What Works to Build Mental Immunity

A Resource for Teachers by CIRCE as part of the Mental Immunity Project

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THE COGNITIVE IMMUNOLOGY RESEARCH COLLABORATIVE

Accuracy Nudges

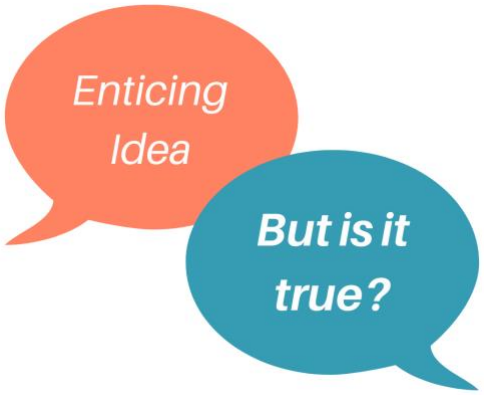
Also called “accuracy prompts,” accuracy nudges are simple remarks encouraging people to seek accuracy rather than settle for merely appealing or convenient judgments.[1] It is easy to mistake the usefulness of an idea for truth. When we come to rely on ideas that are useful but false, though, our thinking can go badly astray. “But is it true?” is a great way to remind students that usefulness does not guarantee truth. It’s also a reminder that, to think clearly and well, we need to check our claims for accuracy.

Applications

- **Point out** that usefulness and truth are different things, and illustrate why it’s often a mistake to settle for convenient fiction. Going the extra mile for true beliefs often works out better in the long run.
- **Prompt** students to raise their hand if they think such-and-such claim is true. After students respond, ask "But is it *really* true?" and “How can we find out?” Then find out together.
- If a student makes a questionable claim, invite them to share their reasons or **evidence**. “Help us understand why we should rely on that claim as true.” "Is there an experiment or study that shows this?" When you nudge students to check the accuracy of their statements, it fosters a classroom culture of curiosity and accountability.

Notes

The concept of an accuracy nudge comes from research on how to improve (online) social networks.[2] Given that the classroom functions as a unique social network, we believe accuracy nudges will prove useful to educators. Encouraging students to seek accuracy should help improve their evidence-based reasoning skills and cultivate a shared drive to seek truth. This shared interest in truth-seeking is characteristic of communities of inquiry, which will be a topic of focus in a future post!



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On the Efficacy of Accuracy Prompts Across Partisan Lines: An Adversarial Collaboration[3]

[1] Nature Communications, Accuracy prompts are a replicable and generalizable approach for reducing the spread of misinformation

[2] Misinformation Review, Developing an accuracy-prompt toolkit to reduce COVID-19 misinformation online

[3] Psychological Science, On the Efficacy of Accuracy Prompts Across Partisan Lines: An Adversarial Collaboration

Active Inoculation

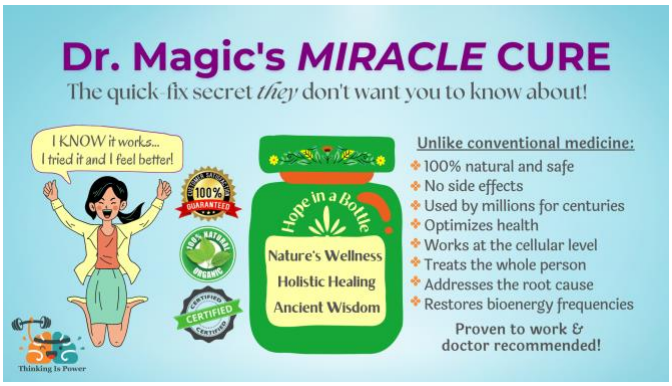
Having students create disinformation is an effective way to inoculate them against it. This is called active inoculation.[4] For example, pupils can make up silly conspiracy theories and deceptive ad campaigns. Such exercises invite them to playfully deceive, which gets them thinking about the techniques bad actors use to fool people. A conversational debrief can help them draw the right conclusions.

Applications

- Teach students to look for clues that something might be manipulative.[5,6,7] For example, "**angertainment**" is sensationalized news that deliberately stokes outrage. Have students create fake angertainment[8] newscasts, then discuss them. *What works, and why?* [9]
- Have teams of students develop **pseudoscientific advertisements**.[10]
- Have them invent and defend **wacky conspiracy stories**. Explain that a true believer can always dismiss falsifying evidence by claiming it was planted by the conspirators.

Notes

Make it clear that you're not encouraging deceptive messaging. Understanding tricky information is a powerful skill, and with great power comes great responsibility. We must all be guardians and seekers of the truth: we should call out misleading techniques, and never use them to mislead others.



Learn More

"Inoculating Students against Misinformation by Having Them Create It"[7]

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[4] Journal of College Science Teaching, Combining Different Inoculation Types to Increase Student Engagement and Build Resilience Against Science Misinformation

[5] Psychology Today, Disinformation Techniques: How to Spot Them

[6] NATO Strategic Communications Centre of Excellence, Inoculation Theory and Misinformation

[7] Inoculation Science - Video Resources

[8] Fearless Future on LinkedIn, Rise of the Angertainment Economy

[9] Skeptical Inquirer, Inoculating Students against Misinformation by Having Them Create It

[10] Thinking Is Power, How to Sell Pseudoscience in 9 Easy Steps

Bias Awareness

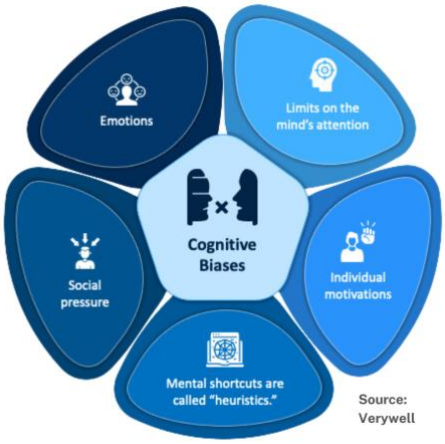
If you're human, biases distort your thinking. In fact, there are over 200 documented cognitive biases! [11] Fortunately, this doesn't mean that our thinking is hopelessly corrupt. The takeaway is that we need to guard against some all-too-human tendencies. If we're humble and careful, we can compensate for our biases and become clearer, more capable thinkers. For example, knowing that we're prone to confirmation bias can make us less certain and more attentive to disconfirming evidence. We're also prone to imagine causal connections that don't really exist. Knowing this, you can make a habit of asking "Do we really know that this *causes* that?"

Applications

- Focus on teaching students a few of the **most common biases**, like confirmation bias, negativity bias, motivated reasoning, and the availability heuristic, along with examples. Yourbias.is is a fantastic resource. The Lowdown also has a good lesson plan for this.[12]
- Ask students the **questions**, "Could biases be coloring our views about this? Which one(s) might be at work here, and how might they be distorting our judgment?" Encourage them to raise such questions themselves.
- Try a Mad Lib-like word **game** to help students explore the subject of unconscious bias[13].

Notes

It's important to learn about biases in an active way. Simply having students memorize lists of biases won't help them understand or apply that knowledge. We want students to be aware that biases creep into *everyone's* thinking. There's no shame in this: it just means we need to practice spotting it, then making allowances. Often, this means dialing down the conviction influenced by the bias.



[11] Wikipedia, List of cognitive biases

[12] The Lowdown by KQED Learning, Lesson Plan: Can You Beat Cognitive Bias?

