

The Myth of the Sputnik Moment: contesting the dominant narratives of the NDEA of 1958

Jason Stone

Oklahoma State University

January 15, 2013

## Introduction

The Russian novelist Leo Tolstoy wrote, “History would be a wonderful thing, if only it were true” (The World of Quotes, 2011). Indeed, scholars like James Loewen and Carolyn Baker have made their professional reputations, in part, based on a several instances of contesting the dominant or “master narrative” of US history (Loewen, 1995 and Baker, 2006). Loewen asserted in *Lies my teacher told me: everything your American history textbook got wrong* that much of US history is an amalgam of optimism, blind patriotism and misinformation (Loewen, 1995). Both Baker and Loewen declare that much of this misinformation is based on religious, financial, and cultural pretexts (Loewen, 1995 and Baker, 2006). At the heart of both authors’ pedagogical perspectives, are criticisms of dominant narratives and American exceptionalism.

This writing examines the National Defense Education Act of 1958 (P.L. 85-864), henceforth referred to as NDEA, through the prism of Loewen’s contested narratives. Scores of historical writings have perpetuated the dominant narrative of the NDEA as a response to the “Sputnik moment”. A myriad of historical and educational scholars alike all expertly retell and codify the acceptance of this dominant narrative about the launch of Sputnik (Geiger 1998, Harris and Miller, 2005, Jolly, 2009, Kay, 2009, and Rosenweigs 1998). Invariably, these writings frame the NDEA origins in remarkably similar fashion. That framings includes the following elements: the United States was completely surprised by the Soviet launch of Sputnik (some of these writings actually describe the launch as the Pearl Harbor of the Cold War); early Soviet successes and the subsequent American rocket failures highlighted serious deficiencies in America’s ability to compete with the USSR in space; hence, the logical policy response to such a glaring deficiency was the infusion of massive amounts of money into America’s scientific,

technological, and higher education systems; finally, the construction of the National Aeronautical Space Administration was also necessary to coordinate US space initiatives and regain the momentum from the Soviets.

This dominant and accepted version of this history ends with the federal government encouraging the development of multiple doctoral and graduate programs and with NASA forming strong and lasting bonds with higher education institutions to staff the aforementioned agency. Because of these brilliant policy decisions, America is able to overcome its initial failures and beat the Soviets in the space race to the moon. Despite not winning the contest to put an object into orbit and lagging behind in manned space flight, the US is able to catch up because of legislation like the NDEA and successful coordination from NASA. Based on this summary of the dominant narrative, the exceptionalism of the United States is reaffirmed.

In the broadest sense, the purpose of this writing is to challenge the dominant narrative of America's higher education response to Sputnik. Specifically, that challenge to the dominant narrative will explore the following major topics: the NDEA as legislation, the paradox of US historical amnesia, the value of transgressing dominant historical narratives in general and the NDEA dominant narrative in particular, and the convenient bargain between government and higher education in the construction of the NDEA narrative.

### **The NDEA as legislation**

This section of this paper analyzes the NDEA as legislation. First, this section will review the Titles of the NDEA. Second, this section will report what it would cost to fund this legislation in today's dollars adjusted for inflation. Recently, the political axiom, "Never let a good crisis go to waste", has been attributed to Chicago Mayor and former President Obama White House Chief of Staff, Rahm Emanuel ([www.Brainyquote.com](http://www.Brainyquote.com), 2011). Undoubtedly, the

Democratic Party led by Lyndon Johnson also understood this wisdom when they roused public opinion to support the infusion of nearly \$1 billion dollars over four years with the passage of the NDEA in September of 1958 (Launius, 2010).

