

## Education

Students of U.S. public education systems generally perform poorly on standardized education tests, relative to other developed nations, but the U.S. also hosts half of the top 50 and more than a third of the world's top 200 universities.<sup>1072</sup> That juxtaposition or disparity is evident throughout U.S. education.

The U.S. spends about a trillion dollars a year<sup>1073</sup> (86% of FADS) educating about 75 million students,<sup>1074</sup> among the most per student in the world, 7% of GDP compared with 6% in other OECD countries<sup>1075</sup> (making arguments U.S. education is underfunded questionable?). Its teachers spend among the most time in class;<sup>1076</sup> yet, U.S. 15-year-olds ranked 31<sup>st</sup> in Math and 19<sup>th</sup> in Science and Reading out of 35 OECD industrialized nations in the 2015 *Programme for International Student Assessment*<sup>1077</sup> (PISA tests). U.S. educational performance generally underperforms that of other developed nations.

In 2010, of every dollar spent on education in the U.S., government paid 70 cents, parents paid 25 cents and private sources paid a nickel. The OECD average is governments spend 84 cents of every dollar. Post-high school, U.S. taxpayers pay 36 cents of every dollar spent on college and vocational training. Families and private sources pay 64 cents. In average developed nations, it's more or less the opposite, the public pays 68 cents, and parents and private sources pay the other 32 cents.<sup>1078</sup>

80% of U.S. students finish high school.<sup>1079</sup> Most aren't college or career ready.<sup>1080</sup> Half of 2-year and 20% of 4-year college students take remedial courses, paying \$7 billion a year. Fall 2006, half of entering students at 2-year and 20% at 4-year schools were put in remedial classes; 40% at 2-year, 25% at 4-year colleges didn't finish them.<sup>1081</sup> U.S. high school diplomas have been called "counterfeit." In one South Carolina school district, 1 in 10 grads were ready for college reading and 1 in 14 for college math.<sup>1082</sup> Two million (64% of) high school grads took the 2016 ACT college admissions test. Percentages meeting ACT's College Readiness Benchmark were: English 61%, Reading 44%, Math 41%, Science 36%.<sup>1083</sup>

A million students quit high school every year, 7,000 a day, one out of every four that start high school, and 40% of black and brown skinned students drop out.<sup>1084</sup> 65% of all jobs in 2020 will require some education beyond high school. 75% of crimes in the U.S. are committed by high school dropouts, and 67% of inmates in U.S. state prisons, 56% of federal inmates, and 69% of local jail inmates are dropouts. Supporting a high school student costs society less than half the costs of keeping an inmate in prison.<sup>1085</sup> So, it would be worth it to do that well, right?

The U.S. could save \$18 billion (2% of FADS) in annual crime costs if high school male graduation rates increased 5%. Halving the numbers of high school dropouts would save \$7 billion in annual Medicaid related, \$12 billion in heart disease related, \$12 billion in obesity related, \$6 billion in alcoholism related and \$9 billion in smoking related spending.<sup>1086</sup> Together, that's \$46 billion (4% of FADS). If 90% of students graduated high school it would increase GDP \$5.7 billion.<sup>1087</sup> 9% of college-educated mothers who have a baby each year are unmarried, versus 61% of high-school dropouts.<sup>1088</sup>

College graduates earn 79% more than high school graduates,<sup>1089</sup> but college tuition and fees have been increasing three times faster than per capita income since 1970, making it ever harder for students and their families to afford college, and burdening graduates with increasing debt. Private college cost half a median male salary in 1971, 15% more than a median male annual salary today.<sup>1090</sup> 6-year graduation rates are 59% at public, 66% at private nonprofit, and 23% at private for-profit colleges.<sup>1091</sup> Inequitably, 77% of the richest fourth of students get bachelor degrees by age 24, versus 9% of the poorest.<sup>1092</sup>

A million (3% of) U.S. K-12 students are homeless, and 1 in 20 kids in California were homeless in the 2013-14 school year. They're more likely to miss school, change schools, have learning disabilities and drop out, and they score lower on standardized tests.<sup>1093</sup> A fifth of all students are obese.<sup>1094</sup> 84% of school-age kids are in public schools; 9% private schools; 4% charter schools; and 3% home-schooled. Males underperform females.<sup>1095</sup> Half of students are white, 25% Hispanic, 16% Black, and 9% Other.<sup>1096</sup>

In 2016, of U.S. students in the 4<sup>th</sup> grade, 40% were proficient in Math, and 36% in Reading; in 8<sup>th</sup> grade, 33% were proficient in Math and 34% in Reading. A third of students are proficient at reading and math, overall, and whites are regularly 2 or 3 times more proficient than blacks or browns.<sup>1097</sup> Not fair?

