curriculum model (Committee-of-Ten, 1894)<sup>8</sup>. Nine workshops involving leading educators explored all aspects of secondary education, culminating in the most comprehensive plan for high school education in the history of the U.S. There was unanimity among the leaders that students going on to college (a small but important minority) and those not going to college should take the same general curriculum. It was intended to serve students’ working lives and help them become informed citizens. The unified curriculum reflected the Committee’s concern to avoid educational stratification. It emphasized languages, English, history, mathematics, and science, and presumed appropriate preparation in elementary school.

In her earlier books the dean of chroniclers of American education, Diane Ravitch (Ravitch, 1978, 1985, 2000) detailed battles over U.S. education. She noted the change in educational philosophy by the NEA after the turn of the 20<sup>th</sup> Century. Influenced by progressive writers like Stanley Hall, Edmund Thorndike, David Snedden, Albion Small, and, most influential of all, John Dewey, the NEA rejected the “classical” model. Many progressives thought it unrealistically demanding. (Dewey, 1900) felt that American education should prepare youth for life, society, and work in practical directions.

A new NEA Commission in 1918 (Kliebard, 2002) declared that the “Cardinal Principles for Secondary Education” should be:

1. *Health* 2. *Command of fundamental processes*. 3. *Worthy home-membership*. 4. *Vocation*. 5. *Citizenship*. 6. *Worthy use of leisure*. 7. *Ethical character*.

Objections to subject-centered rather than child-centered education have continued to the present. While the comprehensive review of the progressive movement by Cremin (Cremin, 1961) included the Committee of Ten curriculum, more recent writers on the history of American education like (Mondale & Tyack, 2001) omit mention of the classical model altogether.

In spite of the overwhelming dominance of progressive views in the published literature, an in-depth survey of reform programs by a committed progressive: *The Emerging High-*

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<sup>8</sup> Ironically, Eliot moved toward progressivism after 1900 (Ravitch 2000 p. 115).

*School Curriculum and Its Directions*, (Spears, 1940) acknowledged that the classical model continued to dominate state standards and was far from dead in 1940.

*“Although studies estimate that curriculum reorganization in America is reaching every third or fourth teacher, only a small percentage of the 25,000 high schools have done more than take a few scattered pot shots at the enemy”.*

Reduced experimentation during the war years may have been a factor leading Cremin, cited by Ravitch (2000), to regard the progressive movement (rather than the classical curriculum) as dead in the 1950s. Evidence from multiple sources suggests that the classical curriculum achieved maximum influence in the first two decades of the 20<sup>th</sup> Century. It became modified and supplemented with vocational subjects with time but remained influential until the 1960s. It may not be a coincidence that the time of maximum influence of the classical curriculum matches historian John Milton Cooper’s conclusion that the decades from 1900 to 1920 were high points in public literacy (Cooper, 1990):

*“... “The periodical Press stood at its apex from 1900 to 1920. Excellent newspapers and magazines had flourished earlier and would flourish again later. But at no other time have so many high-quality periodicals reached such a large proportion of the population and with so much influence.”*

### **Francis Keppel and the affective educational reforms of the 1960s**

Another Harvard educational leader, Francis Keppel (1916-1990), was the prime mover in transforming U.S. education in the 1960s. Raised in a family concerned with social reform, Keppel earned a B.A. in English literature at Harvard in 1938. After a year in Rome, Italy, Keppel returned to Harvard, rising in administrative positions. His charismatic personality captured Harvard President James Bryant Conant, who selected him as dean of the Harvard School of Education in 1948, although he had only a B.A. degree.

In 14 years as dean Keppel quadrupled his school’s size and increased applications tenfold. Keppel was especially interested in innovations and testing ideas for reform of U.S. public education that to variable degrees had retained influence from the “classical” high-school curriculum earlier established by the “Committee of Ten”.

*“He also promoted experiments in team teaching, programmed learning, curricular reform, and educational television . . . forged ties to other departments in the social sciences and humanities at Harvard. He was a widely respected leader nationally as well, serving on a number of important committees, task forces and councils.”* (Rury, 2017)

Appointed Commissioner of Education by President John F. Kennedy in 1962, Keppel became Assistant Secretary for Education in the Department of Health, Education, and Welfare in 1965, the highest government office associated with education. His leadership skills, contacts, and commitment to progressive educational goals made him exceptionally influential. He is credited with being the chief architect of the *Primary and Secondary Education Act of 1965* (Rury, 2017). ESEA’s Title I provided funds for

teaching poor and disadvantaged children. Equally important, it gave the Assistant Secretary broad influence in distributing financial incentives and encouraging national education policies along lines described in Keppel's book, *The Necessary Revolution in American Education* (Keppel, 1966).