The NDEA contains ten titles or implementation sections which articulate eight larger programs or areas of emphasis. These larger programs as articulated in the NDEA, PL-85-864, are described in the Figure 1 below:

*Table 1: Enabling provisions of the NDEA*

Title Number:	Title Name:	What the title was designed to do:	Total Allocation (in millions of dollars):
1	General Provisions	Declaration of policy, Federal control of education prohibited, Definitions	\$0,000,000
2	Loans to students in institutions of higher education	Lowest interest loans to students in need.	\$295,000,000
3	Financial assistance for strengthening science, mathematics and modern foreign language instruction	Lab and/or audio/visual equipment, capital improvements, state subsidized loans	\$300,000,000
4	National defense fellowships	Awarded 5,500 fellowships to graduate students studying at new or newly expanded graduate programs in areas designated by the NDEA Commissioner.	No specific allocation stated. Provision says whatever it takes. Includes yearly payments of \$2,000, \$2,200 and \$2,400 each year for a maximum of three years. Also includes a stipend of \$400 yearly for each dependent

5	Guidance, counseling, and testing: Identification and encouragement of able students	Part A: Funded Talented and Gifted Programs for states. The states were given block grants and encouraged to identify and stimulate with additional educational opportunities talented and gifted	Part A: \$60,000,000
		Part B: Higher education training for individuals to attend secondary school guidance counseling institutes	Part B: \$28,000,000
6	Language Development	Part A: Development of language and cultural centers to be determined by the Commissioner to augment defense, industry, or education. Possible cultural areas to help in the emersion of language include: history, political science, linguistics, economics, sociology, geography, and anthropology.	\$32,000,000
		Part B: Higher education stipends for students to attend the language centers on short or long-term basis	\$29,000,000
7	Research and experimentation in more effective utilization of television, radio, motion pictures, and related media for educational purposes	Part A: Use of the new media of the day, Television, radio, video tapes, films, slides, or audio recordings to deliver subject matter. Part B: Dissemination of the results of study of improved utilization of television, radio, motion pictures. Part C: Established an advisory council to implement this title. The Commissioner is supposed to listen to the advisory council.	Parts A, B, C: \$18,000,000
8	Area vocational educational programs	Amends the Smith-Hughes Vocational Education Act and the George-Barden Act and amends those pieces of legislation to reauthorize them and provide funding.	\$45,000,000

9	Science information service	Title directs the National Science Foundation to establishes the Science Information Service to develop mechanized systems for the distribution of scientific knowledge	No specific allocation stated. Provision says whatever it takes. Volunteers to the Council are to be paid \$50.00 per day for their services.
		Directs the National Science Foundation to establish the Science Information Council which is to advice the above mentioned Service about how to accomplish its charge. The composition of the Council is specified.	
10	Miscellaneous provisions	Clarification of implementation, conflict of interest, etc.	\$,000,000
Total:			\$807,000,000

Based on this information taken from the text of the NDEA, it is also interesting to note that 807 million in 1958 dollars would be worth just over 6 billion dollars today adjusted for inflation. To put that into context, according to the General Accounting Office Budget Service the US Department of Education will spend 193 billion dollars in 2011 (GAO, 2011).

While none of the programs that were federally funded in the NDEA would be controversial today, it is interesting to note that the law actually had a provision, Section 102, that specifically prohibited federal control of education. Subsidized federal loans, fellowships in high needs area, talented and gifted programs, block grants to states are standard, educational practices in 2013. However, at the time, the NDEA was perceived as being the most sweeping educational bill to be passed into law since the Morrill Act of 1862 (Background, 1998). Indeed, scholars such as Robert M. Rosenzweig has said that the Republican response to the bill was to characterize it as the proverbial “camel’s nose in the tent” Rosenzweig (1998). While Rosenzweig agrees with the republican criticisms of the bill that the NDEA did serve as a gateway first step that enabled more federal involvement in education policy, he concludes,

“Although camels are said to be difficult animals to manage, I think this one has been worth the trouble” (Rosenzweig, 1998, paragraph 14).

### **The Paradox of US historical Amnesia**

James Loewen is neither the first nor will he be the last scholar to embrace the importance of contesting history (Loewen, 1995). Loewen articulates several problems with the failure of journal articles and textbooks to include contested narratives. Loewen prepared his scathing criticism of US history books by examining the 12 most popular high school history texts in circulation at that time. Loewen blames greed and economic stratification as the primary reasons why most history books are such vapid failures. After all, it is commonly held wisdom in publishing circles that history books sell more copies if they do not offend the localities that will be purchasing them. Furthermore, Loewen criticizes the teaching of history in chapter 10 as designed to reinforce the dominant, racial, class, religious, and gender paradigms of the status quo, “To maintain a stratified system, it is terribly important to control how people think about that system (Loewen 1995, 268). Obviously, Loewen’s analysis borrows from the work of Karl Marx, Paulo Freire, and Henry Giroux.