Some estimate bringing the academic performance of black and Hispanic students up to that of whites, poor students up to that of average students, underperforming states up to that of average states, and U.S. performance up to par with Finland and Korea could produce a 15% to 30% increase in GDP, and they compare the impact of our educational gaps with that of a permanent national recession.<sup>1098</sup>

Children from lower-income families who get good-quality pre-K education are more likely to graduate from high school, attend college, have a job and have higher earnings. In 2010, the U.S. ranked 28<sup>th</sup> of 38 developed nations in four-year-old kids enrolled in public or private early childhood education.<sup>1099</sup> Improving early child care in the poorest U.S. neighborhoods yields returns of ten to one, or more.<sup>1100</sup>

Some say, U.S. educational systems were developed to serve a society primarily employing people in agriculture, military and manufacturing. It was enough for a small percent to progress through higher education to meet needs for relatively few doctors, lawyers, scientists, and professionals. Most would work on farms, in the military or in manufacturing, and didn't need much education to live decent lives. The system was made to yield disciplined, compliant workers with basic skills who submit to authority and do as told without a lot of thought or demands. It was OK if many didn't finish or did poorly. They'd still be able to work and provide for families. No school in the summer, so kids could work on farms.<sup>1101</sup>

Throw up obstacles, like making too many learn Calculus in the same boring ways, even if not relevant to interests or paths, so only the most intelligent, motivated and compliant of us get over the hurdles. Make sure all are indoctrinated in U.S. mythology, so we comply with what the power elite wants. That's what the U.S. public education system was designed to do, and that's what it does, even if that doesn't meet society's current needs for a more knowledgeable, capable and skilled workforce well.

Now, Ag is centralized in fewer, larger operations, using labor-displacing tech, so few work on farms, and manufacturing jobs have been displaced by tech, or exported where labor's cheaper. Schools are not adequately prepping students for sophisticated 21<sup>st</sup> century knowledge, information and innovation economies, leaving them un- or under-employed, creating economic drag and hurting quality of lives. The U.S. imports many skilled workers, because it doesn't adequately prepare enough in its own system. Many say this system isn't serving society well. Many efforts are made to fix it. Most are Band-Aids, on a mess of Band-Aids, around a core mission and structure not designed around needs of modern society.

The U.S. is one of a few advanced nations that funds public education mainly via subnational taxation. Half of public-school funding is from local property taxes, so wealth and income inequalities cause more-affluent schools to get more funding.<sup>1102</sup> The U.S. is 1 of 3 OECD nations that give more funding to schools in rich than poor areas.<sup>1103</sup> White schools got \$23 billion more than nonwhite schools in 2016, with the same number of children, because their property taxes are higher.<sup>1104</sup> Unfair?

There's great disparity in schools. Wealthier parents relatively easily raise and give money to make up shortfalls, and those schools and kids are OK. In middle class areas, parents give combinations of time and money to make up shortfalls, and those schools and kids are mostly OK. In poor areas, schools and their students and families mostly just suffer shortfalls, because many don't have money, can't raise it, don't have time to volunteer, because they work multiple jobs to make ends meet and/or are alienated socially in some way. Those schools and kids struggle. This perpetuates inequality and disparities.

