Stem 1NC

Neg: Wants to keep STEM edu. The same, not increase/decrease since its perfectly fine STATUS QUO SOLVES (the aff is inherent)

**1NC – Competitiveness**

**Squo Solves –**

**1. No STEM worker shortage – 6.8 million STEM degree holders without STEM jobs, slow wage growth**

**Camarota and Zeigler 14** - Steven A. Camarota, Director of Research for the Center for Immigration Studies (CIS),doctorate degree from the University of Virginia in public policy analysis, Karen Zeigler, Demographer for the Center for Immigration Studies, Master’s in Justice, Law, and Crime Policy from George Mason University (Is There a STEM Worker Shortage?" , Center for Immigration Studies, 5-19-2014, Available Online from https://cis.org/There-STEM-Worker-Shortage, Accessed on 7-17-2017 by JS)

While employers argue that there are not enough workers with technical skills, most prior research has found little evidence that such workers are in short supply. This report uses the latest Census Bureau data available to examine the science, technology, engineering, and math (STEM) fields. Consistent with other research, the findings show that the country has more than twice as many workers with STEM degrees as there are STEM jobs. Also consistent with other research, we find only modest levels of wage growth for such workers for more than a decade. Both employment and wage data indicate there is no shortage of STEM workers in the United States. Using the most common definition of STEM jobs, total STEM employment in 2012 was 5.3 million workers (immigrant and native), but there are 12.1 million STEM degree holders (immigrant and native). Only one-third of native-born Americans with an undergraduate STEM degree holding a job actually work in a STEM occupation. There are more than five million native-born Americans with STEM undergraduate degrees working in non-STEM occupations: 1.5 million with engineering degrees, half a million with technology degrees, 400,000 with math degrees, and 2.6 million with science degrees. An additional 1.2 million natives with STEM degrees are not working — unemployed or out of the labor force in 2012. Despite the economic downturn, Census Bureau data show that, between 2007 and 2012, about 700,000 new immigrants who have STEM degrees were allowed to settle in the country, yet at the same time, total STEM employment grew by only about 500,000. Of these new immigrants with STEM degrees, only a little more than a third took a STEM job and about the same share took a non-STEM job. The rest were not working in 2012. Overall, less than half of immigrants with STEM degrees work in STEM jobs. In particular, just 23 percent of all immigrants with engineering degrees work as engineers. In total, 1.6 million immigrants with STEM degrees worked outside of a STEM field and 563,000 were not working. The supply of STEM workers is not just limited to those with STEM degrees. Nearly one-third of the nation's STEM workers do not have an undergraduate STEM degree. Wage trends are one of the best measures of labor demand. If STEM workers are in short supply, wages should be increasing rapidly. But wage data from multiple sources show little growth over the last 12 years. Real hourly wages (adjusted for inflation) grew on average just 0.7 percent a year from 2000 to 2012 for STEM workers, and annual wages grew even less — 0.4 percent a year. Wage growth is very modest for most subcategories of engineers and technology workers.

(because no stem worker shortage, AFF plan is irrelevant and unnecessary)

**No STEM gap—females account for 50% of people in STEM already**

**Cummins 15**—Denise, research psychologist, author and a fellow of the Association for Psychological Science, 4-17-2015, "Why the STEM gender gap is overblown," PBS News Hour, <http://www.pbs.org/newshour/making-sense/truth-women-stem-careers/>, accessed 7/28, JMB