[13] Edutopia, An Engaging Word Game Helps Students Grasp Implicit Bias

Communities of Inquiry

One way to build mental immunity is by fostering a community of inquiry. Written about in *Mental Immunity*, communities of inquiry are united by a shared curiosity and collaborative search for truth. This concept largely comes from the community of philosophical inquiry (CPI) method of the Philosophy for Children (P4C) movement. CPI is an educational method developed by the late co-founders of the Institute for the Advancement of Philosophy for Children (IAPC) at Montclair State College, Matthew Lipman and Ann Margaret Sharp.[14] Lipman and Sharp pioneered CPI/P4C as an educational approach whereby students engage in moderated philosophical dialogue, helping them develop critical thinking, reasoning, and collaboration skills. By encouraging their innate curiosity, this method nurtures student's intellectual autonomy and comfort with uncertainty, which are key to lifelong learning. The rest of this article will delve into this pedagogical approach.

The Method

Ideally while sitting in a circle or horseshoe shape to aid in discussion and listening,[15] a typical session employing the Community of Philosophical Inquiry method would involve the following seven (or six) steps.

1. Starter Activity (Optional)
Try this to stimulate interest and engagement. Options include asking a "Would You Rather" question, such as "Would you rather wrong someone or be wrong by someone? Why?"[16] Another example is a "must have, could have" exercise. For example, ask "What properties must something have to be considered a bike?" Some sort of thinking activity can help "get the gears turning" but is not necessary if time is limited.

2. Stimulus Material
The inquiry must begin with a stimulus material. This can be anything from an object to a story. The chosen stimulus should be intriguing yet open-ended to avoid focusing the discussion too narrowly. Resources like *The Philosophy Shop* or *Provocations* can provide useful materials. The stimulus acts as a hook, sparking curiosity and prompting thoughtful questions.

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[14] Inspired by the works of Charles Sanders Peirce and John Dewey, their method emphasizes the importance of a collaborative thinking community where intellectual autonomy is nurtured. Although it's paywalled, this essay may be of interest to anyone looking for a deeper dive into this topic: Lipman, Dewey, and the Community of Philosophical Inquiry. Here's an excerpt from the abstract: "This paper explores CPI as a concrete application of John Dewey's educational theory, which posits a drive towards the reconstruction of habits—including, and perhaps primarily, the reconstruction of habits of belief—as an ongoing result of the dialectical relationship between our current habits and what he calls "impulse," and works to overcome through dialogue the gaps Dewey identified between child and curriculum, the "psychological and the logical," and ultimately, between child and adult."

[15] This is emphasized here: P4C: what, why and how?

[16] Plato's *Republic*

3. The Question
A key element of CPI is generating a philosophical question from the stimulus material. This question should be broad enough to invite diverse perspectives and deep enough to require thoughtful consideration. The goal is to avoid questions with straightforward answers and instead foster discussion that encourages critical thinking. The teacher (or discussion leader/facilitator) can decide what this question is beforehand.[17]

4. Thinking Time
Students are given time to reflect and write down their thoughts and reasons. This quiet period helps them organize their ideas clearly and prepares them for the ensuing discussion.

5. Small Groups and Pairs
Students first share their thoughts in smaller groups or pairs. This stage allows them to articulate their ideas in a less intimidating setting. Encourage students to be polite and respectful when challenging each other's viewpoints. Facilitate by circulating, stimulating discussion, and reminding students of the inquiry's collaborative spirit.

6. Whole Group Inquiry
The class comes together to share their insights in a whole group discussion. Only one person should speak at a time, and students must raise their hands to participate. These rules should be made clear from the outset. The teacher should facilitate by ensuring balanced participation, summarizing main points, keeping track of the student queue, and gently guiding the conversation as needed. This stage can be challenging, requiring teachers to be attentive and supportive, particularly for shy students.

The group inquiry process is perhaps the most important part, but also the most unpredictable. Occasionally, you may need to break back into smaller groups if too many hands are raised and there's not enough time to effectively wrap up the discussion. This ensures everyone has a chance to at least share their thoughts before ending the session.

7. Final Reflection
The inquiry should conclude with a reflection session, where students individually summarize the discussion, consider if and how their views have changed, and reflect on the inquiry as a whole. This metacognitive step reinforces the value of being open to changing one's mind and promotes self-awareness in thinking.

This worksheet can be used to help guide the process outlined above.

[17] This is a modified version of the traditional method whereby students democratically select the focus question, which has the benefit of giving the students more power over the process, but time constraints often make it is preferable for the question to be provided by the facilitator.

Additional Notes and Considerations

Importantly, this method is not a silver bullet. It works best when students or group members are accustomed to this collaborative model, which can take some practice and experience. So don't give up on it if it doesn't go as you expected the first, second, or even more times. With more practice, it should become more and more useful. The model should be adaptable to serve the needs of the inquiry, but it should not be a free-for-all discussion that turns into an unproductive debate or untamed argument.

To prevent them from becoming chaotic and counterproductive, in addition to following the method outlined above, CPI discussions must be rooted in fundamental values of kindness, collaboration, critical thinking, and creativity. Teachers and leaders can benefit greatly from understanding the theoretical foundations of CPI to implement it effectively, so we highly recommend reading into this topic more if you'd like to work on implementing it in your classroom, community, or organization more regularly.

By fostering communities of inquiry, educators can foster classrooms where students learn to ask meaningful questions, engage deeply with ideas, and develop the critical thinking skills essential for navigating an increasingly complex world. Finally, communities of inquiry need not only be cultivated in classroom settings; Glenn et al at The Thinker CIC can speak to this.

Learn More

Young Plato - Official Trailer - Documentary about a primary school in Belfast that employs a philosophical approach to education to counteract the negative cultural influences that many of the students face in their lives outside the classroom.

The Pedagogy of the Community of Philosophical Enquiry as Citizenship Education: Global Perspectives on Talking Democracy into Action - book from Routledge

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This article was written in collaboration with Glenn Skelhorn, director of The Thinker, a not-for-profit Community Interest Company (CIC) that empowers minds and communities of the Liverpool area through discussions and thinking workshops. Glenn has years of experience in practicing philosophy with younger students and with community members outside of traditional classroom settings. Follow The Thinker CIC on Facebook and Instagram.

Critical Ignoring

Critical Ignoring involves strategically disregarding misleading and low-quality information and choosing which information to focus on. This competency is essential in the digital age, where the vastness of accessible information demands that we efficiently allocate our limited attention to stay informed and maintain mental immunity against manipulative content.[18]

Applications[19]

- Teach students to create a less distracting digital environment by utilizing **self-nudging**[20] strategies. Examples include setting time limits on social media, limiting notifications to reduce interruptions, and employing tools to block distracting websites. These things empower students to take control of their digital spaces, enhancing focus and reducing the allure of low-quality information.
- Teach students **lateral reading**[21], which involves verifying the credibility of information by checking other reliable sources rather than solely relying on one source of information.
- Teach the **"Do Not Feed the Trolls" Heuristic**[22]: don't engage with online trolls and malicious actors who aim to disrupt and provoke. Teach students to block and report such individuals rather than retaliating. Blocking and reporting will deprive online trolls of the attention they seek, maintaining a healthier online environment.

Notes

"Critical" is a key modifier; we don't want to teach students to ignore information generally, as that would most likely reinforce cognitive biases. Importantly, critical ignoring is not just about avoiding misinformation but also about managing one's cognitive resources effectively.

Learn more

To navigate the dangers of the web, you need critical thinking – but also critical ignoring

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[18] When using the phrase "manipulative content" we're referring to both deliberately manipulative information, and information that may not be intentionally manipulative but is inherently manipulative insofar as it misleads or misdirects our critical thinking faculties.

