Chapter 14

Inoculating Students Against Conspiracy Theories: The Case of Covid-19

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Abstract Posing a significant danger to society are conspiracy theories, particularly those regarding the Covid-19 pandemic. This paper argues for the crucial role of critical thinking education in ‘inoculating’ students against conspiracy theories and outlines an approach for building their defenses against these, and other, conspiracy theories. There are numerous epistemic, social, and psychological factors which play a role in the attraction of conspiracy theories and which need to be addressed in critical thinking education. Epistemic factors include myside bias, the ignorance of epistemic criteria, a lack of understanding of source credibility, and the particular epistemic traps of conspiracy theories. Social factors, including the structure of the information environment and psychological factors, including the desire for control, defensive bias, and cultural cognition also play a role. The paper describes how critical thinking education can address the epistemic shortcomings and errors which facilitate conspiracy belief and can provide students with the resources for inquiring in a rigorous and systematic way and for making reasoned judgment. It also outlines how the social and psychological factors can be addressed by creating a community of inquiry in the class that can counter these influences and foster a spirit of inquiry.

Keywords Epistemic issues · Community of inquiry · Conspiracy theories · Covid-19 pandemic · Critical thinking education · Social and psychological factors

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14.1 Introduction

Conspiracies theories, although having a long history, have gone viral in recent years. Posing a particular danger are conspiracy theories regarding the Covid-19 pandemic. Given the research showing how difficult it is to change the minds of conspiracy believers, it is crucial to intervene and educate people before they succumb to the siren call of conspiracy thinking. This paper will argue for the role of critical thinking education in ‘inoculating’ students against conspiracy theories and outline an approach for building their defenses and thereby reducing their susceptibility to these, and other, conspiracy theories.

14.2 The Nature and Influence of Conspiracy Theories

Why are conspiracy theories problematic? Real conspiracies do, in fact, exist. There is, for example, substantial evidence that the staff of then U.S. President Richard Nixon conspired to cover up the Watergate burglary, that the CIA plotted to assassinate Cuban president Fidel Castro, and that the tobacco industry conspired to hide the evidence of the harms of smoking. Thus, an explanation for these events in terms of “a secret plan on the part of a group to influence events partly by covert action” (Keeley, 1999, p. 116; Pidgen, 1995, p. 5) is entirely appropriate. The term conspiracy theory, however, is generally used to refer to theories, claiming the existence of conspiracies, that provide explanations which go against a straight-forward and well supported consensus explanation of events to posit unsupported, complex, and usually implausible explanations which attribute malevolent intent and are self-sealing and unfalsifiable. Being self-sealing and unfalsifiable is thus part of what defines a conspiracy theory (Napolitano, 2021).

Moreover, such conspiracy theories often pose considerable dangers to society. Conspiracy theories have emerged historically throughout the world (Sunstein & Vermeule, 2009). And, although many conspiracy theories (for examples those related to purported alien landings, flat earth, or the death of Elvis) seem relatively innocuous and have been considered fringe phenomena, more insidious conspiracy theories have recently entered the mainstream. As one example, QAnon, a group which posits the existence of a powerful cabal of Satanic cabalistic pedophiles, including prominent Democrats and media celebrities, which is plotting to control the United States, is purported to have millions of followers (Sen & Zadrozny, 2020) and counts among its supporters members of the U.S. congress (Cornwell, 2020). As an indication of the penetration of conspiracy theories, four nationally representative surveys between 2006 and 2011 indicated that half of the American public consistently endorsed at least one conspiracy theory (Oliver & Wood, 2014a, p. 952). A 2016 Italian study produced a similar result (Mancosu et al., 2017).

The dangers posed by such conspiracy theories take a number of forms. Many conspiracy theories are based on a suspicion of and antipathy toward certain groups in societies, often ethnic and other minorities e.g., the replacement theory which claims that the white population of France is being systematically replaced by non-Europeans, or the perennial theory that Jews are conspiring to run the world. Such theories fuel discrimination and hatred and are sometimes used to justify violent extremism, a prime example being the Nazis' use of antisemitic conspiracy theories to justify the extermination of Jews (Jolley et al., 2020; Nera et al., 2021).

Many conspiracy theories also have dangerous political consequences. In identifying an entire group as an enemy, they exacerbate social and political divisions. Moreover, their frequent targeting of government and public institutions promotes mistrust of these institutions, constituting a serious threat to democracy—the false claim that the 2020 U.S. Presidential election was stolen and the violent attack on Congress which ensued being a particularly chilling example.