Men do not outnumber women in all STEM fields Gender equity in STEM means that **females** account for **50 percent of** the individuals involved **in STEM** fields. When we look at the percentage of STEM bachelor’s degrees awarded to female students for the last two decades, based on NSF statistics, we find that there is no gender difference in the biosciences, the social sciences, or mathematics, and not much of a difference in the physical sciences. The only STEM fields in which men genuinely outnumber women are computer science and engineering. I created the following graphs, based on NSF data, to show women’s completion of bachelor’s degrees and PhDs in specific fields between 1991 and 2010. At the Ph.D. level, **women have clearly achieved equity(Aff argument of shortage of women is irrelevant, since these statistics prove them wrong; no need for more STEM education)** in the biosciences and social sciences, are nearly there (40 percent) in mathematics and the physical sciences, and are “over-represented” in psychology (78 percent). Again, the only fields in which men greatly outnumber women are computer science and engineering. When we look at the actual workforce, we see the same pattern. Women are as likely as men to be biological scientists, medical scientists and chemists. They are much less likely than men to be computer scientists, but have achieved equity in three out of five areas, with computer science and geoscience being exceptions. 2. **Women and men are equally** capable of doing STEM work One explanation for sex difference in STEM fields is that women just don’t have what it takes to succeed in the “hard” sciences, computer science, or engineering. Some have even argued that women are not smart enough for these fields. The fact is that **men and women score equivalently** on tests of raw IQ, with some studies showing women scoring slightly higher. When it comes to mathematics—a core requirement for science and engineering—women score on average only 32 points lower than men on the SAT— a mere 3 percent difference. While men outnumber women in the “genius” SAT math score range (700-800), the ratio is not that large (1.6 to 1). Men show only an insignificant five-point advantage over women on the quantitative section of the Graduate Record Examination, and they score one point lower than women on the analytic section. It is also not the case that more undergraduate men than women are selected by top engineering programs. Of the top STEM programs in the country, most have male-to-female undergraduate student ratios close to 1:1. 3. Sex-linked interest preferences are not mere artifacts of socialization One interpretation of the sex difference in STEM careers (and the workforce in general) is that females are pressured into areas that are more “gender appropriate,” not that they are choosing to study what is intrinsically more interesting to them. For example, former American Association of University Women senior researcher Andresse St. Rose, one of the authors of ”Why So Few? Women in Science, Technology, Engineering, and Mathematics,” puts it this way: Another common but somewhat misguided explanation for female underrepresentation in STEM is that while girls and young women may be just as able as young men, they are not as interested in science and engineering. From early adolescence, girls report less interest in math and science careers than boys do (Turner et al. 2008), and among children identified as mathematically precocious, girls were less likely than boys to pursue STEM careers as adults (Lubinski and Benbow 2006). Girls’ lower reported interest in STEM may be partially explained by social attitudes and beliefs about whether it is appropriate for girls to pursue these subjects and careers. The problem with this “blank slate” interpretation of gender differences is that it doesn’t jibe with results of developmental studies. Newborn girls prefer to look at faces while newborn boys prefer to look at mechanical stimuli (such as mobiles). When it comes to toys, a consistent finding is that boys (and juvenile male monkeys) strongly prefer to play with mechanical toys over plush toys or dolls, while girls (and female juvenile monkeys) show equivalent interest in the two. (See this for summary of this research.) These sex-linked preferences emerge in human development long before any significant socialization can have taken place. And they exist in juvenile non-human primates that are not exposed to human gender-specific socialization efforts. It is not difficult to see how such early emerging preferences can end up shaping career choices later on: Women tend to gravitate toward fields that focus on living things and agents, men to fields that focus on objects. 4. Different preferences don’t mean women’s are less important The hidden assumption underlying the push to eliminate gender gaps in traditionally male-dominated fields is that such fields are intrinsically more important and more valuable to society than fields that traditionally appeal to women. The hidden assumption underlying the push to eliminate gender gaps in traditionally male-dominated fields is that such fields are intrinsically more important and more valuable to society than fields that traditionally appeal to women. So we must turn women into men so that women can achieve economic parity with men. As Facebook Chief Operating Officer Sheryl Sandberg put it in her book “Lean In,” we need to set a goal of getting more women “in the door” of male-dominated, prestigious, and high-paying fields, even if doing so requires that women act more like men. But what happens when women follow this advice and follow the “lure” of prestige and wealth offered by male-dominated professions? Kate Bahn, an economics Ph.D. candidate at the New School, put it this way in her blog The Lady Economist:

**STEM is not key to innovation or competitiveness – the US’s history in both of these departments is derived from creativity and diversity - Japan and Israel both prove. By increasing STEM, one is cutting down on other essential programs like the fine arts.**

**Zakaria 15** Fareed Zakaria, a columnist for The Washington Post, is the host of “Fareed Zakaria GPS” on CNN and the author of “In Defense of a Liberal Education,” 2015, “Why America’s obsession with STEM education is dangerous,” The Washington Post, 03/26, <https://www.washingtonpost.com/opinions/why-stem-wont-make-us-successful/2015/03/26/5f4604f2-d2a5-11e4-ab77-9646eea6a4c7_story.html?utm_term=.475e605bf8aa> Accessed 07/28/2017 //jsaltman