[19] Current Directions in Psychological Science 2023, Critical Ignoring as a Core Competence for Digital Citizens (source of the above image); article also summarized here: Forget Critical Thinking. It's Critical Ignoring That Will Keep You Sane (Positive Prescription blog)

[20] Perspectives on Psychological Science 2017, Nudging and Boosting: Steering or Empowering Good Decisions

[21] Teachers College Record: The Voice of Scholarship in Education 2019, Lateral reading and the nature of expertise: Reading less and learning more when evaluating digital information

[22] The Conversation, 'Don't feed the trolls' really is good advice – here's the evidence

Debunking

To debunk something is to show that it doesn't make sense or isn't true. An ideally rational person will cease to believe in false information or a misconception that has been properly debunked. Unfortunately, beliefs are 'sticky': people often have trouble parting with them. For this reason, debunking often fails to correct misbelief; nonetheless, it is not useless.[23]

Applications

- Reward students for changing their minds or self-correcting when they were initially wrong.
- Avoid the illusory truth effect[24] by using a "truth sandwich." Start with the truth to replace the misconception, state the myth (once), explain why it's wrong (not just the facts, but the techniques), and finally state the truth again so it's the last thing people remember.[25]

We highly recommend Debunk.org's Infoshield Resilience to Disinformation mini course

- In history classes, debunking lessons could be taught using historical myths and explaining how these came to be over time. For example, the myth that Napoleon was shorter than average was started by how he was depicted in political cartoons. Sometimes, it is important to understand how a misconception is formed to debunk it.[26]

Notes

Debunking commonly held misconceptions can be difficult because beliefs are often 'sticky.' It is important to navigate this process of debunking in a non-judgemental manner. Explain to your class that we should avoid mocking others' views or belittling their opinion, not engage in adversarial debate, and show empathy. Everybody falls into the traps of misinformation; it is important to be open to changing your mind when there's good reason to do so.

Learn More

Prebunking and Debunking: How to handle conspiracy theories in the classroom from Mr Jones' Whiteboard

The truth is out there – so how do you debunk a myth? by John Cook in The Conversation

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[23] British Journal of Health Psychology, How to debunk misinformation? An experimental online study investigating text structures and headline formats

[24] The Decision Lab, Illusory truth effect "when we are repeatedly exposed to misinformation, we are more likely to believe that it's true"

[25] Wikipedia, Truth sandwich

[26] Ohio History Connection, Debunking History Myths in the Classroom

Disinformation Awareness

Kids need to be aware that disinformation and manipulative content await them online. They need to think about why people post things. *Who is behind the information? Why are they sharing it? Are they trying to influence me?* When we *don't* ask such questions, we remain vulnerable; when we *do*, we grow more independent and resilient. Teachers can help students develop "disinformation awareness" – a healthy level of skepticism about online content.

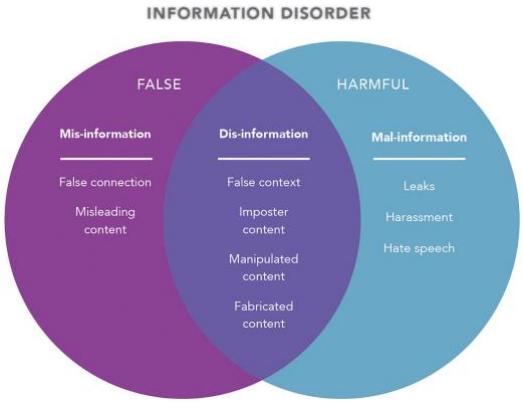
Applications

- Use **questions** to cultivate disinformation awareness. For example: *Do people put things online to get us to do stuff? Like what? Are they trying to help you or fool you? How can you tell when someone is trying to fool you?*
- Have students find and **discuss** online examples. *Would you trust this source? Why?*
- Teach students to recognize the **Tactics of Disinformation.**[27]

Notes

It's important to understand the motive(s) behind the message. Signs of manipulative intent can be subtle, but resilient human beings pick up on them. Monitoring for underlying intent should become second nature. It's important, though, that kids not become cynical or indiscriminately skeptical; there are many genuinely honest and helpful sources out there.

Many find these categories useful:
"Misinformation misleads. It is false, but not created or shared with the intention of causing harm. Disinformation deceives. It is deliberately created to mislead, harm, or manipulate... Malinformation sabotages. It is based on fact, but used out of context to mislead, harm, or manipulate."[28] (CISA)



Learn More

"Finland is winning the war on fake news. What it's learned may be crucial to Western democracy"[29]

[27] CISA, Tactics of Disinformation

[28] These are the definitions from the CISA's Information Manipulation Infographic

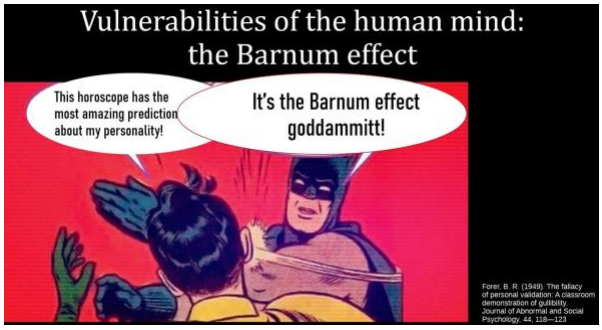
[29] CNN, Finland is winning the war on fake news

Experiential Inoculation

In experiential inoculation[30], a teacher intentionally deceives their students and then provides a debriefing to help them learn how to identify misleading techniques. A demonstration that imparts the *experience* of being fooled can spark humility, curiosity, and a desire to learn, much like a magic trick. *How did the trick work? Why did it fool us? What vulnerabilities did it exploit?*

Applications

- Find or create **a false narrative** about a topic of focus. Present it to your students at face value and notice if any of them seem skeptical about it. If so, ask them why and lead toward a debriefing. If not, eventually pivot toward revealing the flaws in the narrative.
- Use the **Barnum Effect**[31]: Have students do a short personality test. Later, distribute fake "personality results" constructed from astrology readings. Pretend these are individualized, but give everyone the same thing. Ask the class if they found the reading relatable. By a method of our choosing, reveal to them that they were all given the same result. This demonstration was first performed by Bertram Forer in 1949.[32]



Notes

Experiential Inoculation is a new concept[33] and has not yet been extensively researched, however, ample research on psychological inoculation[34] suggests that this approach should be useful. In English, Social Sciences, and Psychology classes, you can use experiential inoculation to introduce lessons on rhetoric, persuasion, and manipulation. In science classes, you can use it to introduce lessons on scientific methods and evidence-based reasoning. Whatever the case, it's crucial that you thoroughly debrief. Make clear that your attempt to fool them was only to produce a teachable scenario and emphasize the importance of responsible communication. In any case, try to keep these lighthearted or even funny.

Learn More

The Fallacy of Personal Validation: a classroom demonstration of gullibility by Bertram Forer

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[30] Skeptical Inquirer, Inoculating Students against Misinformation by Having Them Create It and Journal of College Science Teaching, Combining Different Inoculation Types to Increase Student Engagement and Build Resilience Against Science Misinformation

[31] The Decision Lab, Why do we believe our horoscopes?.