Loewen articulates serious problems with the way US history scholarship frames events such as: Columbus’s “discovery” of America, Jefferson’s rhetorical elegance in the Declaration of Independence, the “founding father’s (sic)” ambivalence to the institution of slavery, Jefferson’s “purchase” of Louisiana from French, the relocation of American Indians to reservations, the absence of anti-racism arguments, the ingrained deference to the federal government, and the onward and upward trajectory of US progress (US exceptionalism). In several interviews, and indeed throughout the *Lies my teacher told me* text, Loewen encourages teachers to teach *against* (or contest) the text (Loewen 1995).

Loewen is not the only scholar to make such an assertion regarding the content of history books and the pedagogy of historians. Historian Peter Vickery shares how he unmasks the subtle and overt oppression of the dominant paradigm (Vickery 2008). Vickery asserts that by failing to question the dominant narrative in classes and in historical scholarship, that the dominant narrative serves the purpose of calcifying and bolstering the status quo. In an excellent article in the publication *Radical Teacher*, Vickery, who teaches an introductory history class at a New England Community College, encourages teachers to engage in three critical behaviors to subvert the oppression of the dominant narrative. Vickery encourages teachers to embrace uncoverage, contestability, and inquiry.

Briefly, uncoverage is the act of rejecting the compulsion to treat a history course as a sprint to the end of the semester. Pedagogy should resist the temptation to cover everything in the book or indeed everything that might fit under the rubric of the course. Instead, pick out the 30 or 50 facts or understandings that you want students to take with them from the course. Next, contestability is undoubtedly the most important in the context of this writing. Contestability for our purposes means embracing the text as fallible or recognizing the text as the product of choices about how to treat the material. Students must acknowledge the text is a piece of propaganda with an agenda. Finally, inquiry encourages the students to ask questions and to explore the history for themselves. Here, Vickery denounces the notion that students should be passive receptacles of historical information. Vickery gives a difficult midterm and then gives a make-up exam for anyone desirous of extra points. The midterm encourages the students to ask a question of their own choosing. In other words, to frame their own access points for inquiry and contemplation.



Putting aside Vikery's pedagogical invitations, the conclusion of all this literature is inescapable. American history is frequently imbued with an agenda. The recognition of this systemic misinformation campaign on the part of some history books and some historians is important in the context of the NDEA. Loewen asserts that history is often used as "a weapon" to maintain the status quo (Hicks, 2000). That argument is consistent with the purpose of this writing – to transgress the dominant narrative of the NDEA as an example of using history as a pretext for militarism, oppression, and/or injustice. Indeed, viewing the passage of the NDEA as a necessary response to a moribund American education system is simply using education as a whipping boy by invoking crisis rhetoric and demagoguery.

The writings of these historical scholars and professionals are elegantly summed up in one word: amnesia. Dictionary.com defines amnesia as "a temporary or permanent inability to remember a large block of interrelated memories Dictionary.com (2011). This condition is typically caused by shock or traumatic injury." Loewen (1995) and acolytes of his work assert that the amnesia is based on the belief that America must be the best country in the world; that America always tries to do the right thing; that America is the most egalitarian, just, and fair country that has ever existed. Clearly, America is a stratified country with a long and undignified history of military aggression, barbarism, racism, slavery, and patriarchy (Churchill, 2003; Mander, 1992). The presence and acknowledgment of the undignified components of our history does not make our country any less great (Richardson 2010). However, according to Loewen, the failure to confront and own all of our collective history does infantilize our citizenry and make US citizens more ethnocentric ((Loewen 1995, Richardson 2010). Finally, Loewen asserts that as informed citizens of this republic we have a moral and ethical obligation to contest

oppressive dominant narratives at every turn. Armed with Loewen's ethical obligation, a deconstruction of the NDEA as a constructed dominant narrative is appropriate.