If Americans are united in any conviction these days, it is that we urgently need to shift the country’s education toward the teaching of specific, technical skills. Every month, it seems, we hear about our children’s bad test scores in math and science — and about new initiatives from companies, universities or foundations to expand STEM courses (science, technology, engineering and math) and deemphasize the humanities. From President Obama on down, public officials have cautioned against pursuing degrees like art history, which are seen as expensive luxuries in today’s world. Republicans want to go several steps further and defund these kinds of majors. “Is it a vital interest of the state to have more anthropologists?” asked Florida’s Gov. Rick Scott. “I don’t think so.” America’s last bipartisan cause is this: A liberal education is irrelevant, and technical training is the new path forward. It is the only way, we are told, to ensure that Americans survive in an age defined by technology and shaped by global competition. The stakes could not be higher. This dismissal of broad-based learning, however, comes from a fundamental misreading of the facts — and puts America on a dangerously narrow path for the future. The United States has led the world in economic dynamism, innovation and entrepreneurship thanks to exactly the kind of teaching we are now told to defenestrate. A broad general education helps foster critical thinking and creativity. Exposure to a variety of fields produces synergy and cross fertilization. Yes, science and technology are crucial components of this education, but so are English and philosophy. When unveiling a new edition of the iPad, Steve Jobs explained that “it’s in Apple’s DNA that technology alone is not enough — that it’s technology married with liberal arts, married with the humanities, that yields us the result that makes our hearts sing.” Innovation is not simply a technical matter but rather one of understanding how people and societies work, what they need and want. America will not dominate the 21st century by making cheaper computer chips but instead by constantly reimagining how computers and other new technologies interact with human beings. subscribe The story must be told. Your subscription supports journalism that matters. Try 1 month for 99¢ For most of its history, the United States was unique in offering a well-rounded education.(increasing STEM education will result in a NOT well rounded edu. Therefore leading to less innovation and creativity) In their comprehensive study, “The Race Between Education and Technology,” Harvard’s Claudia Goldin and Lawrence Katz point out that in the 19th century, countries like Britain, France and Germany educated only a few and put them through narrow programs designed to impart only the skills crucial to their professions. America, by contrast, provided mass general education because people were not rooted in specific locations with long-established trades that offered the only paths forward for young men. And the American economy historically changed so quickly that the nature of work and the requirements for success tended to shift from one generation to the next. People didn’t want to lock themselves into one professional guild or learn one specific skill for life. That was appropriate in another era, the technologists argue, but it is dangerous in today’s world. Look at where American kids stand compared with their peers abroad. The most recent international test, conducted in 2012, found that among the 34 members of the Organization for Economic Cooperation and Development, the United States ranked 27th in math, 20th in science and 17th in reading. If rankings across the three subjects are averaged, the United States comes in 21st, trailing nations such as the Czech Republic, Poland, Slovenia and Estonia. In truth, though, the United States has never done well on international tests, and they are not good predictors of our national success. Since 1964, when the first such exam was administered to 13-year-olds in 12 countries, America has lagged behind its peers, rarely rising above the middle of the pack and doing particularly poorly in science and math. And yet over these past five decades, that same laggard country has dominated the world of science, technology, research and innovation. Consider the same pattern in two other highly innovative countries, Sweden and Israel. Israel ranks first in the world in venture-capital investments as a percentage of GDP; the United States ranks second, and Sweden is sixth, ahead of Great Britain and Germany. These nations do well by most measures of innovation, such as research and development spending and the number of high-tech companies as a share of all public companies. Yet all three countries fare surprisingly poorly in the OECD test rankings. Sweden and Israel performed even worse than the United States on the 2012 assessment, landing overall at 28th and 29th, respectively, among the 34 most-developed economies. But other than bad test-takers, their economies have a few important traits in common: They are flexible. Their work cultures are non-hierarchical and merit-based. All operate like young countries, with energy and dynamism. All three are open societies, happy to let in the world’s ideas, goods and services. And people in all three nations are confident — a characteristic that can be measured. Despite ranking 27th and 30th in math, respectively, American and Israeli students came out at the top in their belief in their math abilities, if one tallies up their responses to survey questions about their skills. Sweden came in seventh, even though its math ranking was 28th. Thirty years ago, William Bennett, the Reagan-era secretary of education, noticed this disparity between achievement and confidence and quipped, “This country is a lot better at teaching self-esteem than it is at teaching math.” It’s a funny line, but there is actually something powerful in the plucky confidence of American, Swedish and Israeli students. It allows them to challenge their elders, start companies, persist when others think they are wrong and pick themselves up when they fail. Too much confidence runs the risk of self-delusion, but the trait is an essential ingredient for entrepreneurship. My point is not that it’s good that American students fare poorly on these tests. It isn’t. Asian countries like Japan and South Korea have benefitted enormously from having skilled workforces. But technical chops are just one ingredient needed for innovation and economic success. America overcomes its disadvantage (Fine arts provides learners with many aspects such as creativity, diversity, and the arts are what make us most human, most complete as people. However, AFF wants to increase STEM, which fails to provide more innovation to people)[Fine Arts Department] — a less-technically-trained workforce — with other advantages such as creativity, critical thinking and an optimistic outlook. A country like Japan, by contrast, can’t do as much with its well-trained workers because it lacks many of the factors that produce continuous innovation. Americans should be careful before they try to mimic Asian educational systems, which are oriented around memorization and test-taking. I went through that kind of system. It has its strengths, but it’s not conducive to thinking, problem solving or creativity. That’s why most Asian countries, from Singapore to South Korea to India, are trying to add features of a liberal education to their systems. Jack Ma, the founder of China’s Internet behemoth Alibaba, recently hypothesized in a speech that the Chinese are not as innovative as Westerners because China’s educational system, which teaches the basics very well, does not nourish a student’s complete intelligence, allowing her to range freely, experiment and enjoy herself while learning: “Many painters learn by having fun, many works [of art and literature] are the products of having fun. So, our entrepreneurs need to learn how to have fun, too.” No matter how strong your math and science skills are, you still need to know how to learn, think and even write. Jeff Bezos, the founder of Amazon (and the owner of this newspaper), insists that his senior executives write memos, often as long as six printed pages, and begins senior-management meetings with a period of quiet time, sometimes as long as 30 minutes, while everyone reads the “narratives” to themselves and makes notes on them. In an interview with Fortune’s Adam Lashinsky, Bezos said: “Full sentences are harder to write. They have verbs. The paragraphs have topic sentences. There is no way to write a six-page, narratively structured memo and not have clear thinking.” Companies often prefer strong basics to narrow expertise. Andrew Benett, a management consultant, surveyed 100 business leaders and found that 84 of them said they would rather hire smart, passionate people, even if they didn’t have the exact skills their companies needed.