[32] The Fallacy of Personal Validation: a classroom demonstration of gullibility

[33] see footnote 1; experiential inoculation was first coined in these papers

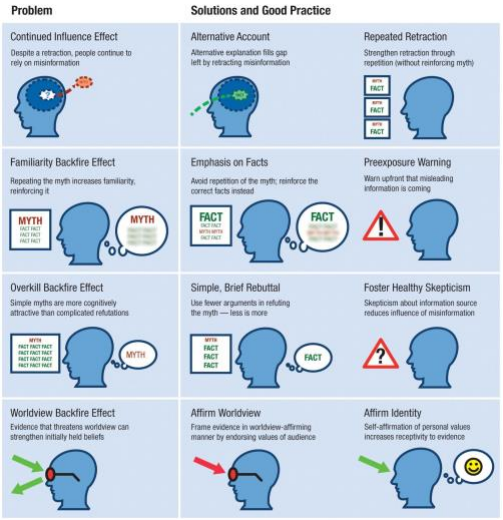
[34] Journal of Medical Internet research, Psychological Inoculation for Credibility Assessment, Sharing Intention, and Discernment of Misinformation: Systematic Review and Meta-Analysis; Experiment 3 of Dispelling the Illusion of Invulnerability: The Motivations and Mechanisms of Resistance to Persuasion

Fact-Based Inoculations

Fact-based inoculations directly address the factual inaccuracies at the heart of misinformation, explaining what is incorrect, and providing accurate information to counter falsehoods. By preemptively clarifying misconceptions, individuals are equipped with factual knowledge that can resist future encounters with similar misinformation. Fact-based inoculations in the classroom can help students understand the characteristics of good science. Students hold a variety of science misconceptions, and addressing them directly can increase their engagement and teach them how to recognize other misinformation.[35]

Applications

- Identify **misconceptions** in a subject area and use them as the basis for a lesson where each is addressed with a factual correction, supported by evidence and research.
- Have students **compare** fact-based inoculation and technique-based inoculation. Which do they think is more effective, and why?
- Ask students to **make fact-based** inoculations. This could be for misinformation of their choosing or pre-assigned misinformation.



Lewandowsky et al 2012[36]

Notes

Fact-based inoculations naturally occur in education as it's common to reference a debunked explanation for something when presenting the factual explanation, especially in science classes. For example, when teaching about the solar system, the disproven geocentric model is often referenced. In any given subject, referencing a disproven model or false information and explaining why it is incorrect in light of what is understood to be true can deepen a student's understanding of a topic and help them become a more critical thinker. It's important, however, to avoid "backfire" and "continued influence" effects by emphasizing the correct information.[2]

Learn More

NewsGuard's Reality Check on Substack and the New Literacy Project's RumorGuard are two fantastic sources of fact-based inoculations to the latest misinformation.

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[35] Journal of College Science Teaching, Combining Different Inoculation Types to Increase Student Engagement and Build Resilience Against Science Misinformation

[36] Psychological Science in the Public Interest, Misinformation and Its Correction: Continued Influence and Successful Debiasing

Fact-Checking

Fact-checking[37] is crucial for evaluating the credibility of information encountered online. In a digital landscape where misinformation and disinformation are rampant, fact-checking helps individuals discern truth from falsehood and make informed decisions.

Applications

- Teach **lateral reading**.[38] This is a strategy for investigating who's behind an unfamiliar online source by leaving the webpage, searching for the source in a new tab, and seeing what various reputable sources have to say about the unknown source. Provide students a mix of legitimate and illegitimate news sources to practice on, and discuss their reasons for deeming a website trustworthy or not.
- Introduce students to the **SIFT** method.[39] SIFT stands for Stop; Investigate the source; Find better coverage; and Trace claims, quotes, and media to the original context. This is a useful way to remember the key components of fact-checking.
- Luckily, we don't need to do all the fact-checking ourselves, because there are many nonpartisan, professional fact-checking organizations out there; some of these include FactCheck.org, AP Fact Check, Reuters Fact Check, and many more that are tracked by the Duke Reporters' Lab.

Source: UChicago Library

Notes

Fact-checking can often feel overwhelming, as it's not realistic to fact-check every bit of new information we encounter. The ability to fact-check when needed, though, is now an essential life skill. Given that there will always be more information than we can critically fact-check, remind students to maintain a skeptical perspective when consuming news media, especially from sources that are untrustworthy or unfamiliar.

Learn More

"Don't be fooled... fact check!" Fact-checking guide by Melanie Trecek-King of Thinking Is Power

RumorGuard's Five Factors, five factors to consider when evaluating the credibility of a claim

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[37] for a more comprehensive guide to fact-checking see Thinking Is Power's Don't be fooled... fact check!

[38] Civic Online Reasoning, Sort Fact from Fiction Online with Lateral Reading

[39] Research Guides at Clark College, Evaluating Information: SIFT (The Four Moves)

Logical Fallacies Awareness

Understanding how people often advance illogical arguments, and knowing how to spot such arguments, can help confer disinformation immunity. It's crucial to learn how to identify fallacies and refrain from using them. Students should know to be on the lookout for the use of fallacies in the news media, and in their own work. Some of the most common logical fallacies include emotional appeal, ad hominem attacks, strawman argumentation, cherry-picking, and the tendency to confuse correlation with causation (a.k.a. post hoc ergo propter hoc).

Applications

- **Teach** the most common logical fallacies alongside examples. Yourlogicalfallacyis.com[40] and the Purdue OWL[41] are both great sources of explanations & examples.
- Train students to avoid using logical fallacies by **calling out when they are used in essays, assignments, and discussions**. When doing this, have the student reformulate their ideas so as to avoid using any fallacies they did. This might lead to them changing their mind about something and that is critical thinking in action!
- **Present real-world examples of fallacies**: Use news articles, advertisements, or social media posts to demonstrate how fallacies are used in real-life situations. Encourage students to analyze and debunk them. Snopes[42], RumorGuard[43], and NewGuard's Reality Check[44] may be good sources for finding examples.

Notes

Logical fallacies can be tricky. Sometimes arguments combine multiple fallacies or have some valid reasoning alongside the fallacy. Identifying a fallacy doesn't automatically mean the whole argument is wrong. The key is to develop critical thinking skills to analyze arguments, spot weaknesses (including fallacies), and evaluate the evidence presented.

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[40] yourlogicalfallacyis.com, Thou shalt not commit logical fallacies

[41] Purdue OWL, Logical Fallacies

[42] Snopes, Fact Check Ratings

[43] RumorGuard

[44] NewsGuard, Reality Check

Mental Immunity Framing

The mental immunity framework encourages students to grapple with their susceptibility to bad ideas and false information. It employs the analogy of minds functioning like informational immune systems.[45] Just as immune systems protect bodily integrity by identifying and neutralizing pathogens, the mind's immune system safeguards cognitive integrity by protecting us from "mind bugs." This analogy can galvanize interest in better thinking–because everyone benefits when we "debug" our minds!

Applications

- **Ask students** if they think minds can be infected with "mind bugs." If computers can be infected with bugs, can't minds be, too? If so, how do we protect our minds? What would a healthy mental "immune system" look like? What would it do?
- Ask students to **reflect** on a time that their mind's immune system failed them (i.e. when they fell for a false claim).
- Invite students to suggest ways to "build up" mental immunity. Invite them to discuss the **10 principles** of mental immunity laid out on our website.[46]

Notes

When new information is presented to us, questions and doubts typically arise, especially if the new information doesn't align with what we already know. In this way, questions and doubts function like antibodies and immune cells to check ideas before incorporating them into one's understanding. Just like the immune system screens foreign materials and neutralizes threats like viruses, the mind does the same for ideas. And just as our bodily immune system can be compromised, leading us to get sick as a result of a pathogen overcoming our immune defenses, so too can our mental immune systems sometimes fail to detect and reject bad ideas. Given its foundations are laid upon many of the evidence-based concepts we cover in this series, we believe this analogy offers a pragmatic model for learners to reflect on.