Higher-quality teachers improve the educational attainment and earnings of students. Better teachers can often help equalize some opportunity disadvantages of students from lower-income households. For various reasons, including teacher pay inequality, the best teachers tend to migrate to and concentrate in schools in higher-income areas. Even within districts and in individual schools, where teacher pay is often uniform based on experience, factors other than pay tend to lead more experienced and better-performing teachers to schools and classrooms with more-advantaged students.<sup>1105</sup>

The wealthier can and often do send their children to pricey private schools, because they can afford to and understand life advantages that provides. In many places, they're allowed to direct tax money allocated to them in public systems to private school expenses, reducing public education resources.<sup>1106</sup> That perpetuates their advantages, and the disadvantages for others. Some families with lesser means sacrifice to send children to private schools, hoping their kids' lives will be better than theirs.

Consistently, public polls show adequately funding public schools is a very high priority, but most public schools claim to be inadequately funded.<sup>1107</sup> Teachers are generally considered poorly paid and stressed from teaching too many students, with too many social problems, without enough resources, complying with heavy requirements for what to teach and proving student knowledge on standard tests.<sup>1108 1109</sup> U.S. teachers are 5<sup>th</sup> highest in elementary and 7<sup>th</sup> highest paid in high schools of OECD countries.<sup>1110</sup> Many schools cut art, music, sports, and even science programs, because of inadequate resources.<sup>1111</sup>

In K-12 education, students often complain of boredom,<sup>1112</sup> saying there's too little effort to explain the relevance of material they're told to learn. Not understanding why they're learning it, how it fits or is useful in their lives, many aren't motivated to learn. Some get in trouble. Many are brighter students, forced to learn at average paces. Some are slower, don't get it at that pace and get lost and left behind. Students aren't allowed to pursue their education according to their own interests, abilities or paces.

In K-12 and higher education, many teachers often have little work experience outside of education. They did well in school, so they stay in school, working in education. So, many don't understand work environments they're preparing students for, and their efforts are misaligned or not relevant to the "real world." Instruction is heavy on academic theory or thinking and light on real world applications. There are no multiple-choice tests in most workplaces; yet, that is what teachers prepare students for.

Some say, the emphasis is heavily on what to think, rather than how to think. Schools don't adequately prepare students to think critically, skeptically or analytically, so they can determine for themselves if something is true, real or relevant, or how. Schools reward students for regurgitating pre-selected content to produce the "right" answers, those that reflect what others want those students to think.<sup>1113</sup>

School counseling is generally critically under-funded and low-priority, with one counselor responsible for 482 students, on average.<sup>1114</sup> A fifth have no counselor. So, students have little professional or personal psychological or emotional support, career exploration or counseling.

Counselors encourage students to go to college, because that reflects well on schools, but there is often little assistance for students trying to figure out what to study in college, or why, or what to do if they're not going to college.<sup>1115</sup> Lack of personal counseling and support perpetuates social disparity, because wealthier families typically have fewer social problems and can provide support for students outside of school poorer families can't. Some students have very difficult family, economic and social problems outside school that affect their performance in school, with no assistance for those problems at school. More than 1 in 50 U.S. children has an incarcerated parent, which produces problems for them.<sup>1116</sup>

Many schools serve unhealthy food, sometimes industrial junk food not meeting fast food standards.<sup>1117</sup> That creates public health problems and impairs learning. 13 million (18% of) U.S. students are in poverty,<sup>1118</sup> hungry, not adequately fed at home, and not fed well at school either. Poor nutrition and distraction from hunger hurts academic performance.<sup>1119</sup> Is this acceptable in Earth's richest country?

In 2017, 1 in 10 community college and 6% of university students went a whole day without eating in a given month, skipping meals, or eating less, because they didn't have money for food; 46% of 2-year and 36% of 4-year college students struggle to pay for housing and utilities; 12% of 2-year and 9% of 4-year students slept in shelters, or places not intended as housing, or didn't know day to day where to sleep. 40% of University of California students suffer food insecurity. Students have fewer ways to provide for themselves now. Competition for low-wage jobs has grown, and strict work requirements for food stamp recipients mean many can't rely on the federal safety net to support them while they learn.<sup>1120</sup>