A frequent target of conspiracy theories is science. Many theories spread mistrust in science as an institution and in scientific information. The idea that climate change is a hoax is one of the most pernicious, hindering efforts to try to mitigate this pressing and profound danger.

Medical and health information has also been a frequent target of conspiracy theories, with one study showing 49% of adults in the U.S. believing in at least one medical conspiracy theory (Oliver & Wood, 2014a, b). The theory that the fluoridation of drinking water is a communist plot to weaken the American population, that government agencies have conspired with Big Pharma to hide the effectiveness of natural cures, and that HIV and Ebola were created as a form of genocide against African-Americans and gay men are all examples of conspiracy theories that have been widely disseminated. A common target for conspiracy theories has been vaccination, with anti-vaccine theories promoting false claims, including that the pharmaceutical industry has mounted a cover-up of a causal link between vaccines and autism and the theory, popular in Nigeria and Pakistan, that vaccines are part of a secret anti-Islam plot (AFP, 2013; Eckel, 2013; Vaccines, CIA, 2011). Such theories encourage a mistrust of reliable medical and health information and promote risky health-related behaviours (Romer & Jamieson, 2020). Anti-vaccine theories have, for example, played a role in vaccine resistance (Jolley & Douglas, 2014) and have contributed to increased rates of infection and death from diseases such as measles in many countries, including the U.S., Italy, Germany, Romania and the UK (Germany Vaccination, 2017).

The Covid-19 pandemic has proven to be a particularly inviting target for conspiracy theories. The following are a few examples: the virus is a Chinese biological weapon; the pandemic is a Jewish plot to force mass vaccinations or sterilizations; the virus was spread as part of a Muslim conspiracy; the pandemic is a population control scheme; the pandemic is a plot by global elites to take away freedoms; Bill Gates is using the vaccination program to implant microchips to control people (Wikipedia, "List of conspiracy theories"). The widespread diffusion of these kinds of theories and the misinformation they promote play a role in impeding health and safety measures such as masking and social distancing necessary for controlling

virus spread and virus-related deaths and contribute to a suspicion of and resistance to vaccination, the best tool available for ending the pandemic (Earnshaw et al., 2020).

In addition to these dire practical consequences, conspiracy theories also pose serious problems of an epistemological nature. To the extent that they reject accepted criteria for what counts as evidence, what constitutes relevant expertise, how claims are justified, and how reasoned judgments are arrived at, conspiracy theories pervert basic norms of inquiry and undermine the possibility of making judgments on the basis of a collection of shared facts. In addition, in proffering explanations that are unfalsifiable and that tap into strong, often negative emotions, conspiracy theories tend to be deeply held and extremely difficult to shake.

14.3 The Attraction of Conspiracy Theories

14.3.1 *Social Factors*

There is significant research to suggest that various social and psychological factors play an important role in explaining the attraction of conspiracy theories (Douglas et al., 2017; Miller et al., 2016; Oliver & Wood, 2014a; van Prooijen & Acker, 2015). There are, for example, aspects of the social context which provide fertile ground for their proliferation and acceptance. The information environment provides one such context. As so much of our information is now gleaned via the internet, the filtering effect of search engines and social media in directing people to views with which they agree or in which they have shown an interest can limit their exposure to opposing views and evidence (Gelfert, 2018; Newman et al., 2017; Pariser, 2011). Social media “permit like-minded people to find one another ... while simultaneously shutting out criticism and disagreement” (Fukuyama, 2020, p. 15). Even views with little basis in fact can spread quickly (Miller et al., 2016), promoting conspiracy cascades, with continually increasing numbers of posts and followers reinforcing the impression of veracity (Sunstein & Vermeule, 2009). Moreover, the commercial motivation of social media corporations, which rely for their economic viability on keeping users active and ‘clicking’ as much as possible, has resulted in algorithms which are designed to capture attention and hence prioritize sensational content, amplify angry and divisive voices, send users ever more deeply down ‘rabbit holes’, and continually reinforce the developing narrative (Applebaum & Pomerantsev, 2021). These various features of the information environment can result in an amplification of conspiracy theory messaging and a limitation on the exposure to more reliable sources of information.

14.3.2 *Psychological Factors*

There are a number of psychological factors which have been shown to contribute to the acceptance and tenacity of conspiracy theories. One of the principal factors cited in the literature is a desire for control (Imhoff & Lamberty, 2020). The kinds of causal explanations which conspiracy theories provide tap into the human need for safety and security and for exerting control over the environment (Douglas et al., 2017; Miller et al., 2016). Research has demonstrated that conspiracy beliefs are heightened in circumstances in which people feel unable to control outcomes (van Prooijen & Acker, 2015).