Learn More

For a deeper understanding, read our Declaration on Mental Immunity[47]

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[45] The Mental Immunity Project, Why Mental Immunity

[46] The Mental Immunity Project, How to Build Mental Immunity

[47] CIRCE, Declaration on Mental Immunity

Prebunking

A prebunk is a preemptive refutation of a false claim[48]. Prebunks essentially warn people that a false narrative is circulating. They might mention the false narrative, explain why it's wrong, and urge people not to fall for it. Ideally, a prebunk arrives *before* the problematic misinformation itself arrives, preparing the mind to produce cognitive "antibodies"– the kinds of questions and doubts that can prevent misinformation from becoming (mis)belief.

Applications

- Introduce students to **games** designed to prebunk common manipulation techniques.[49]
- Inoculate students against common **manipulative techniques**.[50]
- Learn **how to prebunk** and/or teach your students how to prebunk.[51]

Notes

There are many different approaches to pre-bunking. What's important is that you expose a falsehood to a person or group before they've come to believe in it, making sure to expose the manipulative tactics that people are using to spread the misinformation. Unfortunately, you can't always get ahead of viral misinformation using prebunks. Sometimes the falsehoods have already spread. This is when debunking and other techniques come in handy.

Learn More

"Can you outsmart a troll by thinking like one?" 5-min video from TED-Ed[52]

[48] The Cyber Wire, Prebunking; Psychology Today, What Is Prebunking?

[49] Inoculation Science - Interactive Games

[50] Inoculation Science

[51] Prebunking with Google, How to Prebunk

[52] Ted-Ed on YouTube, Can you outsmart a troll (by thinking like one)? - Claire Wardle

Socratic Questions

Socratic questions[53] are a good way to prompt deeper and more careful thinking. For thousands of years, philosophers have employed them to spark curiosity, foster critical thinking, and build immunity to bad ideas. Socratic questions promote accountable thought, cognitive autonomy, and active open-minded thinking (AOT).

Applications

- When students express views that might turn out to be problematic, ask **clarifying questions**.
- **Ask them why** they believe what they do. Invite them to examine their reasons. Are they good reasons? Why or why not? What assumptions are they making? What are the alternatives?
- Such exchanges should always be **friendly, affirming, and supportive**, never combative. The infographic included here should be a helpful starting point.[54]

Notes

Use questions to draw out students' *own* ideas about a subject.[55] Then use follow-up questions to help them examine those ideas. Be careful, though, not to make students defensive. The interaction should be non-confrontational. Give students the time and space to think things through. Socratic questions should illuminate assumptions. They can call attention to gaps in arguments and reveal the limits of our knowledge. They should foster skepticism of simplistic answers. Wielded skillfully, they will encourage students to be active, curious, and exploratory.

Learn More

What is the Socratic Method (YouTube video)

[53] Wikipedia, Socratic questioning

[54] Jame Bowman, Socratic questions revisited [infographic]

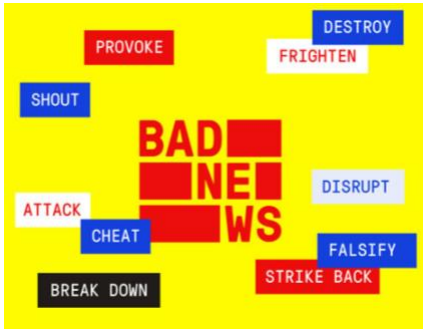
[55] Colorado State University, The Socratic Method: Fostering Critical Thinking

Technique-Based Inoculations

Technique-based inoculations empower students to identify persuasion strategies that are commonly used to mislead. Learning about emotional manipulation, for example, can confer a degree of immunity to it. Learning to recognize logical fallacies (the focus of a future post) can make you less susceptible to being fooled by them. Extensive research in psychological inoculation underscores the effectiveness of this approach.[56]

Applications

- Teach students to recognize **common techniques** used in misinformation.[57] Start with humorous or non-triggering examples, then use real-world examples to illustrate how these techniques can distort truth.
- Have students **create their own misinformation** using known misleading techniques. This active inoculation[58] process reinforces their ability to recognize and resist such techniques in real situations.
- Have a classroom **discussion** in which students identify the techniques used by their classmates. Encourage students to name the techniques and explain why they can be effective at misleading people.



Notes

Two experiments with hundreds of participants[59] demonstrate the power of technique-based inoculation. Participants who were informed about misleading techniques before being presented with misinformation were less likely to adopt the misinformation than participants who were not informed of the misleading techniques. The techniques used and inoculated against were false balance and fake experts.[60]

Learn More

The Bad News Game teaches us to recognize deceptive techniques in a fun way.

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[56] *Foolproof: Why Misinformation Infects Our Minds and How to Build Immunity*, by Sander van der Linden.

[57] Inoculation Science - Video & YourLogicalFallacyis.com

[58] Skeptical Inquirer, Inoculating Students Against Misinformation by Having Them Create It

[59] PLOS ONE, Neutralizing misinformation through inoculation

[60] Ibid 4, false balance: "media coverage that evenly balances contrarian voices and expert views"; fake experts, example: "political operatives and lobbyists who dissent from the consensus in public discourse."

What Works to Build Mental Immunity: Street Epistemology

a sub-collection in collaboration with

Anthony Magnabosco

Executive Director of SEI

Street Epistemology

A Method for Exploring Beliefs Through Civil Conversation

This is an extension of our What Works to Build Mental Immunity series. Thus far, the series has focused on conceptual tools for teachers, however, this article and additional articles in this series are designed for a more general audience.

Street Epistemology (SE) is a conversational approach designed to help people critically reflect on the quality of their reasoning through civil dialogue. Developed as an open-source concept, SE has evolved into a broader movement focused on fostering more rational and thoughtful discussions about beliefs.

The primary goal of Street Epistemology is to encourage critical reflection in ourselves and others. Critical reflection is the deliberate process of considering something deeply and thoroughly, with an openness to the possibility of being wrong. By engaging in SE conversations, practitioners aim to help others (and themselves) become better critical thinkers, potentially leading to more accurate beliefs and wiser choices.

Why Use Street Epistemology?

There are several compelling reasons to learn and practice Street Epistemology:

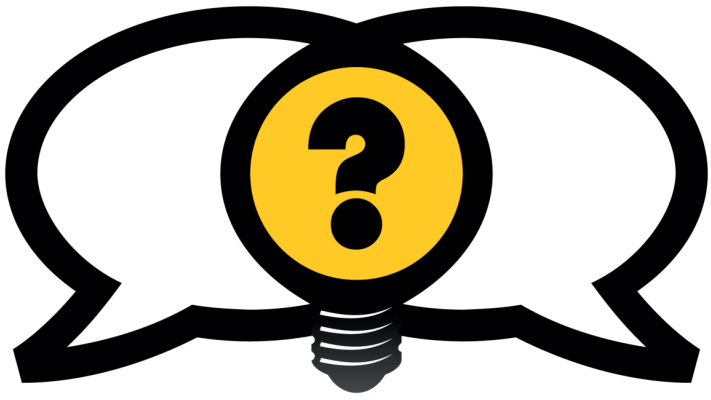
1. **To understand others better**: SE emphasizes truly grasping the intended meaning behind someone's beliefs and reasoning.

2. **To encourage critical reflection**: By asking thoughtful questions, SE helps people examine their beliefs more rigorously than they might on their own.

3. **To improve critical thinking skills**: Practicing SE hones one's ability to analyze arguments, identify assumptions, and evaluate evidence.