**1NC – Cybersecurity**

**Cyberattacks fail – Multiple warrants** – empirics, no escalation, reliance on humans

**Rid 13** (Thomas, Professor of Security Studies in the Department of War Studies, Faculty of Social Science and Public Policy King’s College in London, “Cyberwar and Peace”, *Foreign Affairs*, 11/5/17, Online: <http://www.foreignpolicy.com/articles/2012/02/27/cyberwar?page=full>, 7/11, DTS)

Cyberwar Is Coming!” declared the title of a seminal 1993 article by the rand Corporation analysts John Arquilla and David Ronfeldt, who argued that the nascent Internet would fundamentally transform warfare. The idea seemed fanciful at the time, and it took more than a decade for members of the U.S. national security establishment to catch on. But once they did, a chorus of voices resounded in the mass media, proclaiming the dawn of the era of cyberwar and warning of its terrifying potential. In February 2011, then cia Director Leon Panetta warned Congress that “the next Pearl Harbor could very well be a cyberattack.” And in late 2012, Mike McConnell, who had served as director of national intelligence under President George W. Bush, warned darkly that the United States could not “wait for the cyber equivalent of the collapse of the World Trade Centers.” Yet the hype about everything “cyber” has obscured three basic truths: cyberwar has never happened in the past, it is not occurring in the present, and it is highly unlikely that it will disturb the future. Indeed, rather than heralding a new era of violent conflict, so far the cyber-era has been defined by the opposite trend: a computer-enabled assault on political violence. Cyberattacks diminish rather than accentuate political violence by making it easier for states, groups, and individuals to engage in two kinds of aggression that do not rise to the level of war: sabotage and espionage. Weaponized computer code and computerbased sabotage operations make it possible to carry out highly targeted attacks on an adversary’s technical systems without directly and physically harming human operators and managers. Computer-assisted attacks “make it possible to steal data without placing operatives in dangerous environments, thus reducing the level of personal and political risk. These developments represent important changes in the nature of political violence, but they also highlight limitations inherent in cyberweapons that greatly curtail the utility of cyberattacks. Those limitations seem to make it difficult to use cyberweapons for anything other than one-off, hard-to-repeat sabotage operations of questionable strategic value that might even prove counterproductive. And cyber-espionage often requires improving traditional spycraft techniques and relying even more heavily on human intelligence. Taken together, these factors call into question the very idea that computer-assisted attacks will usher in a profoundly new era. the thin case for cyberwar One reason discussions about cyberwar have become disconnected from reality many commentators fail to grapple with a basic question:

**Non-unique – China has already performed thousands of cyberattacks on the US**

**(Extend: No Attacks**

**Damaging cyber-attacks are rare**

**Lewis 13** James Andrew Lewis October 10, 2013 Washington Post, 10-10-2013, "Truly damaging cyberattacks are rare," https://www.washingtonpost.com/postlive/truly-damaging-cyberattacks-are-rare/2013/10/09/ae628656-2d00-11e3-b139-029811dbb57f\_story.html?utm\_term=.a4159c6cf656