### **Transgressing the dominant narrative of the NDEA**

R.D. Launius recently published a criticism of the historical context leading up to the construction of NASA. In this work, he alludes to the passage of the NDEA as directly related to the same fear-mongering, political demagoguery, and military-industrial profiteering which contributed to the creation of NASA later in 1958 (Launius 2010). Of all the scholarship reviewed for this writing, Launius most elegantly summarizes the dominant narrative of the construction of NDEA and the creation of NASA with his summary of the "master narrative" of the immediate aftermath of the Sputnik Launius (2010):

It had a "Pearl Harbor" effect on American public opinion, creating an illusion of a technological gap and provided the impetus for increased spending for aerospace endeavors, technical and scientific educational programs, and the chartering of new federal agencies to manage air and space research and development (p. 256).

Of course, Launius's summary is an attempt to put his finger on the pulse of the dominant narrative. Launius article then begins to deconstruct the dominant narrative. Launius argues that the United States had a decided advantage in ballistic missiles, rocket technology, and scientific knowledge (Launius 2010). Other scholars, such as Gerald Bracey, have asserted that this advantage was a product of the fact that the United States had secured Wernher von Braun, and a sizable contingent of his staff (Bracey, 2007). Von Braun was the chief architect of the German V-2 rocket. His services were secured through Operation Paperclip (Wikipedia, 2011). A classified military program designed to harvest the best and brightest scientist from Nazi

Germany during the destruction of the Third Reich. The United States was several decades behind the Germans in constructing viable space faring rockets at the end of World War II, but because von Braun was the preeminent rocket scientist of the day, the US was not hampered by some insidious knowledge gap that allowed the Soviets to beat us into space. The problem was one of political gamesmanship, organization, and vision, not educational instructional infrastructure.

In fact, Gerald Bracey (2007) asserts that the US could have beaten the Soviets into space by over a year, but Eisenhower chose not to. Bracey's cogent analysis cites quotations from Deputy Defense Secretary, Donald Quarles, Werner von Braun, and Eisenhower himself. The ultimate aim was to establish space as an uncontested open area. Eisenhower was positive that we could leverage more good out of open space than the Russians. He was weary not to upset Cold War tensions in the wake of the Frances Gary Powers/U2 spy plane debacle, so he allowed the Russians to win the first leg of the space race. Eisenhower was miffed that his political opponents, including Lyndon Johnson, were able to demagogue the issue so successfully and that the issue subsequently gained as much traction in the news cycle as the media allowed it to. Finally Eisenhower miscalculated how the general public would respond to all that rhetoric (Bracey 2007).

Launius argues that the NDEA was not a necessary, logical, and appropriate step in the face of the "Sputnik crisis" (Launius 2010). Indeed, Launius uncovers correspondence from Democratic strategist George Reedy to then Senate Majority Leader Lyndon Johnson in October of 1957. In Reedy's letter, he lays out a plan to use the Sputnik launch and the tepid Eisenhower response as a political football. Reedy pinned that the Sputnik issue, if handled correctly, had the potential to, "blast the Republicans out of the water, unify the Democratic Party, and elect you

President” (Launius 2010, 258). Johnson held a press conference the next day and began to demagogue the subject as Reedy had advised. Johnson said, “Soon they will be dropping bombs on us from space like kids dropping rocks from freeway overpasses” (Bracey 2007, 119). Johnson did such an artful job criticizing the Eisenhower administration’s response to the Sputnik launch that NDEA was passed within one year.

The portion of the dominant narrative that deserves contesting is the assumption that the NDEA was needed to fix ailing and underfunded graduate programs in math, science, technology, and engineering that were not capable of producing qualified rocket scientists. Indeed, America’s universities were producing more scientists than at any other point in our history (Geiger 1997). Furthermore, no comparative data existed to evince the claims being made by Johnson, the media, or democrats (Launius 2010). In fact, it is important to note that the United States was pursuing a variety of military rocket programs, at least 119 (Steeves Bernhart Burns and Lombard 2009) unrelated to satellite orbit. Additionally, the US was only 13 years removed from the dropping of the atomic bombs at Hiroshima and Nagasaki. Research into atomic weapons was robust and connections between Tier One research universities and the research/science agencies with the federal government were robust (Geiger 1997).