Although the feeling of lack of control may stem from a sense of powerlessness in the face of one's life circumstances (Abalakina-Paap et al., 1999), it can also be caused or exacerbated by external conditions of uncertainty. Conspiracy theories appear to provide broad, internally consistent explanations that can reduce uncertainty in the face of conflicting information or seemingly inexplicable events (Douglas et al., 2017).¹ Thus situations and events which give rise to uncertainty and confusion (e.g., societal crises and major traumatic events such as the Kennedy assassination, the 9/11 attacks) are frequent targets of conspiracy theories (van Prooijen & Douglas, 2017). Pandemics create just such circumstances.

The current coronavirus crisis is an almost ideal breeding ground for conspiracy thinking (Van Bavel et al., 2020), as there is no easily comprehensible mechanistic explanation of the disease, it is an event of massive scale, it affects people's life globally and leaves them with lots of uncertainty (Imhoff & Lamberty, 2020, p. 1111).

Believing in certain conspiracy theories may also address feelings of intellectual disempowerment by providing a sense of being 'in the know', of thinking for oneself, of not being duped by the 'elite', of possessing important information that others don't have. Ironically, many conspiracy theory believers think of themselves as critical thinkers and pride themselves on "seeking the truth" (Tiffany, 2021).

Another factor encouraging receptivity to conspiracy theories is defensive bias, the tendency of people to perceive challenges to their beliefs as threatening to their sense of self-worth and so to defend them in the face of contrary evidence (Sherman & Cohen, 2002). Conspiracy theories serve to defend beliefs from disconfirmation by viewing disconfirmatory evidence as the product of the conspiracy (Lewandowsky et al., 2013).

Factors related to group identity, in particular cultural cognition, also play a role in fostering the acceptance of conspiracy theories. Cultural cognition involves individuals holding onto specific beliefs as a way of expressing their group identity and solidarity with others. As a consequence, they tend to evaluate information in a selective pattern that reinforces their group's worldview and resist information and

¹ That such explanations come so readily to mind may be accounted for, in part, by the human tendency to see patterns in disconnected phenomena, what Shermer (2008) calls patternicity.

evidence that goes against the dominant beliefs within their group in order to maintain their loyalty to and identity with the group (Kahan, 2013). This kind of resistance to counterevidence and identity based on group loyalty is often a prominent feature of conspiracy theories—one which we have witnessed with respect the 2020 U.S. election. This phenomenon is doubtless heightened by the extreme polarization of contemporary society, where those who hold differing views are not viewed simply as opponents but rather as enemies.² Many conspiracy theories, both historical (e.g., those targeting Jews) and contemporary (e.g., QAnon), have as a central tenet the demonization of “the other”. In addition to reinforcing a strong sense of group identity and conformity, they also create an enemy who can become the object of grievance and can be blamed for problems encountered by the members of the group (Sunstein, 213). Fear of “the other” is a strong animating factor for such conspiracy theories.

14.3.3 Epistemic Factors

A number of epistemic factors also play an important role in facilitating and encouraging the belief in conspiracy theories. These relate to cognitive biases, ignorance of epistemic criteria, and the particular epistemic challenges posed by conspiracy theories.

14.3.3.1 Myside Bias

Epistemic biases such as myside bias or confirmation bias are common weaknesses in people’s thinking that help sustain beliefs in dubious theories as people only seek information that supports their theories (Stanovich, 2011). Failure to seek alternative information or counter claims and the resultant reliance on limited and one-sided sources of information when making judgments and decisions constitutes what Sunstein and Vermeule (2009) call a “crippled epistemology” (p. 204). This reliance on “a sharply limited number of (relevant) information sources” is, they claim, a primary contributor to the belief in conspiracy theories.

14.3.3.2 Ignorance of Epistemic Criteria

In addition, a failure to understand how claims and theories are established and evaluated means that individuals do not have the tools to distinguish between the credible and the dubious. A lack of knowledge of the range of epistemological norms used to justify and critique claims in a variety of areas, including, for example, criteria

² See also Mohammed & Rossi (2022, this volume), for a discussion of the argumentative potential of doubt that is typical of conspiracy theories, where opponents are treated as enemies rather than as cooperative discussants.

for judging causal claims, for evaluating statistical arguments, the role of consensus in validating scientific claims, allows for belief in dubious claims. In addition, epistemic considerations such as the burden of proof, Occam's Razor, and Hume's Rule, which play a crucial role in evaluating explanations, are frequently violated by conspiracy theories (Wagner-Egger et al., 2019). Thus, the failure to apply them can lead to misplaced credence in such theories.