Higher education is expensive and getting more so, much faster than inflation. Rather than invest in future citizens to improve future society, the rationale seems to be to get college students to enter the work world in debt, as indentured servants, working, maybe decades, to service that debt, rather than in pursuit of dreams or ideals. In 2017, 9 million people (3 of 100 adults) were in default on student loans, that bankruptcy doesn't protect from, with \$1.3 trillion (112% of FADS) in loans outstanding. In 2016, average debt for a graduate exiting college was \$37,000. 2013-2017, student debt increased 457%.<sup>1121</sup> The U.S. Secretary of Education's family is a major investor in a student loan debt collection company. The current U.S. President had a for-profit "university" that lost a lawsuit for defrauding its students.<sup>1122</sup> By 2023, 40% of student debtors will default on payments<sup>1123</sup> on loans mismanaged by government.<sup>1124</sup>

Linkages between what's offered and promoted in higher ed and what's needed in workforce are weak. There are fairly few efforts to tie what students are being prepared for to knowledge and skills demand in workplaces. Universities crank out many history majors who can't find work in few poor paying jobs in that field, for example, while not preparing enough with engineering, computer science, math, biology or high-tech knowledge and skills employers are so desperate for that they're forced to hire or locate abroad. 57% say higher education isn't giving students skills needed in the workforce.<sup>1125</sup>

It's almost impossible to fire teachers for incompetence or poor performance. At a research university, the tenure concept makes sense. It's worth providing "the Einsteins" job security to let them develop thinking and innovations to advance humanity, without manipulations by people who don't understand their groundbreaking work. Why do community college English teachers have tenure? It makes no sense that the tenure idea has spread to the point where it's not possible to hold teachers at any level accountable for their performance. Being unable to teach students effectively and being so jaded and mean they're ruining students' lives are not allowable reasons to fire a K-12 teacher in many districts.<sup>1126</sup>

Most students are not taught practical life skills in school, like how to manage a bank account; pay taxes; find, evaluate and get a job; find, evaluate and get health care and medical insurance; participate in our democracy; save for retirement; manage our own health; evaluate debt; or eat nutritiously. Incredibly, many students in cities don't know where food comes from and have never actually seen a live plant or animal they eat. Many don't know what happens to trash or sewage or where their water comes from. They have no real-world experience of people doing the work people do in society. Some say.<sup>1127</sup>

Public education in the U.S. is so entrenched in its established ways, and so embroiled in differing opinions of how it can be fixed without making significant changes, or how it needs to do something to meet the specific and unique needs of very narrow interests, or has to impart certain content or views, that it's very difficult to change. So it doesn't. In the midst of the most rapid changes in the history of humanity, with technological revolutions and disruptive innovation in virtually all fields, education in the U.S. has essentially not changed in at least many decades. Some say.<sup>1128</sup>

Many schools don't have resources to implement educational technologies, but many don't want to. Many teachers are techno-phobic, isolated from and intimidated by computers and other technologies they didn't have when they were in school. They prefer to just do what they've always done, the way they've always done it, even if it doesn't work, or there are much better ways of doing it.<sup>1129</sup> And they don't have to change, because they don't have to do anything. They can't really be held accountable.

The lecture is a medieval practice, a remnant of times when there were few hand-written and -copied books recording knowledge and ideas, hoarded away in monasteries and castles. A lecture is historically someone reading a book aloud, or someone who read a book telling someone who can't read the book what's in the book. It's obsolete. Those conditions no longer exist. Yet lectures are prevalent, throughout education, starting in elementary school, with extremely inefficient duplications of effort.

While the U.S. has some of the world's best schools, universities, teachers, researchers and thinking, mostly serving its privileged, its educational system is antiquated, fragmented, unfair and inadequate. It's possible to get the world's best education in the U.S., and it's possible to get an abysmal education. As a system, it doesn't meet the needs of all of its citizens, and government doesn't seem able to fix it.

Education shapes and enables future citizens and contributing members of society in essential ways, and yet U.S. government and society don't seem to have the time or interest for it. So, the U.S. doesn't have workers ready to do work U.S. employers need and are willing to pay for; huge numbers are ignorant, uninformed and incapable of thinking critically; and that contributes to all of our wicked problems.