While its intentions were praiseworthy, ESEA and the stimulus it gave for introducing new educational methods had documented negative effects on subsequent school performance, detailed in Manheim (Manheim, 2019). In the 1950s the U.S. was the world leader in public education, measured by years of schooling, proportion of citizens with post-secondary education, as well as cognitive measures (Barro & Lee, 2013; Hanushek & Woessmann, 2009). However, in 1983 the Report of the National Commission on Excellence (*A Nation at Risk*) found that SAT scores declined every year for 14 years from 1964 (Fig. 4). Among the conclusions were that

*“Nearly 40 percent of 17-year-olds could not draw inferences from written material”.*

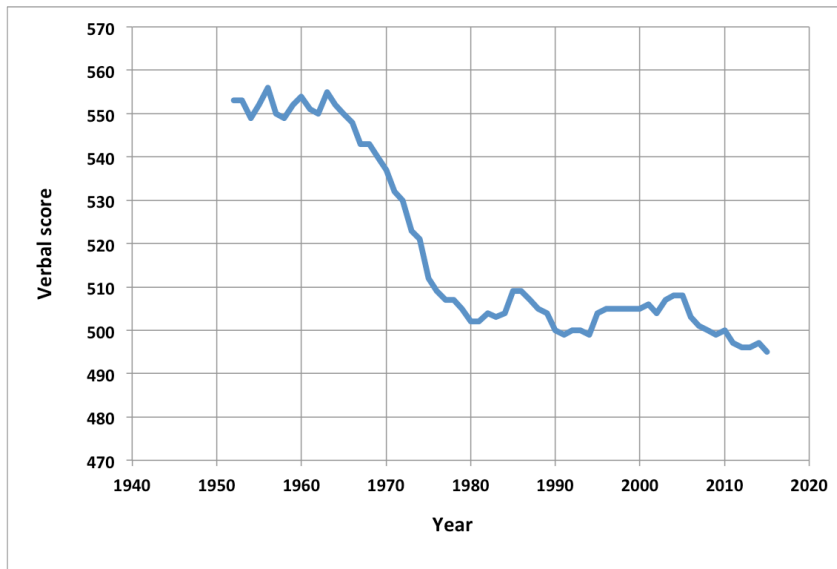


Fig. 4 Scores on the Scholastic Aptitude Test (SAT), 1950-2012 ((Erikthered, 2019; Jacobsson, 2018).

In an article in *Atlantic Monthly*, Joel Klein, Chancellor of New York City's schools from 2002 to 2011, delivered a scathing account of American education (Klein, 2011, 2014). He noted that on the National Assessment of Educational Progress (initiated by Francis Keppel) one-third or fewer of eighth-grade students were proficient in math, science, or reading.

Defenders of American education like Berliner and Glass (Berliner & Glass, 2014) have criticized negative interpretation of PISA test scores on grounds that they failed consider increasing numbers of poorer U.S. students taking the tests. Such criticisms fail to note



that from the 50s to the middle 60s SAT scores remained constant in spite of increase in test takers. The sudden onset of score declines is better explained by the fact that until the middle '60s elementary schools generally required meeting standards for promotion. . However, affective reforms in the middle '60s introduced social promotion in the elementary grades nationwide. This led to students being passed through the grades with unremediated deficiencies and ultimately given high school diplomas. An average of over 20% of high school graduates were functionally illiterate (below basic levels in text and computational literacy) according to 2003 data from the National Center for Educational Statistics (NCES).

Joel Klein cited examples from New York City schools that showed that disadvantaged children could learn given appropriate leadership rather than child-adaptive approaches. Klein concluded that

*“we’re rapidly moving toward two Americas—a wealthy elite, and an increasingly large underclass that lacks the skills to succeed.”*

Ironically, this outcome was opposite to the motivation and expectations of Keppel and other 1960s reformers.