14.3.3.3 Lack of Understanding of Source Credibility and Expertise

Conspiracy theories are also fueled by and rely on a mistrust of established and widely accepted sources of information. Accepting reliable sources of information depends on trust in those considered experts in an area and in the institutions that generate the information and produce the experts. While there can be grounds for questioning authoritative sources in particular cases, an overall trust in these sources is a crucial basis for making reasoned judgments. There has, however, been a considerable eroding of trust in such knowledge-producing institutions and in the expertise they authorize, as well as in governments and institutions and in their recommendations and actions (Fukuyama, 2020; Naím, 2013). Imhoff and Lamberty (2020) make the point with respect to the belief in Covid-19 conspiracies:

Conspiracy mentality... has been connected to distrust in both science in general and the biomedical system more specifically (Galliford & Furnham, 2017; Lamberty & Imhoff, 2018; Oliver & Wood, 2014a, b). Thus, people who endorse a conspiracy worldview are particularly unlikely to trust the expert recommendations aimed at reducing infection rates (p. 1111).

Such a link between conspiracy theories and lack of trust is also noted by Smallman in his examination of numerous conspiracy theories, including those related to the 2009 H1N1 flu pandemic (which are very similar to those related to the Covid pandemic):

With the outbreak of H1N1 in 2009, people began to create narratives about the virus, which reflected their fears not only of the disease but also their mistrust of authorities... At the core of these narratives was the question of trust, which often entailed conspiracy theories (Smallman, 2015, p. 17).

Ironically, the trust vacuum is largely filled by trust in outsiders, those considered not part of the 'elites' and so immune from the type of self-serving motivations attributed to the elites (for example, trust in false information regarding the Covid pandemic from a discredited former researcher in the film *Plandemic* rather than from legitimate health authorities) and from like-minded users of social media. Conspiracy believers are not, then, generally sceptics, doubting all claims and refusing to trust any sources. What is striking is their naive acceptance of highly dubious sources. This misplaced trust demonstrates that understanding the criteria for assessing reliable sources of information is crucial to identifying the epistemic weaknesses of conspiracy theories.

In addition, a lack of trust in expertise and in knowledge-generating institutions such as science can be fueled by a failure to understand how claims and theories are established and evaluated. To have a reasonable trust in scientific information and

scientific experts requires understanding the crucial role that scientific consensus, peer review, peer criticism, experimental replication, and statistical inference play in the establishment and advancement of scientific claims. Failure to understand how these processes contribute to the self-correcting and evolving nature of science can lead people to the belief that changes in scientific claims means that such claims cannot be trusted. It can also contribute to the general lack of trust in expertise described in Sect. 3.1. A lack of understanding of the features of the information environment, described in Sect. 3.1 (e.g., the filtering effects of search engines, the commercial motivation and attention-capturing algorithms of social media), can also contribute to trust in social media sources over traditional more credible sources.

14.3.3.4 Epistemic Traps of Conspiracy Theories

Finally, there are a number of epistemic features of conspiracy theories which are particularly problematic. Although they may add to the initial plausibility or appeal of such theories, they reflect a misunderstanding of how theories are supported and evaluated and need to be recognized as such.

One the characteristics of conspiracy theorists that they share with, for example, climate deniers and intelligent design theorists, is “anomaly hunting”—focusing on facts that are inconsistent or cannot be explained by the established theories as evidence of the alternative theory. A failure to understand that theories are justified by the preponderance of evidence, not by a single study or fact, nor are they refuted by a few anomalies, can lead to the appeal of theories which appear to have an answer to every possible piece of errant data (Keeley, 1999).

Conspiracy theories also have a self-sealing quality, making them appear particularly immune to challenge. When counter evidence is provided or lack of evidence for the theory is noted, the theorists ascribe these problems to further efforts by the conspirators to obscure or mislead inquiry. The consequence of this strategy is that the theory becomes self-sealing or unfalsifiable—nothing is allowed to count as counter evidence.

Most conspiracy theories are implausible on their face because they require elaborate participation by significant numbers of conspirators. For sceptics the elaborateness of the conspiracy is evidence of its unlikelihood, but for believers it fits with their theory that the conspirators are widespread and well-coordinated, curiously crediting them with remarkable ingenuity and loyalty.

14.4 The Role of Critical Thinking Education

The widespread belief in conspiracy theories is a cause of considerable concern. Thus, finding ways to counter or undermine such beliefs is a vital task. Research shows, however, that conspiracy beliefs tend to be tenacious and not easily overturned, and that trying to change people’s minds through evidence and argument is extremely

difficult and can even backfire (Nyhan & Reifler, 2010). It is crucial, then, to intervene early and educate people before they have adopted unsupported or conspiratorial views and to provide them with the resources necessary for resisting their temptation.