In short, far from causing a panic, most informed Americans were cognizant and proud of their fledgling space program. According to Launius, Margaret Mead the famous sociologist was conducting public opinion polls (Launius 2010). The US had the technological capability to beat the Soviets into orbit by years or months. However, Eisenhower’s ideological disdain for big government and failure to grasp the, what Joseph Nye (2004) would refer to as “soft power”, implications of being first in space set back the US’s superior spacefaring capacity. Lyndon Johnson used the issue to advance his electoral aims. And the US system of higher education

allowed itself to be constructed as a villain, or perhaps more accurately a whipping boy, to secure funding (Steeves et al 2009). This last argument will be addressed in the next section.

### **The Rhetoric of American Educational Crisis (Convenient Bargain)**

Central to the passage of the NDEA is the meme that America's education system had fallen behind. Remarkably, this argument was not really supported with any data. No internationally recognized standards for math, science, reasoning, or reading existed. It was impossible to compare the two countries output without agreed upon equitable measures (Steeves 2007). In fact, even the most basic reporting of degrees conferred by institutions of higher learning was not available in the Soviet Union. The educational historian Geiger, laments that the debate was practically devoid of sound comparative evidence (Geiger 1997). Extending this argument nearly a decade later, Bracey cites that the only available statistically significant evidence in this controversy was marshaled by Paul Elicker, the Executive Secretary of the National Association of Secondary School Principals, who cited US Army entrance exams scores from World War I (Bracey 2007). Elicker compared the entrance exam scores to those of GI's inducted into World War II service, and demonstrated that there was a measurable improvement from 1918 to 1941 from an average of a 6.8 to an improved 10.5 grade level.

Both Bracey and Steeves *et al* aim the blame for the use of the education system as the Sputnik crisis whipping boy squarely at *Life Magazine* (Bracey 2007 and Steeves et al 2009). In 1958, *Life* covered the Sputnik launch with a five part pictorial series in their then venerated publication. From a rhetorician's standpoint, the deconstruction offered by Bracey and Steeves et al of the Life magazine artifact is amateurish, but these scholars are to be commended for being the first in this corpus of literature to place the blame for the erroneous perception of the US educational system as lagging behind the Soviets as a media construction. The description

“amateurish” is accurate because Bracey and Steeves *et al* do not apply any rhetorical theories or prisms to the photo layouts. Additional deconstruction using the tools of the rhetorician’s trade would be a welcome extension of this argument for an eager communication or media scholar.

Perhaps some rhetorician will take up the call to more carefully examine this artifact in future works. What Bracey and others lack in theory and application, they make up for in perception and accuracy. The *Life* series used a series of photos taken/staged in American and Russian high schools as the basis for why the Russians got to space first. A few students were profiled. One Russian high school boy played chess, went to science museums, and read algebra books and the compiled works of Marie Curie, the pioneering physicist/chemist for fun. The American high students recoiled from the math-equation filled blackboard and made self-deprecating wise cracks about their lack of math ability, while going to sock hops, swimming and playing baseball. The message is a fabrication, but it was successful. The five part series included scores of anecdotal misrepresentations in the absence of more exact data. The effect was just as George Reedy had predicted and Lyndon Johnson had hoped – a massive infusion of cash into one of the Democratic party’s long-time constituent groups, educators.

Having unmasked how the public arrived at this tragically misinformed conclusion, let us turn our attention to why the American higher education system was so willing to be whipped by Lyndon Johnson, *Life* magazine, and other luminaries of the day. American higher education was enjoying a resurgence in research. The end of the Korean War and the rebound of the economy were translating into more funding for research at the typical America’s university. However, scientists lamented that most of that research funding was going to elite scientists at elite universities and for the purposes of applied or programmatic research (Geiger, 1997). Scientists wanted to conduct basic research to advance their disciplines not perform experiments for the

military-industrial complex (Bracey, 2007). According to educational historian Launius, in this climate, the leaders of higher education saw political advantage in becoming a whipping boy for Johnson and others who were attempting to make political hay of Eisenhower's vacillation and failure to disclose his strategic thinking behind the "opening of space" to all (Launius 2010). In fact, Steeves et al extend this analysis to encompass the periodic demonization of higher education by policy makers and industry (Steeves et al 2009). This astute analysis concludes that US higher education has been treated as a whipping boy once periodically and in the face of many national crises since the launch of Sputnik (Launis 2010).