## **TRANSFORMATION OF THE AMERICAN UNIVERSITY, 1960-1980; THE ORIGIN OF “PUBLISH OR PERISH”<sup>9</sup>;**

### **Changes after WWII**

Before the war the dominant role of faculty in American universities was teaching. Personal research was pursued during the summer or fitted in during the academic year. World War II brought dramatic change. Science policy historian (Smith, 1990) noted the leading role of thousands of scientists in the war. This was capped by the “. . . enormous stature of international physicists whose brains had conceived the atomic bomb” (Manheim 2009)

In 1944 Vannevar Bush, science adviser to President Roosevelt and Director of the Office of Scientific Research and Development (OSRD), was asked to develop a postwar plan that would turn the awesome power of science revealed during the war to peaceful development. Bush’s influential book: *Science: The Endless Frontier* (Bush, 1945) and his intensive politicking ultimately led to the National Science Foundation Act, signed by President Truman in 1950. Surprisingly, given his engineering background and practical focus, Bush’s “linear concept” was that basic research stimulates technical and practical advances (Zachary, 1999)<sup>10</sup>. NSF’s guidelines therefore effectively excluded applied research, especially research with potential commercial value. The spindly initial NSF had an authorization of only \$250,000 and was envisaged as serving elite scientists in special institutions.

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<sup>9</sup>This section is extracted from a more extended treatment in (Manheim 2009)

<sup>10</sup> I speculate that Bush may have been influenced by the extensive technical developments stimulated by the concept and subsequent building of the atom bomb

The Soviet Sputnik flight in 1957 shocked the nation’s leadership. It led to a boom in science research funding and huge growth in university graduate research and education. In 1956 the nation had 16 centers for ocean and marine research. By 1976 NSF listed 134 marine science centers, some as far from the ocean as Iowa. NSF’s unrestricted research grants judged by peer scientists gave them high value and prestige. Academic leaders lobbied Congress to expand them. Social sciences were added to NSF’s research grants in the early 60s.

Vannevar Bush himself became disillusioned by scientific research developments in the 1960s (Zachary, 1999). Zachary cites earlier experience against the “linear theory”, but the Defense Department’s ten-year study of the genesis of military breakthroughs, *Project Hindsight* (Sherwin & Isenson, 1967), delivered powerful new evidence. Basic research in the universities was shown to have contributed minimally to defense breakthroughs such as satellite navigation. Nevertheless, guidelines against funding applied research continued in awards by the National Science Foundation. An applied research program (RANN) was initiated in 1968, but shut down in 1977. The prestige and potential financial rewards for basic research in discrete disciplines led to peer-reviewed research and publication becoming prime credentials for promotion and tenure in universities (Fig. 3).

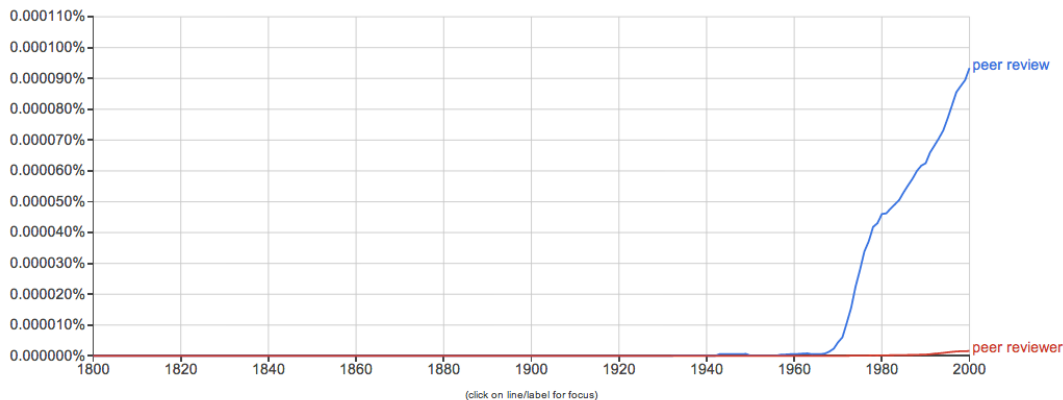


Fig. 3. Google Ngram Viewer time plot for references to “Peer review” in millions of books digitized by Google

### **An entrepreneurial publisher discovers a captive market for books in post WWII science**

In occupied Germany after World War II Captain Robert Maxwell, a Polish- Ruthenian decorated for service in the British army, recognized opportunity in marketing prewar German scientific publications (Haines, 1988). Building on his success in this enterprise, the creative Maxwell bought control of Pergamon Press in the U.K. and began marketing books and journals based on new business models.