The obvious venue for such intervention is critical thinking education. The traditional approach in critical thinking courses, i.e., the analysis and evaluation of individual arguments and fallacy identification, can be helpful by providing logical criteria (both formal and informal) for the evaluation of individual arguments. Being able to identify invalid or fallacious arguments is useful in helping to recognize the many false or misleading claims that permeate conspiracy theories. It is not, however, sufficient. Critical thinking courses need to address the various reasons for and causes of belief in conspiracy theories described previously. One main type of reason we have suggested is epistemic. The problem is not just that students have difficulty in identifying falsehoods and fallacies, but that they lack the resources necessary for finding credible information and for making reasoned judgments. They lack the resources to inquire in a rigorous and systematic way into the issues that are the subject of the conspiracy theories.

Consequently, giving students the resources for making reasoned judgments is an effective way to prepare students to resist conspiracy theories. This is a task which we believe is fulfilled by an approach to critical thinking education focused on critical inquiry (Bailin & Battersby, 2016). In this approach, students learn how to go about inquiring into controversial issues, including clearly identifying the issue, identifying arguments on various sides of the debate around the issue, identifying credible sources, and comparatively evaluating the various reasons and arguments according to relevant criteria to reach a reasoned judgment. They also learn to address the particular epistemic challenges posed by the nature and structure of conspiracy theories.

In addition to attending to the epistemic shortcomings and errors which facilitate conspiracy belief, critical thinking instruction also needs to address the social and psychological factors outlined previously that underlie believing in conspiracy theories. This can be done by creating a community in the class that can counter these influences. Finally, critical thinking courses need to have as a focus fostering the habits of mind and spirit of inquiry that will assist students in caring about truth and giving a fair-minded assessment of a diversity of views, including those with which they disagree.

14.4.1 Addressing Epistemic Issues

14.4.1.1 Avoiding Myside Bias

There are several ways in which the inquiry approach can help to mitigate this tendency to only look at and favour arguments on one side of an issue. One aspect that can be helpful in this regard is that the criteria for clearly identifying an issue require an issue to be framed in a neutral way. As example, a neutral framing of

an issue with respect to the pandemic might be “What are the costs and benefits of vaccination?” This can be contrasted with the kind of biased search for information and arguments that might result from asking, for example, “Is the pandemic a hoax?” which will likely turn up largely conspiracy theory websites and sources.

The inquiry approach can also address the tendency to myside bias by requiring a systematic evaluation of arguments on various sides of an issue, including objections and opposing positions, and basing one’s judgment on a comparative evaluation of the various arguments (Bailin & Battersby, 2017). This can help to prevent a “crippled epistemology” and introduce the kind of “informational diversity” (Sunstein & Vermeule, 2009) that can lead to reasoned judgments.

The exposure to conflicting views is also facilitated by deliberation in groups. There is considerable evidence that discussion of conflicting positions among peers helps people to see both sides of an issue, to acknowledge counter-arguments, to make better arguments (Battersby & Bailin, 2018; Kuhn, 2015; Kuhn & Crowell, 2011), and to change their minds toward better beliefs and decisions (Mercier et al., 2015; Neblo, 2007).

14.4.1.2 Emphasizing Relevant Epistemic Criteria

For a critical thinking course to inoculate students against conspiracy theories, it must provide instruction in the various criteria required for assessing claims and theories. Although these would include logical criteria for evaluating argumentative inferences, students also need to learn the range of epistemic criteria used to justify and critique claims in a variety of areas, including, for example, criteria for evaluating scientific claims, causal claims, or statistical arguments. The ability to apply such criteria is important for evaluating the numerous scientific or pseudo-scientific claims that arise in the context of conspiracy theories about the pandemic.

There are, in addition, epistemic considerations and criteria that are especially relevant to assessing conspiracy theories. One of these considerations relates to the burden of proof. It seems clear that those who assert conspiracy claims bear the burden of proof, similar to prosecutors in court. Since their theories challenge default and widely accepted views, often to a considerable extent, they should provide evidence appropriate to their very significant burden of proof. To do so, they must meet well established epistemic criteria. Students need to learn to require of all claims, but especially the more implausible claims, that they meet all relevant epistemic criteria before they are tempted to abandon well established views.