Anyone with a computer and an Internet connection can launch a cyber “attack,” even though the skills and tools needed to do real damage are still in short supply. The Internet was not built to be secure and will not become secure anytime soon. Networks are vulnerable. This explains why cyber-espionage and fraud are so easy. Economies depend on the Internet and a growing number of services and devices — factories, electric power plants, airplanes, cars — are connected to it, making it an irresistible target. Crash the computers that run these systems and things stop. Power grids, financial networks, communications, public utilities and transportation systems are all targets for cyberattacks. But truly destructive attacks are hard to pull off. Cyberattacks can disrupt data and services to sow confusion, cripple networks and computers (including those embedded in weapons systems) and in some instances, destroy machinery. The risks are real, but easily **exaggerated,** as when a group of defense advisers intoned in a recent report that cyberattacks have “potential consequences similar in some ways to the nuclear threat of the Cold War.” Just as early air-power enthusiasts ascribed miraculous qualities to air attacks, expecting them to produce intolerable destruction and rapid victory, **the discussion of cyberattacks too easily veers into the realm of science fiction**, what one senior Navy officer calls “fairy dust.” Sprinkle a little cyber fairy dust on your military problem and it will disappear. There is no fairy dust when it comes to offensive cyber-capabilities. In the movies, a hacker types wildly on a laptop for a few seconds and turns off a city’s lights. In fact, a serious attack can take months to plan, probing the target network and developing code tailored to damage, disrupt or destroy. Attacks have several stages: conducting reconnaissance to identify the target’s vulnerabilities, breaking in, delivering the software “payload” and then “triggering” it — all without being detected. The most damaging cyberattacks — such as Stuxnet, which destroyed centrifuges used by the Iranian nuclear program — are still a high art. Only the United States, Britain, China, Russia and Israel possess the necessary skills, but many others want them. Offensive cyber-capabilities provide real military advantage. This is why most leading military powers are developing them. Publicly available information shows 46 countries with military cyber-programs, and 12 countries acknowledging offensive cyber-capabilities in 2012 (up from four in 2011). Other countries have military programs but don’t admit to them. Unlike the United States, most countries say very little about their military doctrine. Most of them blend war-fighting and covert action in their cyber-war planning. Each nation’s plans for offensive cyber-operations reflect their different military strategies. The Russians combine political action with cyber-strikes on command networks and critical infrastructure to cripple opponents at the start of conflict. The Chinese focus on quickly disabling U.S. military systems and have systematically hacked into just about every weapon related to U.S. plans for an “Air-Sea Battle” in Asia. Iran will attack energy infrastructure and considers cyber a way to score against a distant and once-invulnerable foe. North Korea’s attacks are driven by its internal politics and dislike of the South**. There have been only a handful of true cyberattacks(more STEM education is unnecessary since cyberattacks are not dangerous for China has launched thousands of cyberattacks on US but no cyberwar. Therefore AFF has no link to how cybersecurity would be improved if more STEM education)**. Russia and China are hyperactive in cyber-espionage, but are cautious about offensive use and avoid actions that could trigger a violent response. Iran and North Korea are more aggressive and are improving their cyber-capabilities. Iran attacked Saudi Aramco, destroying data on 30,000 hard drives. North Korea did something similar to South Korean banks. The worry is that either country will miscalculate in its use of cyberattacks and stumble into a larger conflict

**Extend: No Lashout**

**Cyberattack do not constitute war – empirically disproven**

**Rid 13** (Thomas, Professor of Security Studies in the Department of War Studies, Faculty of Social Science and Public Policy King’s College in London, “Cyberwar and Peace”, *Foreign Affairs*, 11/5/17, Online: <http://www.foreignpolicy.com/articles/2012/02/27/cyberwar?page=full>, 7/11, DTS)