Before World War II publishers sought books that were authoritative and lent themselves to multiple editions. This lowered cost, which along with content was important because the main market for books was individual purchasers. Maxwell’s new insight was that

there were now enough scientific libraries obligated to purchase all books pertinent to fields of interest so that book prices could be based on this market alone.

Maxwell also founded discipline-oriented scientific journals with internationally based scientists listed as editors on the masthead. Individual scientists received steep discounts from library subscription fees. Maxwell's innovations were soon adopted by the Dutch Elsevier Company and other publishers. Journal and book publications burgeoned. Almost any subject, however arcane, could now be published at elevated prices. Published books became a desirable or required credential for academic promotion and tenure. The tradeoff was that academic book publications diverged to become a high-priced publishing field independent of the trade book market.

### **Loss of societally applicable research**

Competitive pressures for research and publication in specialized academic fields increased. Combined with teaching responsibilities, they left university faculty little time for the time-consuming process of producing and networking applied research relevant to the larger society. By the end of the 1960s many universities largely abandoned applied research, which lacked equal standing for promotion and tenure. This trend extended to research-active federal agencies like the National Oceanic and Atmospheric Agency (NOAA) and the U.S. Geological Survey (Manheim, 2009, Chapter 8). Units of USGS Geological Division utilized the *Science Citation Index* in evaluating candidates for promotion.

Engineering was also affected. In 1962 MIT, which had long been a leader in sanitary (sewage) engineering, changed the name of this course to environmental engineering (<https://libraries.mit.edu/mithistory/research/schools-and-departments/school-of-engineering/department-of-civil-and-environmental-engineering/>). Ultimately, MIT's experts became scattered to other institutions when engineering education moved toward research and theory in the 1970s and '80s. According to professor of engineering history, Bruce Seeley (MIT), training of engineers became more compatible with jobs as professors in engineering schools than jobs in industry or public works (Seely, 1999, 2007). This shift in the engineering profession is suggested to indirectly contribute to the deterioration of U.S. infrastructure and decline in manufacturing.

### **POLITICAL SCIENCE AS AN EXAMPLE OF TRENDS IN THE SOCIAL SCIENCES AND HUMANITIES**

In 2014 an American Political Science Association (APSA) task force (Lupia & Aldrich, 2015) urged political scientists to get more involved with public outreach. The need to improve the image of political science was underscored by a Congressional appropriations bill in 2013. It deleted new political science grants from the U.S. National Science Foundation budget; <https://www.aaas.org/political-science-budget-cut-nsf-scientists-speak><sup>11</sup>.

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<sup>11</sup> Restored in subsequent years

In the same year of 2013 a former political scientist published a withering article in the influential *Atlantic Magazine* (Ferenstein, 2013). Its title asked Congress to “Please Defund Political Science”. Among other things, academic practitioners were described as absorbed with “hyper-analytic mathematical, psychological, and anthropological study of civic behavior” that had little value for decisionmakers or the literate public. They also did little to prepare students for careers outside academia. A professor was quoted admitting that he regarded teaching mainly as a means of subsidizing his research. Notre Dame scholar and administrator, Michael Desch (Desch, 2015) observed that since the 1960s technique came to trump relevance in political science.

Personal inquiry with leaders at APSA and the Midwest Political Science Association in 2016 indicated that appeals or critiques like those of Lupia and Ferenstein, above, had little traction with membership of the associations. Some individuals even offered heated rejection of efforts to tell them how to do their work. Rejection was a fate earlier met by the “Perestroika” movement for reform of political science (Bennett, 2002).

Political scientists are typically highly knowledgeable. They get research material from practical politics. However, a major problem is that an estimated 95% of their publications are disseminated through professional media (Manheim, 2018) that are neither designed for nor used by decisionmakers or the literate public (Shulock, 1999).. The result is proliferation of a mass of professional publications in which even the best books or useful ideas may be inaccessible to policymaking because they are buried in the deluge.

Movements toward social relevance by academic policy and political science entities have been observed in Virginia institutions. These include the Virginia Center for Politics, founded by professor of political science and political analyst, Larry Sabato. Affiliated with the University of Virginia, its main focus is civic education and engagement  
[http://everything.explained.today/University\\_of\\_Virginia\\_Center\\_for\\_Politics/](http://everything.explained.today/University_of_Virginia_Center_for_Politics/).