Furthermore, we are currently in the midst of another instance of corporal punishment! Beginning with the whipping given to higher education in the immediate aftermath of Sputnik, a cycle of crisis, fear-mongering and reform has paralyzed American education in general and higher education in particular (Steeves, 2009). The launch of Sputnik coupled with the subsequent fear-mongering and blame gamesmanship prompted congress to pass the NDEA. Twenty years later the federal government released *A Nation at Risk*. Twenty years after *A Nation at Risk* the federal government passed No Child Left Behind (NCLB). For scholars wishing to criticize these policies and/or the rhetoric associated with these two pieces of legislation, Steeves et al (2009) is a must read. This section of this writing has summarized the major historical context that led to the convenient bargain of American higher education being blamed as the cause for the Soviets beating the US into orbit. The next section will unmask why that deconstruction is so important.

### **The Mythos of American Exceptionalism**

The myth of American Exceptionalism is well documented in political science literature. Historian James Loewen and many other scholars and social scientists assert that the onward and

upward myth of American progress poses a legitimate threat to the fabric of America because the myth serves to make our society more ethnocentric (Richardson, 2010). The rhetoric behind the passage of the NDEA contributes to the fabric of that ethnocentrism (Launius 2010). Launius emphasizes that the dominant narrative of America at first falling behind and then miraculously catching up to the Soviets only reinforces US exceptionalism. Loewen charges historians and educational scholars to act and write as though we are stewards of history (Loewen 1995). Paying careful attention to this moral obligation, obliges us to transgress and challenge the dominant narrative of the Sputnik launch and the subsequent baseless and destructive demonization of higher education. This narrative must be contested, transgressed, debunked, refuted, challenged, and rejected. This transgression furthers the aim of more accurately imparting our history to the next generation, enriches the fabric of democracy, and helps to break down the myth of US exceptionalism (Loewen, 1995). Social critic, journalist, and academic Godfrey Hodgson recently critiqued this construct in his 2009 book *The Myth of American Exceptionalism*:

“my thesis is not that American exceptionalist thought is intrinsically corrupting or that it was destructive in the past; rather, what has been essentially a liberating set of beliefs has been corrupted over the past thirty years or so by hubris and self-interest into what is now a dangerous basis for national policy and for the international system (Hodgson, 2009, 175).”

Hence, the obligation to deconstruct, contest, and transgress ideas that bolster American exceptionalism are important to global security. By accessing Hodgson’s important perspective on American exceptionalism the importance of the present endeavor is more fully illuminated.

## **Conclusion**



NDEA was not the federal government's first or only foray into controlling education policy. However, many historians view it as being an important piece of legislation, which in the words of Rosenweigs, would only be the 'nose of the camel peeking into the tent'. Indeed, a significant body of work has described the legislation as a gateway, a watershed, or a first step (Toppo 2007, Kinnaman 1998, Manegold 1994). Viewing the legislation from this perspective it is obvious that the NDEA was important to shaping not only many modern educational policies, but the NDEA was also important in shaping how educators were and are viewed by the larger society. It is lamentable that the political and rhetorical aftermath of the Sputnik launch was and is still used to frame American educators as responsible for so many ills not of their making.

The contesting of the dominant narrative in this regard is critical to making sure that educators are afforded the dignity and respect that they deserve for the valuable public good that they produce. As such, it is important for educators to be mindful of how they are framed in the media and to transgress those dominant narratives if they are based on historical inaccuracies or misinformation.