4. **To maintain or grow relationships**: SE techniques can help navigate disagreements about sensitive topics like politics or religion more productively.

5. **To contribute to a more rational world**: By raising the general level of rationality, SE may help decrease dogmatism and improve communication in society.



Street Epistemology Logo

The Steps of Street Epistemology

A typical Street Epistemology conversation follows these key steps (although it doesn't have to be so rigid):

Pre-Conversation Considerations

Before starting, reflect on your goals, ethical considerations, and mindset. Prepare yourself to approach the conversation collaboratively rather than confrontationally.

Establish Rapport (Step 1)

Build a civil, authentic, comfortable atmosphere to create psychological safety for your conversation partner. This is crucial for reducing reactance and maintaining productive dialogue.

Identify and Clarify Claim (Step 2)

Work with your partner to narrow down the topic to one well-defined claim they consent to discuss further that is clear, concise, and important.

Identify Confidence Level (Step 3)

Ask your partner to rate their present feeling of confidence in the truth of their claim on a spectrum (e.g., 0-100). This allows for a more nuanced exploration of beliefs.

Identify Main Reasons (Step 4)

Discover the primary reasons supporting your partner's confidence in their claim. Isolate and focus on the reasons that most impact their belief.

Evaluate the Quality of Reasoning (Step 5)

Explore the epistemology (quality of reasoning) behind their reasons. Ask questions to check for alternative explanations, relevance, strength of inference, falsifiability, etc.

End the Conversation (Step 6)

Conclude the discussion at an appropriate time, such as after a moment of deep reflection or when progress has been made. Recap key points and thank your partner.

Post-Conversation Considerations

Reflect on the conversation, considering what went well and what could be improved for future SE interactions. Discuss with others who practice street epistemology for feedback and growth.

Main Qualities of Street Epistemology

Several key aspects make Street Epistemology unique and effective:

1. **Focus on quality of reasoning**: SE examines how people arrive at their beliefs rather than just debating the beliefs themselves. Exploring “process” instead of challenging “conclusions” productively shifts the dynamic.

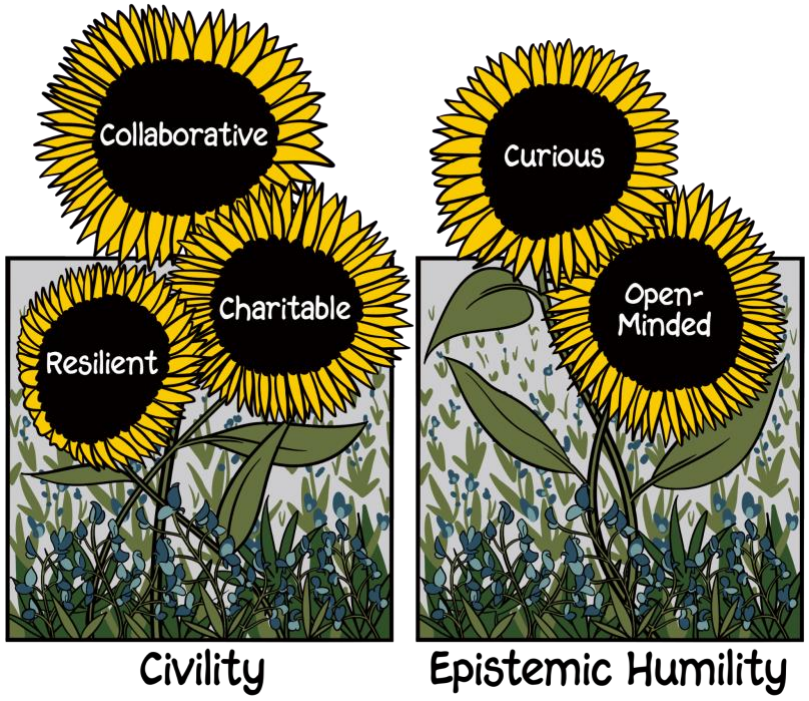
2. **Collaborative, not confrontational**: The approach emphasizes working together to explore ideas rather than trying to "win" an argument. A great mindset to cultivate.

3. **More asking, less telling**: SE practitioners primarily ask thoughtful questions rather than presenting their own views. But you can make it a back-and-forth if necessary.

4. **Use of confidence scales**: Viewing belief on a spectrum allows for more nuanced discussions and easier tracking of changes in confidence. This framework “allows” people to shift on their beliefs without having to painfully drop anything cold turkey.

5. **Science-minded**: The process mirrors aspects of the scientific method, such as generating hypotheses and seeking disconfirmation. But never over the heads of those involved—Street Epistemology is accessible and easy to learn and implement.

6. **Accounts for psychological and social motivations**: SE recognizes that belief formation and maintenance are influenced by more than just evidence or logic. Psychological and social factors also drive the confidence in the truth of our claims and can be successfully incorporated into your exploration.



Graphic on “Having the Right Mindset” from SEI’s Navigating Beliefs course

Conclusion

Street Epistemology offers a structured yet flexible approach to having more productive conversations about beliefs. By focusing on understanding, encouraging critical reflection, and maintaining a collaborative spirit, SE practitioners aim to improve both individual critical thinking skills and broader societal rationality.

Whether your goal is to better understand others, improve your own reasoning, or contribute to a more thoughtful world, Street Epistemology provides valuable tools for navigating the complex landscape of human beliefs.

Steelmanning

A Powerful Tool for Constructive Dialogue

Steelmanning is the practice of presenting the strongest possible version of someone else's argument. This contrasts with the more common "strawmanning" tactic, where one misrepresents or oversimplifies an opposing argument to make it easier to refute. Steelmanning aims to understand and then articulate back the strongest form of an argument – typically something that is being questioned or argued against – which demonstrates intellectual honesty and fosters constructive dialogue. While strawmanning creates a weak, easily defeated version of an argument, "steelmanning" does the opposite, reformulating the argument to its strongest form. Although the origin of the term is unclear (please comment if you know about the origin of the term), the basic concept was popularized via the rationalist movement[61] and by philosopher Daniel Dennett in his book *Intuition Pumps and Other Tools for Thinking*.[62]

How to Practice and Apply Steelmanning

Practicing steelmanning involves several key steps:

1. Listen Actively:

Pay close attention to the original argument by containing your preconceived notions and biases as much as possible. Understand their core points and underlying logic. Repeat your understanding to ensure accuracy and model your desire for it.

Sujin: We shouldn't spend so much on space stuff when we have problems like poverty and healthcare.

Eric: So you're saying our resources should focus on urgent Earth issues before we invest heavily in space exploration. Do I have that right?

2. Reconstruct the Argument:

Identify any strong points and present them concisely, clearly, and fairly. Ensure that you capture the true intent and rationale of the original argument, avoiding any misrepresentation.

Sujin: Yes, exactly. Addressing poverty and healthcare directly improves people's lives immediately.

Eric: Understood. It sounds like you're highlighting the importance of immediate human needs.

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[61] e.g., Knocking Down a Steel Man: How to Argue Better

[62] see here: How to Criticize with Kindness: Philosopher Daniel Dennett on the Four Steps to Arguing Intelligently – The Marginalian

3. Enhance the Argument:

Offer any missing elements that could make the argument stronger or more convincing. Collaboratively consider the best possible evidence and reasoning that could support the argument.

Sujin: Yes, and by focusing on these issues, we can create a more stable and productive society, which might better support future endeavors like space exploration.

Eric: I see. So, you're suggesting that solving urgent problems could lay the groundwork for long-term projects by building a healthier, more resilient society?

