

Washington View

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Facts, beliefs, and misinformation

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Reactions to the COVID-19 crisis raise the question of why people hold onto incorrect (and even dangerous) beliefs and what schools can do about it.

As I sit in my home-based makeshift office (kitchen table) wondering what I can say about the coronavirus that has not already been observed or stated, it occurs to me to ask my officemates (family and dog) what the education world needs to know right now. After a couple of predictable suggestions (teachers need more respect, support, and pay; online learning may now get the respect it deserves, etc.), my husband offers up a winner: “Write about why some Americans are totally stupid about statistics and facts.”

Although Mark Twain may have given us the definitive statement on this topic when he said, “No amount of evidence will ever persuade an idiot,” I wanted to at least try to dig a little deeper than that. My husband was, of course, referencing some of the more shocking public behavior we have seen since the COVID-19 crisis began, such as spring breakers partying on a packed beach in Florida and state leaders downplaying the need for social isolation despite the countless warnings from top medical experts. In our house, we were especially dumbfounded by the Rev. Jerry Falwell Jr.’s decision to allow students to return to the campus of Liberty University in the midst of the coronavirus outbreak. How anyone could think that was appropriate is beyond all rational thought. What kind of parent would support such a decision and pay tuition in the face of it?



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But even before the coronavirus, some people’s ability to ignore facts and go on passionately believing things when evidence clearly proves otherwise was confounding. My first instinct is always to wonder whether some state standards did not appropriately cover statistics and evidence-based analysis (the Common Core was supposed to address that) or whether teacher

preparation programs were not addressing these topics effectively. And while those questions are fair and important, they do not address the more intangible reasons why some people simply ignore facts and evidence.

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Shankar Vedantam, the host of *Hidden Brain*, a program on National Public Radio (NPR), shed some light on the topic during a 2019 segment on vaccinations and misinformation. [That episode](#) featured Cailin O'Connor, a philosopher and mathematician at the University of California, Irvine, who studies how social networks spread information and how they shape our core beliefs. She explained that because no other animal has this ability to transfer ideas and knowledge from person to person, generation after generation, social trust is at the heart of how people form their beliefs (and disbeliefs). She pointed out that few of our beliefs actually rely on direct evidence. Instead, we trust other people to supply the evidence and describe it to us. Even in our information-obsessed society, it's a rare person who hunts down direct evidence to support their decision making. Most people talk to their families and their peers or check out the news and/or social media sources they follow and then they go for it. The downside to this comes when those you trust believe and peddle misinformation and lies.

Vedantem talked also with Tali Sharot, a cognitive neuroscientist at University College London, who has studied the phenomenon of confirmation bias. Although those of us who conduct or analyze education research are very familiar with confirmation bias, many people have no idea that this kind of behavior exists or that they frequently engage in it. Sharot explained that humans have a tendency to take in any kind of data that confirm our prior convictions and disregard the data that do not conform to what we already believe. In other words, we will confidently ignore hard facts and reliable evidence and instead seek out information (or in this case misinformation) that validates our worldview. Vedantam explained that as we move through the world, quickly sifting through news headlines and the flow of information on social media, confirmation bias gives us a feeling of stability, so we are reluctant to change our beliefs, even when they are false. Considering the current state of things, I can somewhat sympathize.

I am not sure any of these insights provide a satisfying rebuttal to Mark Twain's simple analysis, but there is evidence that many educators have come to acknowledge the importance of statistics and data analysis. According to *The Statistical Education of Teachers*, a report commissioned by the American Statistical Association that looks at recommendations made by The Conference Board of the Mathematical Sciences (CBMS), U.S. schools have in the last decade placed a greater importance on data analysis. The report states, "Data-driven decision making and statistical studies have drawn interest from the general population and policymakers, as well as businesses and schools. Influenced by this new emphasis, data analysis has become a key component of the PreK–12 mathematics curricula across the country." Another bit of evidence that statistical studies are on the rise is that the number of students taking AP Statistics increased from 7,500 in 1997 to more than 200,000 in 2016. The report does caution, however, that "as statistics is receiving ever-increasing prominence in the PreK–12 curriculum, it is of paramount importance that it also gains prominence in teacher education programs."

This point is especially important. Unless teacher education programs see data analysis and statistics as a core skill set for any new teacher, it is hard to imagine how a majority of students will gain the knowledge and skills they need to manage modern life. But just how many teacher preparation programs are focusing on data analysis and statistics is hard to determine. According to the [National Board of Professional Teacher Standards](#) (NBPTS), an organization founded to advance the quality of teachers through a rigorous voluntary certification process, an accomplished NBPTS teacher has “core mathematical knowledge that includes numbers and operations, algebra and functions, geometry, discrete mathematics, trigonometry, data analysis and statistics, and calculus.” I can assure you the organization’s standards for data analysis and statistics require teachers to engage in a rigorous curriculum of mathematical study. I suspect if all U.S. teachers were required to have NBPTS certification (currently there are only about 125,000), the nation’s ability to analyze facts and understand statistical evidence would be world class.

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But even that would not address the issues of trust and willful ignorance discussed in the *Hidden Brain* segment. The truth is that even if there is an explanation for why otherwise smart people ignore basic facts and logic, their behavior ultimately impacts all of us. Does that make those individuals idiots? Not necessarily, but it does make them selfish. Blindly ignoring facts and evidence is far less about stupidity and much more about human nature. Perhaps what we really need is a two-pronged strategy that focuses on higher-order math skills *and* civics education. The current crisis serves as a painful reminder that no matter what those around us believe or ignore, we are still deeply connected as a people and a nation. And it is important to remember that even though some people’s stupid/selfish behavior is incredibly frustrating, the current crisis has generated far more examples of smart planning and civic grace. Thinking about those people gives my officemates and me hope that as a nation we will be smarter, kinder, and more tightly connected to each other when the worst of this is finally over.

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