Many commentators fail to grapple with a basic question: What counts as warfare? Carl von Clausewitz, the nineteenthcentury Prussian military theorist, still offers the most concise answer to that question. Clausewitz identified three main criteria that any aggressive or defensive action must meet in order to qualify as an act of war. First, and most simply, all acts of war are violent or potentially violent. Second, an act of war is always instrumental: physical violence or the threat of force is a means to compel the enemy to accept the attacker’s will. Finally, to qualify as an act of war, an attack must have some kind of political goal or intention. For that reason, acts of war must be attributable to one side at some point during a confrontation. No known cyberattack has met all three of those criteria; indeed, very few have met even one. Consider three incidents that today’s Cassandras frequently point to as evidence that warfare has entered a new era. The first of these, a massive pipeline explosion in the Soviet Union in June 1982, would count as the most violent cyberattack to date—if it actually happened. According to a 2004 book by Thomas Reed, who was serving as a staffer on the U.S. National Security Council at the time of the alleged incident, a covert U.S. operation used rigged software to engineer a massive explosion in the Urengoy-SurgutChelyabinsk pipeline, which connected Siberian natural gas fields to Europe. Reed claims that the cia managed to insert malicious code into the software that controlled the pipeline’s pumps and valves. The rigged valves supposedly resulted in an explosion that, according to Reed, the U.S. Air Force rated at three kilotons, equivalent to the force of a small nuclear device. But aside from Reed’s account, there is hardly any evidence to prove that any such thing happened (NO LINK BETWEEN CYBERSECURITY/CYBER ATTACKS AND WAR, AFF IS IRRELEVANT; CYBER ATTACKS ARE NOT REAL HARM), and plenty of reasons to doubt that it did. After Reed published his book, Vasily Pchelintsev, who was reportedly the kgb head of the region when the explosion was supposed to have taken place, denied the story. He surmised that Reed might have been referring to a harmless explosion that happened not in June but on a warm April day that year, caused by pipes shifting in the thawing ground of the tundra. Moreover, no Soviet media reports from 1982 confirm that Reed’s explosion took place, although the Soviet media regularly reported on accidents and pipeline explosions at the time. What’s more, given the technologies available to the United States at that time, it would have been very difficult to hide malicious software of the kind Reed describes from its Soviet users. Another incident often related by promoters of the concept of cyberwar occurred in Estonia in 2007. After Estonian authorities decided to move a Soviet-era memorial to Russian soldiers who died in World War II from the center of Tallinn to the city’s outskirts, outraged Russian-speaking Estonians launched violent riots that threatened to paralyze the city. The riots were accompanied by cyber-assaults, which began as crude disruptions but became more sophisticated after a few days, culminating in a “denial of service” attack. Hackers hijacked up to 85,000 computers and used them to overwhelm 58 Estonian websites, including that of the country’s largest bank, which the attacks rendered useless for a few hours. Estonia’s defense minister and the country’s top diplomat pointed their fingers at the Kremlin, but they were unable to muster any evidence. For its part, the Russian government denied any involvement. In the wake of the incident, Estonia’s prime minister, Andrus Ansip, likened the attack to an act of war. “What’s the difference between a blockade of harbors or airports of sovereign states and the blockade of government institutions and newspaper websites?” he asked. It was a rhetorical question, but the answer is important: unlike a naval blockade, the disruption of websites is not violent—indeed, not even potentially violent. The choice of targets also seemed unconnected No known cyberattack has met Clausewitz’s definition of an act of war. Thomas Rid 80 foreign affairs to the presumed tactical objective of forcing the government to reverse its decision on the memorial. And unlike a naval blockade, the attacks remained anonymous, without political backing, and thus unattributable. A year later, a third major event entered the cyber-Cassandras’ repertoire. In August 2008, the Georgian army attacked separatists in the province of South Ossetia. Russia backed the separatists and responded militarily. The prior month, in what might have been the first time that an independent cyberattack was launched in coordination with a conventional military operation, unknown attackers had begun a campaign of cyber-sabotage, defacing prominent Georgian websites, including those of the country’s national bank and the Ministry of Foreign Affairs, and launching denial-of-service attacks against the websites of Georgia’s parliament, its largest commercial bank, and Georgian news outlets. The Georgian government blamed the Kremlin, just as the Estonians had done. But Russia again denied sponsoring the attacks, and a nato investigation later found “no conclusive proof” of who had carried them out. The attack set off increasingly familiar alarm bells within American media and the U.S. national security establishment. “The July attack may have been a dress rehearsal for an all-out cyberwar,” an article in The New York Times declared. Richard Clarke, a former White House cybersecurity czar, warned that the worst was yet to come: the Georgian attack did not “begin to reveal what the Russian military and intelligence agencies could do if they were truly on the attack in cyberspace.” Yet the actual effects of these nonviolent events were quite mild. The main damage they caused was to the Georgian government’s ability to communicate internationally, thus preventing it from getting out its message at a critical moment. But even if the attackers intended this effect, it proved short-lived: within four days after military confrontations had begun in earnest, the Georgian Foreign Ministry had set up an account on Google’s blog-hosting service. This move helped the government keep open a channel to the public and the news media. What the Internet took away, the Internet returned.