4. Present the Steelman:

Articulate the steelmanned argument to your discussion partner. This shows you're set on working with them to figure things out—no tricks or traps—and sets the stage for a more productive and insightful discussion.

Sujin: Exactly, and by investing in people's well-being now, we create a stronger foundation for future advancements, including space exploration.

Eric: That makes sense. By prioritizing immediate needs, we can ensure a more sustainable and supportive environment for future projects. Does that capture your perspective accurately?

5. Engage with Respect and Openness:

Approach the conversation with a curious mindset along with a genuine willingness to understand and learn in pursuit of truth and accuracy. Acknowledge any merits of their strengthened argument before offering to collaboratively explore and reflect on the reasoning process for supporting reasons against critique or counterpoints.

Sujin: Yes, that's right. I appreciate you taking the time to understand my point of view. That's my position and I feel like I even have a better perspective into things now.

Eric: Thanks for sharing your thoughts. I've learned a lot from this discussion too and will keep these points in mind going forward. Care to hear my current stance on resource allocation?

Finally, be sure to check in with your interlocutor during or after presenting the steelmanned argument to see if you made any mistakes or if there are any aspects that you misunderstood. (Challenge: identify where this was done in the example dialogue that was provided throughout this section.

Why Should We Practice Steelmanning?

Engaging in steelmanning can positively transform how we interact with differing viewpoints, fostering an environment where intellectual humility and open-mindedness thrive. Steelmanning encourages us to step away from our biases and preconceptions and compels us to understand the rationale behind opposing views, which can often reveal common ground or new ways of thinking about a problem. In a world where misinformation and polarized thinking are rampant, the ability to steelman an argument can serve as a powerful antidote, promoting a more nuanced and thoughtful discourse.

Attempting to present the strongest version of an opposing argument helps us identify and understand the underlying principles and evidence that support various viewpoints. Steelmanning helps us recognize that other perspectives often contain valuable insights; insights that we might've otherwise overlooked. By practicing steelmanning, we become better at recognizing the strengths and weaknesses in different arguments, enhancing our critical thinking capabilities, and creating space for ideas to be explored honestly, deeply, and constructively, leading to richer, more meaningful discussions.

Moreover, steelmanning encourages us to step away from our biases and preconceptions. It compels us to understand the rationale behind opposing views, which can often reveal common ground or new ways of thinking about a problem. This approach not only enhances our empathy and respect for others but also makes us better equipped to engage in problem-solving.

Steelmanning Improves Mental Immunity

By forcing us to honestly assess our views in light of the strongest portrayal of the opposing views, steelmanning strengthens our defenses against misinformation and manipulative arguments by encouraging us to consider if our views are misguided. This practice helps us to reduce cognitive biases such as confirmation bias, where we tend to favor information that supports our pre-existing beliefs. Steelmanning encourages us to seek out the most credible and well-supported arguments, thereby fostering mental frameworks that are more resilient to biases and simplistic or misleading information.

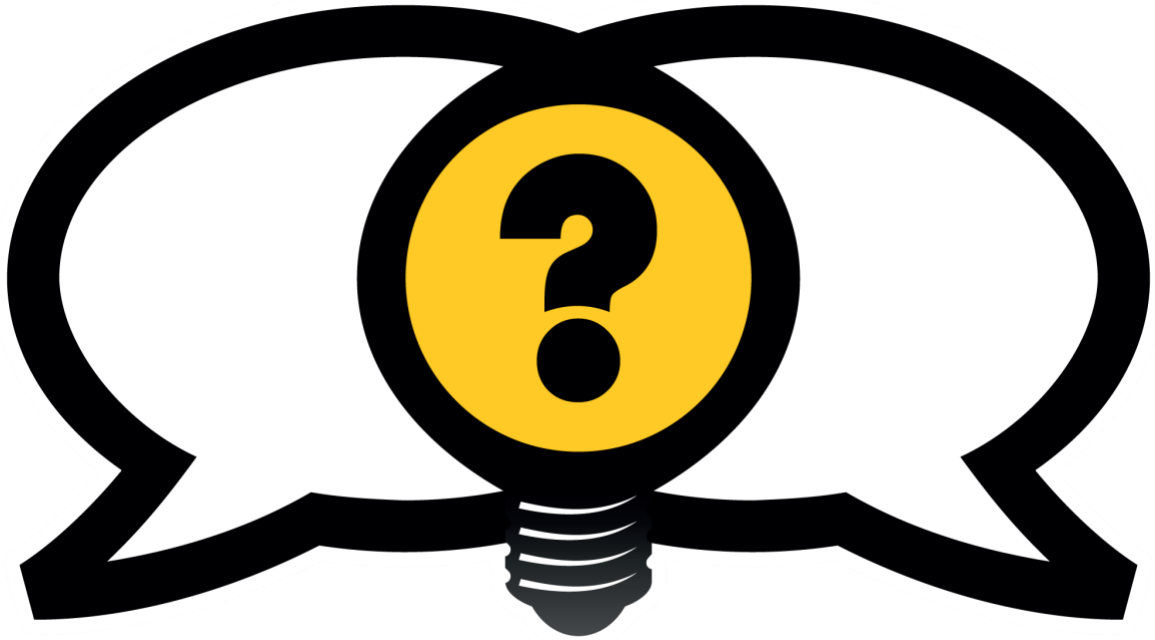
By challenging ourselves to consider the best possible counterarguments, we become more balanced and fair-minded thinkers. This not only protects us from falling prey to misinformation but also enhances our ability to communicate ideas accurately and fairly. In essence, steelmanning better equips us to navigate an increasingly complex information landscape, fostering a healthier, more discerning approach to both personal and public discourse.

Conclusion

Steel manning is a powerful tool for enhancing critical thinking and building mental immunity. By striving to present the strongest version of opposing arguments, you foster intellectual humility, improve dialogue, and sharpen your thinking. Embrace steelmanning as a way to elevate your thinking and engage more deeply with the views and arguments of others.

Learn More

How To Steel Man An Opposing Argument (feat. Sam Harris and Jordan Peterson) - YouTube



This article is part of our collaboration with Anthony Magnabosco of Street Epistemology International. You can learn more about Street Epistemology by taking their fantastic, free, self-directed course: ***Navigating Beliefs: A Learning Course for Rational Conversations*.**

Challenging Beliefs Productively:
The Power of Confidence Scales and Real Reasons

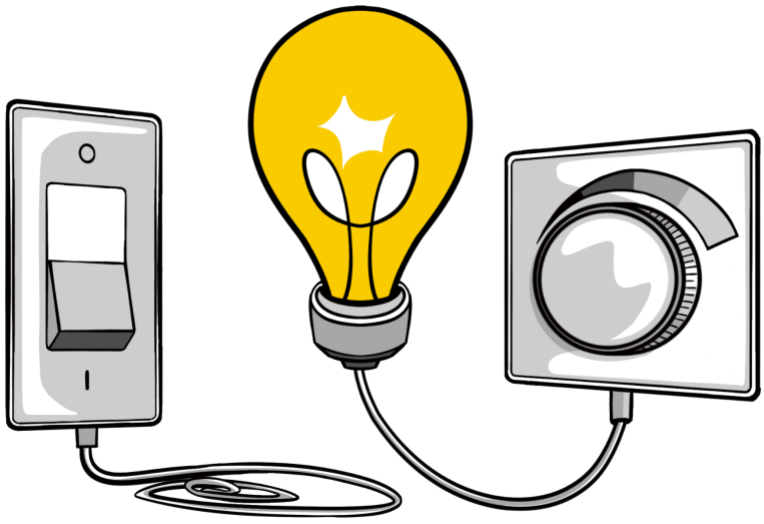
Two powerful skills that will vastly improve your interactions on difficult topics.