Another such criterion is Occam’s Razor. Occam’s Razor requires that the simpler, less complex explanation for an event should be favoured over more complex explanations. Thus, conspiracy theories, which frequently propose widespread participation requiring numerous players and elaborate efforts and coordination, generally violate Occam’s Razor. For example, the explanation of the destruction of the second of the Twin Towers in 9/11 as a pre-rigged explosion that was part of a government conspiracy requires numerous actors and elaborate efforts to prepare the tower for destruction. The accepted explanation, that planes crashing into the tower caused the

collapse of the second tower, requires only the work of two Saudis who flew that plane. Thus, it is a simpler, and thus more epistemically acceptable, explanation.

Another relevant epistemic criterion is Hume's rule: "claims of extraordinary events require extraordinary evidence." While Hume used this rule to criticize belief in miracles, it also applies to any extraordinary explanation of events. Explanations of events in terms of large conspiracies (e.g., the pandemic is a Jewish plot to force mass sterilizations), or extraordinary assertions such as that Bill Gates is using vaccination to implant micro-chips, clearly fail Hume's rule. There is no evidence that would satisfy Hume's Rule. Such theories would be rejected by anyone who understands the role of this epistemic criterion in preventing the acceptance of unwarranted beliefs.

14.4.1.3 Understanding Source Credibility and Expertise

Given our dependence for our beliefs on external sources of information and given the reliance of conspiracy theories on dubious and untrustworthy sources, the ability to evaluate source credibility and expertise becomes especially crucial. There are two interconnected issues involved. One is how to evaluate the expertise of an individual or group making a claim. Among the criteria which students need to understand in order to make such an evaluation are the competence of the expert in the domain, the lack of obvious bias, and consensus of the relevant experts supporting the claim in question (Bailin & Battersby, 2016, p. 143).

Knowledge of the criteria is not sufficient, however. Given the current distrust of expertise, students also need to understand the basis for the criteria, the reason for trust in particular experts and in expertise more generally. Why, for example, should one generally trust an epidemiologist over an anesthesiologist regarding information about the Covid-19 virus? (Competence in the relevant area). Why should one be suspicious of claims about hydroxychloroquine by a company which sells it? (Bias, conflict of interest). Why should one trust a medical researcher over one's friend regarding the safety of Covid-19 vaccine, even if the friend is well-meaning? (Rigour of scientific research).

The second issue relates to the credibility of different sources. Students need to understand, for example, why one should trust scientific information in *Lancet* over CNN or Fox News, or over a post on social media. In order to appreciate the differences among these sources, students need to understand the role of peer review in establishing scientific claims in comparison to how claims are established and disseminated on news sites or through social media (see Sect. 4.2). They also need to know to look for disciplinary consensus of the relevant experts when trying to verify a claim. It is important for students to recognize, however, that scientific consensus does not mean that all scientists agree and that there will often be a minority of dissidents on any issue. But students need to understand that the best basis for a layperson's trust in a claim is that the claim is held by the vast scientific majority.

The issue of source credibility is complicated, however, by the fact that the web and other digital media, which now provide a prominent source of information, appear more and more to contain heavily biased websites and sources which are

solely designed to persuade rather than inform but have been constructed to deceive viewers into thinking they are credible sources of information. There are a number of criteria which can be helpful to students in evaluating web and other media sources, including those related to their credibility, expertise, possible bias, and motivation, as well as to their manner of presentation, e.g., tone, intelligibility, reasonableness, confidence level (Bailin & Battersby, 2016, pp. 151–152).

The traditional approach to evaluating websites and their arguments involves deploying these criteria when examining the arguments and sources provided by the site or source itself. But a more sophisticated approach is to employ “lateral reading,” which involves first moving off the site in question to other sites or sources to identify the authorship and biases of the site as well as what the disciplinary consensus is on the claim in question (Caulfield, 2017; Wineburg & McGrew, 2017). Recognizing websites or sources as deceptive can then be a basis for not spending valuable time looking in detail at the arguments of the source and so not risking falling into its traps.