### Bibliography

- Background, First. "In Federal Support for University Research: Forty Years After the National Defense Education Act & the Establishment of NASA." Last modified 1998. Accessed November 21, 2011. <http://cshe.berkeley.edu/events/ndeaconference1998/background.htm>.
- Baker, C.L. *U.S. history uncensored: what your high school textbook didn't tell you..* Lincoln, NE: iUniverse Publishing., 2006.
- Bracey, G.W. "The first time everything changed." *Phi Delta Kappan*. no. 88 (2007): 119-136.
- Brainyquote, First. Last modified October 07, 2011. Accessed November 21, 2011. <http://www.brainyquote.com/>.
- Churchill, Ward. *On the justice of roosting chickens: Reflections on the consequences of U.S. imperial arrogance and criminality.* Oakland, CA: AK Press, 2003.
- www.dictionary.com, First. Last modified October 08, 2011. Accessed November 21, 2011. <http://dictionary.reference.com/browse/amnesia>.
- Geiger, R.L. "What happened after Sputnik? Shaping university research in the United States." *Minerva*. no. 35 (1997): 349-367.
- Geiger, R.L. CSHE, "Sputnik and the academic revolution. In Federal Support for University Research: Forty Years After the National Defense Education Act & the Establishment of NASA." Last modified 1998. Accessed November 21, 2011. <http://cshe.berkeley.edu/events/ndeaconference1998/geiger.htm>.

- Harris, M.M. "Needed: reincarnation of National Defense Education Act of 1958.." *Journal of Science Education and Technology*. 14. no. 2 (2005): 157-171.
- Hicks, D. "Lies, damned lies, and history: an interview with James Loewen." *Social Education*. 64. no. 4 (2000): 212-216.
- Jolly, J.L. "A resuscitation of gifted education." *American Educational History Journal*. 36. no. 1 (2009): 37-52.
- Kay, S. "From Sputnik to Minerva: education and American national security." *Defense Horizons*. 65. no. 1 (2009): 1-8.
- Kinnaman, D.E. "Sputnik revised." *Curriculum Administrator*. 33. no. 7 (1998): 68.
- Launius, R.D. "An unintended consequence of the IGY: Eisenhower, Sputnik, the founding of NASA.." *Acta Astronautica*. (2010): 67,254-263.
- Loewen, J.W. *Lies my teacher told me: what your American history textbook got wrong*. New York City, NY: The New York Press, 1995.
- Mander, J. *In the absence of the sacred: The failure of technology and the survival of the Indian nations..* San Francisco, CA: Sierra Club Books, 1992.
- Manegold, C.S. "Bleak education report; decades after Sputnik science education still lags.." *New York Times*, August 21, 1994.  
<http://www.nytimes.com/1994/08/21/weekview/aug-14-20-bleak->

education-report-decades-after-sputnik-science-education-still.html  
(accessed November 21, 2011).

Nye, J.S. *Soft Power: the means to success in world politics*. New York, NY: Perseus Books, 2004.

Operation paperclip, First, ed. 2010.

[http://en.wikipedia.org/wiki/Operation\\_paperclip](http://en.wikipedia.org/wiki/Operation_paperclip) (accessed November 21, 2011).

Richardson, J. "Lies and American history: an interview with James W. Lowen." *Phi Delta Kappan*. 91. no. 7 (2010): 17-22. [www.ptkintl.org](http://www.ptkintl.org) (accessed November 21, 2011).

Rosenwidge, R.M. "Remarks by Robert M. Rosenweig. In Federal Support for University Research: Forty years after the National Defense Education Act & the establishment of NASA." (1998).

Smith, B.M. "The beep heard round the world." *Phi Delta Kappan*. 88. (2007): 82.

Steeves, K.A., P.E. Bernhardt, J.P. Burns, and M.K. Lombard.

"Transforming American educational identity after Sputnik."

*American Educational History Journal*. 36. no. 1 (2009): 71-87.

Vickery, P. "Progressive pedagogy in the U.S. history survey." *The Radical Teacher*. 83. (2008): 10-13.

<http://www.jstor.org/stable/20710467> (accessed November 21, 2011).

World of quotes, First. Last modified October 10, 2011. Accessed November 21, 2011. <http://www.worldofquotes.com/>.

US Congress, Public Law. "National defense education act. Washington, D.C.: US Government." (1958).

[http://wwwedu.oulu.fi/tohtorikoulutus/jarjestettava\\_opetus/Troehler/NDEA\\_1958.pdf](http://wwwedu.oulu.fi/tohtorikoulutus/jarjestettava_opetus/Troehler/NDEA_1958.pdf) (accessed November 21, 2011).