The Schar School of Policy and Government at George Mason University, Arlington and Fairfax Virginia recently entered into cooperation with *The Washington Post* newspaper to produce polls of political opinion in Virginia. Dean Mark Rozell and other faculty are frequently called on by media to comment on political developments like the watershed Virginia elections in 2017 (Rozell, 2017). At James Madison University since 2010 the 4-VA program has shared courses across disciplines and between academia and industry. The leadership school has mandatory “externships” with industry and other societal organizations.

However, current policies in many if not most American political science departments inhibit contributions to practical politics and public knowledge in three ways. First is the priority on theoretical treatments and methodology published in specialized professional media. Next is the role played by peer-reviewed publications as prime credentials for academic promotion and tenure (not unique to political science). Competitive requirements for success in this system are demanding enough so that along with

teaching responsibilities they leave little room for the time-consuming process of building networks and practical connections in society – even for faculty that might be motivated to make such contributions. Finally, as a result of the above factors, faculty with affinity for the camaraderie and challenge of discipline-oriented research have an advantage in academia over those with practical societal motivations. The latter are likely to leave the field or move to institutions with a broader societal focus. A trend in the latter direction can be discerned in merging of political science departments into centers incorporating broader social science themes.

## **DISCUSSION AND CONCLUSIONS**

What can we learn from university development in the last century, and especially since World War II?

### **Education**

Gifted and motivated leaders have been able to create major changes in national educational policies. When Charles Eliot brought national educational leaders together to develop a consensus model for high school curricula in 1894, the results are said to have led to a flowering of literacy in the U.S. (1900-1920). The “classical curriculum” experienced change with time but retained influence through the 1950s, helping bring U.S. public education to the highest level in the world. It minimized educational stratification except for the African American population that was affected by legally-imposed discrimination until 1954.

Another gifted leader, Francis Keppel, reflected the growing appeal of progressive educational policies. He skillfully led passage of federal law in 1965. *The Elementary and Secondary School Act of 1965* was primarily designed to address disparities in education for poor children. It was successful in helping reduce the influence of child poverty. However, the legislation simultaneously facilitated nationwide introduction of experimental educational policies. Contrary to the intention of the framers, these led to lowering of educational performance and public literacy that remain problems today. It led to educational stratification between a small fraction of students taking advanced and rigorous courses and the majority getting weaker material.

This suggests that promoting educational change through the federal government is risky. Flawed, counterproductive, and controversial policies will be less subject to correction than initiatives taken by state and local units. Given the effect of electronic communications in fragmenting U.S. society, and the lowered status of university presidents, it seems less easy to convene leading educators to reach consensus than it was for the Committee of Ten in 1892.

### **University isolation from society**

The “publish or perish” syndrome that came to dominate U.S. university promotion policies in the 1960s is argued to have directly or indirectly affected education, science, financial management and economics, environment, public health, industry, and infrastructure. Competition for publication of peer-reviewed research is favored by

emphasis on novelty, challenge to existing theory, and mastery of formal methodology. These emphases are at variance with the breadth of approach, balance, and candor needed by decisionmakers in society. They consume much of the energy of faculty. Administrators and faculty who are aware of the problems rarely talk or write about them because of the sensitivity of the issues. They don't want to bite the hands that feed them but the results of the system have created information pollution in America.

## History

The cited problems in K-12 and higher education emerged after World War II. However, their roots can be interpreted to lie in headstrong characteristics of American society described by the classic French student of American democracy, Alexis De Tocqueville (Tocqueville, 1835, 1840)<sup>12</sup>. According to a pioneering overview of the American university (Jencks & Riesman, 1968) faculty effectively took over leadership in American universities in the 1960s. This reduced the potential leadership role of presidents who had greater ability to be concerned with the larger responsibilities and longer-term relationships of universities to society, whereas faculty were understandably focused on their more circumscribed concerns.

## Other outcomes

This paper describes competition within U.S. academia as diverting faculty from concern for the responsibility of universities to students and society. The effects are most pronounced in the social sciences and humanities, but affect physical and natural science fields to variable degrees. Costs of the university system have consistently outstripped inflation. This has led to student debt exceeding total national credit card debt. In recent years universities have drawn increasing criticism for inadequate preparation of students for careers outside academia. These and other problems add pressure on universities to become more responsive to societal needs. Changes are taking place but the publish or perish syndrome still has a firm grip.

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<sup>12</sup> There is something of a U.S. cottage industry of articles and books dispelling popular myths. Academic parallels for articles and books frequently end titles with “. . . *and how to fix it*”. A Google Scholar search on this phrase yielded 286,000 articles and books with this phrase.

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