As an example, let us look at a web page put out by the organization, America’s Frontline Doctors, which features an interview with a former Pfizer VP arguing that the Covid-19 vaccination is being used for massive-scale depopulation (America’s Frontline Doctors, 2021). The site is constructed to look like a legitimate medical site. However, students doing a lateral reading would quickly discover that America’s Frontline Doctors is an American *right-wing* (<https://en.wikipedia.org/wiki/Right-wing>) political organization opposed to pandemic restrictions and promoting unapproved *treatments* (https://en.wikipedia.org/wiki/Treatment_and_management_of_COVID-19) and that the group’s founder and its communications director were both arrested in connection with the *January 6 storming of the United States Capitol* (https://en.wikipedia.org/wiki/2021_storming_of_the_United_States_Capitol) (Wikipedia, “America’s Frontline Doctors”). A look at other, credible sites would quickly reveal that the views promoted on the site about Covid-19 vaccination are widely rejected by health professionals. In addition, the claims on the site exhibit all the problematic features of conspiracy theories. These factors, as well as the discovery of the motivations behind the site and its deceptive nature would provide students with grounds for not going deeply into the detailed arguments. This is a case where knowing information about the site is relevant to its evaluation (Bailin & Battersby, 2016, pp. 86–88) and dismissal of the arguments on the site avoids the ad hominem fallacy by being supported by other relevant epistemic criteria.

14.4.1.4 Avoiding the Epistemic Traps of Conspiracy Theories

One of the misleading epistemic features of conspiracy theories noted previously is their appeal to anomalies and discrepant data in the accepted theory to bolster their alternative account. To avoid being taken in by this strategy, students need to understand that typically theories will face data for which there is not, or not yet, a satisfactory explanation. Such data furnish the material for further inquiry and are

not a ground for the rejection of well-established theories. Theories are justified by the convergence of evidence from many lines of inquiry and are not refuted by a few anomalies.

Another problematic feature of conspiracy theories noted above is their unfalsifiability. For a theory to be worthy of investigation, it must be stated in such a manner that it is clear what facts could in principle count against it.³ If the destruction of the second tower in the 9/11 attack were caused by explosives inside the building, then one would expect the existence of explosive residue, and the lack of explosive residue would count against the theory that this was the cause. But if the conspiracy believers counter that the lack of such evidence is actually further evidence of the effectiveness of the conspirators in removing or suppressing evidence, then it becomes clear that the theory is “self-sealing” and that no facts are allowed to count as counter evidence. The conspiracy theorist’s stand turns the usual support relationship between evidence and proof on its head so that the absence of evidence is taken as support for their theory. Students need to learn to recognize this self-sealing structure of conspiracy theories and understand that it renders them immune to challenge—a characteristic that means that they will fail to meet the criterion of falsifiability.

Another problem that conspiracy theories run up against is plausibility. We all use an informal notion of plausibility to weed out seriously unlikely claims. One of the major weaknesses of most conspiracy theories is that the alleged conspiracies involve a large number of people (the Jews, the Democrats, global elites, the deep state, the U.S. government). Those actual conspiracies that we know about, e.g., Watergate, we know about in part because of “leakage.” The more people that are involved, the more likely it is that some will leak what is going on to the press or public. It is implausible that a widespread conspiracy would not have leakers. Technical challenges can also undermine the plausibility of a conspiracy theory, for example the technical implausibility of the claim that Covid vaccines are being used by Bill Gates to place microchips in people or of the claim that the collapse of the 2nd tower in the 9/11 attack was the result of extensive rigging of explosives (World Trade Center Demolition, 2021). Thus, a question that students need to learn to bring to such theories is “Are they really plausible?”

A useful contrast with the functioning of conspiracy theories to point out to students is how real conspiracies have been identified. These are known because they have been uncovered by the very mainstream media that conspiracy theorist reject—often by obtaining access to formerly classified documents for proof or by the publication of information from knowledgeable participants. For some examples, see revelations about the Tuskegee Syphilis Study uncovered by Associated Press (AP, 2017); The New York Times uncovering of secret CIA LSD experiments (Hersh, 1974); and Edward Snowden’s exposure of the secret collecting of the telephone records of U.S. citizens by the NSA, revealed in The Guardian (2013).

³ While falsifiability is controversial as a tool for demarcating scientific vs pseudo-scientific claims, it is not controversial to require that a claim be able to be falsified at least in principle and that believers should be able to state the kind of evidence that could falsify the claim.

14.4.2 Addressing Social and Psychological Issues

Providing students with the epistemic resources for making reasoned judgments as well as addressing the particular epistemic traps set by conspiracy theories are essential for building their defenses against such theories. They are not, however, sufficient. It is also vital, in critical thinking education, to address the various social and psychological factors which account for their attraction (Bailin & Battersby, 2018).

We discussed previously the necessity of teaching students how to evaluate information, including on the internet and in social media. In order to appreciate the basis for such an evaluation, however, it is also important for students to understand the structure and functioning of the information environment. They need to understand, for example, how social media tend to create echo chambers which limit exposure to opposing views and evidence, facilitate information cascades which reinforce the impression of the veracity of the information, and employ algorithms that highlight sensational content. But more broadly, what is required is an understanding of “the social and economic contexts that influence how information is created and circulated” (Fister, 2021) and that give rise to such features. An important aspect relates to the commercial values and motivations of social media corporations in contrast to the values and practices of “truth-seeking institutions such as science, scholarship, and journalism” (Fister, 2021). Such an understanding undergirds an appreciation of the difference in trustworthiness between social media sources and more mainstream institutions of knowledge production and dissemination, and between accredited experts in a field and social-media influencers.