**This is off case FYI  and needs to be read in the 1NC if u want - Spending DA - Gonzaga**

**Education Spending Non-Unique:**

**Spending reductions now – Trump budget plans creates clear signaling**

Burke, Heritage Education Center director, 17

(Lindsey, May 23, 2017, Heritage Foundation, "Heritage Experts Analyze Trump's Budget,"<http://www.heritage.org/budget-and-spending/commentary/heritage-experts-analyze-trumps-budget>, accessed 7/7/17, DL)

Education

“The **Trump administration’s full budget for education for FY 2018 would make some long-overdue cuts at the Department of Education, eyeing reductions in spending totaling $9.2 billion – a 13.6 percent cut in the agency’s current $68 billion annual budget. That type of reduction signals a serious commitment to reducing federal intervention in education – a necessary condition to make space for a restoration of state and local control**.” —Lindsey Burke, Director of Heritage's Center for Education Policy

**Link should’ve been triggered – tons of alternative causes**

McCluskey, Cato Educational Freedom Center director, 16

(Neal, April 21, 2016, Downsizing the Federal Government, “Cutting Federal Aid for K-12 Education,” https://www.downsizinggovernment.org/education/k-12-education-subsidies, accessed 7/12/17, DL)

**Federal control over K-12 education has risen dramatically** in recent decades. Elementary and secondary **spending** under the Department of Education and its predecessor agencies **rose from $4.5 billion** in 1965 to **$40.2 billion** in 2016, in constant 2016 dollars.1 The Department of Education funds **more than 100 subsidy programs, and each comes with regulations that extend federal control into state and local education**.2

**A substantial amount of funding for K-12 education comes from other federal agencies as well. For example, the Department of Agriculture will spend $22 billion** in 2016 on school lunches and related programs.3 **Across all federal departments, constant-dollar K-12 spending rose from $13.5 billion in 1965 to $80.1 billion** in 2014.4

**Congress may have taken a step back on federal control with its recent reauthorization of education spending** called the Ensuring Student Success Act of 2016 (ESSA). On the surface, ESSA would decrease much of the prescriptive federal control asserted under the No Child Left Behind Act of 2002 (NCLB). But as of this writing, **it is too early to know what ESSA regulations will look like, and there is a real danger of sustained federal micromanagement of the nation’s schools.**

**Link should’ve been triggered – other programs outweigh**

McCluskey, Cato Educational Freedom Center director, 16

(Neal, April 21, 2016, Downsizing the Federal Government, “Cutting Federal Aid for K-12 Education,” https://www.downsizinggovernment.org/education/k-12-education-subsidies, accessed 7/12/17, DL)

*Federal Spending Today*

**Department of Education K-12 spending has increased rapidly, rising from $4.5 billion in 1965 to $40.2 billion in 2016, in constant 2016 dollars.**34 **Overall real federal K-12 spending, which comes from numerous agencies and departments, ballooned from $13.5 billion in 1965 to $80.1 billion in 2014.**35

**Here are the largest grant programs within the Department of Education, with the estimated outlay amounts in fiscal 2016:36**

***Title I*. This is a $17 billion collection of programs, primarily grants to school districts based on complex formulas. Title I is the main leverage the federal government uses to impose regulations on the states for standardized testing, teacher qualifications, reading curricula, and other items.**

***Special Education*. Special education programs authorized under the Individuals with Disabilities Education Act account for the second largest part of the department’s budget at about $16 billion.**

***Title II-Improving Teacher Quality* State Grants. These grants, which cost more than $2 billion annually, are intended to improve the quality of the teaching force and principals.**

***21st Century Community Learning Centers*. A number of studies have found that this more than $1 billion program to fund enrichment activities is ineffective and may actually have negative effects.37**

**Outside of the Department of Education, the federal government funds *Head Start* in the Department of Health and Human Services, *Indian education programs* in the Department of the Interior, *the school lunch program* in the Department of Agriculture, *and various programs in the Department of Defense*.**

***Looking at overall K-12 spending* by federal, state, and local governments, *there has been a large increase over time*. Total per-pupil *expenditures have doubled* over the past four decades, measured in constant dollars.38 These increases in resources, however, have not lead to equivalent improvements in educational outcomes, as explored next.**

**AT – Administrative Costs/Implementation Links**

**No implementation link – our evidence is broader and takes all theirs into account – improvement science education policy solves**

Young, North Carolina State University Education Associate Professor, and Lewis, Kentucky University Education Associate Professor, 15