Poor education performance produces underperforming adults. 32 million (14% of) adults can't read; 21% read below 5<sup>th</sup> grade level;<sup>1130</sup> half can't read 8<sup>th</sup> grade level books; 33% of high school and 42% of college grads read no books after graduation; 80% of U.S. families haven't bought a book in a year.<sup>1131</sup> In 2013, of 22 developed countries, U.S. adults were below average in basic skills, were 12<sup>th</sup> in literacy, 20<sup>th</sup> in numeracy, and 17<sup>th</sup> in problem solving in technology-rich environments. U.S. socioeconomic background has a bigger impact on proficiency than in other countries. That harms society.<sup>1132</sup>

*"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. Knowledge will forever govern ignorance: And a people who mean to be their own Governors, must arm themselves with the power which knowledge gives."*

- James Madison, Founding Father and U.S. President<sup>1133</sup>

How can U.S. democratic society possibly work when polls of U.S. adults show:

- only 38% of U.S. adult citizens can pass the U.S. citizenship test with a grade of 60%;
- 40% of U.S. college grads don't know the Constitution grants Congress the power to declare war; but 55% believe Christianity was written into it; and half don't know Congress term lengths;<sup>1134</sup>
- 55% of U.S. 18-to-26-years-old who attend or have attended college can pass a global geography literacy test; in 2006, during U.S. wars in both countries, 63% of 18-24 year-olds couldn't find Iraq on a Middle East map, and 90% couldn't find Afghanistan on a map of Asia;<sup>1135</sup> 10% with up to a high school education can't find the U.S., nor one in five the Pacific Ocean on a world map;<sup>1136</sup>
- at least 216 million (82% of) people in the U.S. are scientifically illiterate;<sup>1137</sup> 80% support demanding mandatory labeling for all foods containing DNA, 33% believe non-GMO tomatoes don't contain any genes, and 32% think vegetables have no DNA;<sup>1138</sup>
- 30% don't know the Civil War, War of 1812, and Emancipation Proclamation came after the Revolutionary War; half of U.S. adults don't know it takes a year for the Earth to orbit the sun;<sup>1139</sup> and a quarter think the Sun circles around the Earth;
- 16 million (7% of) U.S. adults believe chocolate milk comes from brown cows;<sup>1140</sup>
- 41% of supporters of one U.S. political party and 19% of the other say they are in favor of bombing Agrabah, a fictional country created in the Disney movie *Aladdin*,<sup>1141</sup> about the same as the third who support pre-emptively nuclear bombing North Korea, even if it kills a million civilians,<sup>1142</sup> and
- 56% of people in the U.S. oppose teaching Arabic numbers in school, numbers 0 to 9 we all use.<sup>1143</sup>

The current U.S. President, who boasted his success in life was a result of "being, like, really smart," communicates at the lowest grade level of the last 15 presidents, around mid-4<sup>th</sup> grade, and uses words with the fewest average syllables, 1.33 per word.<sup>1144</sup> Is that necessary to communicate with us now?

Taking a deep gut check, as a human being using common sense, education in the U.S. is badly broken, even if we disagree about some of this stuff. That feels bad, because it's harming us not to have an educated public necessary for social function and advancement, because it unfairly delivers success to the wealthy and failure to others, and because it leads to suffering for so many people. Very large changes are needed in U.S. education, and those affect everyone, directly or indirectly. Change now!

Be curious! Learn something new every day! If bored, engage and make it interesting! Ask questions! Understand why learning, knowledge and being able to think and reason are personally valuable! Read! These days, so much information is available via the Internet and public libraries. Get in there and get it!

Learn how to assess the credibility of information! It's less true that there are inherently "good schools" than that there is good personal fit in school; find, grow and thrive in schools where you are a good fit! Be present in schools and learning opportunities! Pay attention! Care! Help others learn! Get skills!

Share information about our educational system performance and engage in improving it! Let's be smart in how we spend money on education, instead of pouring money into old ways that don't work! Use technologies to improve education! Hold teachers accountable! Thank teachers! Teach!

If you are going to go to college, know why! If you are going to take on debt for higher education, understand how you are going to pay that back with the work skills you acquire! If you are paying for it, feel free to demand what you need to succeed! Learn skills that are useful to you and to employers! Get out in the real and natural worlds and learn from them! Learn, grow, evolve! Write letters!

## Endnotes

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