An inquiry approach to teaching critical thinking also has the potential to address the desire for control and feeling of powerlessness in the face of uncertainty and confusion that fuel the belief in conspiracy theories. Learning a systematic and manageable approach to sorting through and evaluating masses of information, conflicting information, and mis/disinformation in order to make reasoned judgments can reduce anxiety in the face of uncertainty and can give students a justified sense of intellectual agency. Rather than simply demonstrating the weaknesses in conspiracy theories, the inquiry approach offers a way to find credible sources and claims and to make reasoned judgments. Given that many conspiracy theory believers think of themselves as truth-seekers (Tiffany, 2021), the inquiry approach offers an accessible, comprehensible, and powerful method of seeking the truth which can be profoundly empowering.

Concern over uncertainty can also be reduced through an understanding of why information may, and, indeed, is likely to change and that the evolution of information indicates that we are learning on the basis of new evidence and acquiring ever improved beliefs. Students thus need to acquire an appreciation of the fallible nature of knowledge and the self-correcting nature of inquiry and need to understand that, as long as we continue to inquire, certainty is an unrealistic, and perhaps impossible goal.

The resources which students need to acquire in order to be less vulnerable to the lure of conspiracy theories go beyond the understandings and capacities necessary for making reasoned judgments to include many of the virtues of inquiry, including intellectual humility, an openness to evaluating counterevidence in a fair-minded way, and a willingness to revise one's beliefs when warranted by the evidence. Also important is the ability to engage in reasoned interchange and dialogue and the propensity to do so in one's argumentative interactions.

Fostering these virtues in critical thinking education requires a focus on the setting, structure, and relationships in the class. This can be achieved through the creation of a community in the classroom (Dewey, 1938; Lipman, 2003) in which small group collaborative deliberation is central and which instantiates the norms of critical inquiry, including open-minded and fair-minded exchanges, rigorous but respectful critique, following arguments where they lead, and changing one's mind when justified by the evidence and arguments. It is also a community committed to respectful treatment, meaningful participation, and productive interaction (Bailin & Battersby, 2016, 2018).

The focus on small group deliberation and on a community of inquiry instantiating norms of collaborative rational inquiry can help to address some of the social and psychological factors which increase vulnerability to conspiracy beliefs. Such a community can mitigate defensive biases in that it is a community in which value is placed not on supporting particular views but rather on being reasonable. Thus, students can learn not to feel threatened by challenges to their views and so to become less susceptible to the self-affirming quality of conspiracy beliefs.

A community of inquiry also has an important role to play in addressing the challenges posed by cultural cognition by creating a community of affiliation as an alternative to or counterbalance to one's cultural community. In a community of inquiry, group identity is constituted not by a commitment to specific beliefs but rather by adherence to the norms of rational inquiry.

Small group deliberation and the community of inquiry can also lessen polarization and foster social trust among people who disagree by creating a community of individuals working collaboratively toward a common goal of making the best possible judgments. Particularly important in a highly polarized climate are norms for respectful interaction and respectful disagreement. Learning to conduct reasonable and respectful deliberative discussions in the context of disagreement is an important aspect of a community of inquiry.

14.5 Conclusion

Conspiracy theories pose considerable dangers to society, not least among them is the harm caused by conspiracy theories regarding the Covid-19 pandemic. Given the difficulty in dissuading those who hold conspiracy beliefs once these beliefs become entrenched, there is a need to educate students before they come under the thrall of these theories in a way that enables them to protect themselves from such

beliefs. This entails developing an understanding of inquiry—of how to inquire and why one should—and an understanding of and justified respect for expertise and epistemic criteria, including those which address the special challenges posed by conspiracy theories. It also involves fostering the virtues of inquiry, including intellectual humility, an openness to evaluating counterevidence in a fair-minded way, and a willingness to revise one's beliefs when warranted by the evidence. Finally, it involves providing students with the experience of inquiring in a reasonable community which respects the norms of inquiry and of reasonable dialogue, including with those with whom we disagree. Intervening early, before students have adopted unsupported or conspiratorial views and providing them with the resources necessary for resisting their temptation is perhaps our most promising avenue for combatting conspiratorial views.

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