(Tamara and Wayne, February 11, 2015, Educational Policy, “Educational Policy Implementation Revisited”, Volume: 29, Number 1, pg. 12-14,<http://journals.sagepub.com/doi/abs/10.1177/0895904815568936>, accessed 7/6/17, DL)

**In Implementing Educational Innovations at Scale: Transforming Researchers Into Continuous Improvement Scientists ,** Cohen-Vogel et al. and colleagues summarize the **three waves of implementation research in education and outline the subsequent theoretical and practical implications** of the findings associated with each wave (Honig, 2006; Odden, 1991).Then, they posit that **despite a narrow focus on impact**–as evidenced by the What Works Clearing House and generous funding committed to experimental and quasi-experimental research during the last decade–**calls for** **research that informs practice** (i.e., translational research) **has led to a renewed interest in understanding how context contributes to the effectiveness of innovations.** Further, Cohen-Vogel et al. contend that the primary approach for conducting implementation research—***the fourth wave*** (or fifth if it extends beyond Honig’s delineartion of a fourth eave)–***will be improvement science***, also known as the continuous improvement cycle, ***which “emphasizes innovation prototyping, rapid-cycle testing, and spread in order to generate learning about what changes, in which contexts, produce improvements***” (Cohen-Vogel et al., this edition).

As Cohen-Vogel et al. point out, **improvement science differs from traditional research because it: (1) allows for the innovation and research design to be iterative and flexible rather than relying on constant variables and fixed procedures to study the phenomenon in practice; (2) focuses on not only the innovation under investigation, but also the process of studying the innovation; and (3) involves participants** (generally seen as subjects in traditional research) **in the design, development, and testing of reforms, and the process and requires the researcher to be actively involved as “participants in the process and researchers of the process.”** Expounding on their experience from the National Center for Scaling up Effective Schools’ longitudinal study of improvement science in two schools, the authors identify challenges to utilizing improvement science for implementation research, notably the role of the researcher is muddied in the process. Specifically, as researchers work closely with practitioners they find themselves trying to navigate the thorny situation of balancing not only “their own perspectives and positions within the improvement process at the same time they work to study it,” but also “their own finite capacities, as they work to fulfill a two-fold mission—to participate in and support the process, while simultaneously studying it.”

Based on Cohen-Vogel et. al.’s description of improvement science and their experience using it, it is evident that ***this fourth wave of implementation research addresses many critiques of the first three waves of implementation***. In addition to the observations delineated by the authors, **there are other implications for the educational community—both practitioners and researchers:**

**1. Rather than focusing on impact without attending to implementation, improvement science understands that impact results from implementation processes, and as such considers both implementation and impact. Therefore, researchers will need to develop teams that are familiar with both qualitative and quantitative research.**

**2. Instead of one-time improvement projects, improvement science is an iterative process. It presumes refinement of innovations. In an era that emphasizes accountability and a plethora of new initiatives launched yearly,** district and school leaders will have to become comfortable with **committing to (a) fine tuning an innovation rather than adopting the newest fad reform and (b) gradual growth in outcomes of interest.**

**3. Because improvement science includes participants in the design, testing, and revision processes, there is likely more buy-in by implementers** in the innovation and the actual implementation process. As Cohen-Vogel pointed out, having meaningful participant involvement will require new skills for researchers, such as translating research and explaining research design to practitioners. Researchers will need to adopt other skills as well, notably a commitment to longitudinal work, accepting flexibility in research design, and modifying their notion of partnership with practitioners. Insight from the literature on participatory evaluation may prove useful in understanding and avoiding challenges associated with subjects as participants in the design and testing of an innovation or policy.

4. **Practitioners will have to develop new skills and dispositions**, notably the popular refrain of this too shall pass will have to be abandoned. Additionally, **practitioners have voiced dissent about top-down reforms,** and what they view as a disregard for their professional judgment. **Improvement science seems to value professional judgment when the evidence that informs that judgment** (i.e., how do you know) **can clearly be articulated and evaluated.** We must begin to consider how will we begin to shape practitioners’ thinking about what denotes evidence and create a vocabulary that promotes a shared understanding of evidence. For example, health researchers have specified different continua for what constitutes emerging, promising, evidenced-based practices (e.g., Puddy and Wilkins, 2011).

5. **Adaptation to local context, mutual adaptation, and variation is a principal component of improvement science**. Researchers who develop **innovations need to think differently about adaptation and policymakers and state and district leadership** will need to be content with variation—**rather than a one size fits all panacea.**

Cross Ex Questions:

* Ask AFF if they think women are less capable than men since they want to increase STEM edu for women
* Ask AFF if they think that fine arts are important because STEM is not everything