In an era where conversations about politics, religion, and other sensitive topics can quickly become contentious, people are desperate for ways to engage productively. Imagine having two simple tools in your pocket to navigate these difficult discussions with confidence and clarity. Employing the two skills covered here—implementing a Confidence Scale and conducting a Real Reason Check—will make a profound difference in your interactions. By learning and implementing these skills, you can transform challenging conversations into opportunities for meaningful dialogue and real shifts in perspective.

What are Confidence Scales and Real Reasons?

Confidence scales are tools that can be used to quantify a person's level of certainty in the truth of their claims. Rather than viewing beliefs in binary terms (true or false), confidence scales allow for a spectrum of positions.

Reasons, on the other hand, are the supporting arguments, evidence, or psychosocial motivations that contribute to a person's confidence in a claim. A "real reason" is one that genuinely and quantifiably impacts a person's feeling of confidence, as opposed to reasons that are offered but do not actually affect that same feeling of certainty toward their belief.



Confidence in the truth of a claim is viewed on a spectrum and not in binary terms.

It's crucial to recognize the relationship between a person's confidence level and the quality of their own reasons, as this understanding can have far-reaching implications. Individuals who are highly confident in their beliefs may be more likely to act upon them, regardless of whether their beliefs are well-founded. This overconfidence can lead to behaviors and decisions that impact not only their own lives but also those of others around them.

By working simple confidence scales and real reason checks into our engagements, we can help people critically examine the foundations of their strongly held beliefs. And they can do the same for us. This process can also temper extreme confidence levels that aren't supported by strong reasons, leading to more thoughtful and epistemically humble actions. Conversely, these tools can serve to reinforce well-founded confidence, encouraging positive, evidence-based behaviors. Ultimately, examining the confidence-reason relationship of the claims we make can contribute to more responsible decision-making, regardless of who you are or what you believe.

How to Use Confidence Scales and Identify Real Reasons

Mastering the use of confidence scales and identifying real reasons requires a structured approach. The following steps provide a framework for effectively employing these techniques in dialogue, allowing for deeper exploration of beliefs and their underlying foundations.

Introduce the Confidence Scale After Hearing a Clear Claim:

Present a scale, typically ranging from 0 to 100, where 0 represents complete disbelief, 50 indicates uncertainty, and 100 signifies absolute certainty.

Akira: I believe the recent election was stolen. <they work together to obtain Akira's definitions>

Zainab: On a scale from 0 to 100, where 0 means you're certain it wasn't stolen and 100 means you're absolutely sure it was, where would you place your confidence?

Clarify the Meaning of Numbered Positions:

Ensure both parties understand what the numbers represent to avoid misinterpretation.

Akira: I'd say I'm at 90.

Zainab: So you're quite confident, but not absolutely certain. Is that about right?

Akira: Yep. Exactly.

Identify Main Reasons:

Ask for the main reasons supporting their level of confidence.

Zainab: What would you say is your main reason for being at 90 on that scale?

Akira: Well, there were statistical anomalies in the vote counts that don't make sense.

Conduct a Real Reason Check:

Present a hypothetical (without supplying your own reasons) where their reason was shown to be invalidated to see if it truly affects their confidence.

Zainab: If it was proven—to your satisfaction—that those statistical anomalies had a legitimate explanation, how would that impact your confidence level, if any?

Akira: Hmm… I guess it would drop significantly, maybe to around a 6 or 7 out of 10.

Steelman the Argument:

Restate their position in the strongest possible form to ensure understanding.

Zainab: So, if I understand correctly, you're saying unexplained statistical anomalies in the vote count strongly suggest the election wasn't conducted fairly, which is why you're quite confident it was stolen. Would you say that is an accurate summary? If I'm off on that please let me know.

Why Use Confidence Scales and Real Reason Checks?

Employing confidence scales and real reason checks during discussions about beliefs can transform how we approach, understand, and challenge differing viewpoints. These tools encourage a more efficient and nuanced exploration of all kinds of beliefs, moving beyond simple agreement or disagreement to genuine reflections on the quality of our own reasoning.

Confidence scales provide a non-threatening and useful framework for people to **critically reflect** on their stated levels of certainty with regards to the truth of their claims. This activity can reveal faults in the quality of our reasoning. Confidence scales foster more productive dialogue by acknowledging that beliefs exist in degrees rather than rigid absolutes, which in turn provides psychological safety.

Real reason checks help identify the core factors influencing a person's beliefs and actions by gauging their impact on stated confidence levels. This process can reveal inconsistencies in reasoning, and in turn, a clearer re-assessment of one's feeling of confidence toward the truth of their claim.

Our feeling of confidence is impacted by the weight of our reasons.

The Relationship Between Confidence and Real Reasons

The interplay between confidence levels and real reasons is complex and revealing. Often, there's a direct correlation between the strength (or weight) of real reasons and the level of confidence. However, this isn't always the case, so exploring this relationship collaboratively can lead to insightful discoveries.

Example 1: High Confidence, Light Reasons

Yuki: I'm 100% certain that ghosts exist. <defines "ghosts">
Rashid: What's your main reason for this belief?
Yuki: I saw a great documentary about haunted houses that showed images and even a video of ghosts.
Rashid: I see. <repeats back to confirm both their understanding> If that documentary was proven fabricated, to the point where you really accepted it, would it affect your confidence in any way?
Yuki: <reflective pause> Nah, not really, I'd still be just as sure ghosts are real without that documentary.
Rashid: Okay. Is there something else that might support that degree of confidence for thinking ghosts are real?
Yuki: Oh, definitely. I had an experience that was definitely a factor. About five years ago I was…<explains new reason>

In this case, high confidence doesn't align with the strength of the stated reason, suggesting there might be other stated or unstated reasons influencing Yuki's belief that ghosts are real. Notice also the efficiencies gained by *not* offering alternative explanations against Yuki's reasons provided, while instead remaining collaborative, curious, and focused.

Example 2: Moderate Confidence, Heavy Reasons

Dimitri: I'm about 70% confident that climate change is primarily caused by human activities.
Amara: What's your main reason for this level of confidence?
Dimitri: Numerous peer-reviewed scientific studies support this conclusion.
Amara: If these studies were found to have significant flaws, how would it affect your confidence?
Dimitri: It would definitely lower my confidence, probably to around 30 or 40%.
Amara: Thanks. Sounds like flawed studies are *a factor here. <Dimitri agrees> It could be neat to explore what constitutes a flaw to you, regardless of where we each might stand on this claim. If you're willing to explore that a bit deeper. <Dmitri enthusiastically agrees> What would you say a "flaw" is or looks like?*
Dmitri: Ooh. Good question. Let's see…Well, you can always tell there's a flaw in something when…

Here, Dimitri's confidence level aligns well with the strength of his reasons, demonstrating a more balanced and evidence-based approach to belief. The civil nature of the exchange is also likely to keep reactance low and Dmitri engaged throughout his conversation with Amara, as the discussion is far from over.

Conclusion

Confidence scales and real reason checks are powerful tools for understanding and exploring beliefs, with implications that extend beyond the conversations in which they're used. By quantifying confidence and identifying the true pillars of belief, we can engage in more meaningful discussions that reveal the potential consequences of strongly held views. These techniques encourage intellectual honesty and promote self-reflection, while highlighting how high confidence levels can lead to real-world actions and decisions.

By examining the relationship between confidence and reasons, we can help others and ourselves make more informed choices, potentially moderating extreme views or reinforcing well-founded ones. This process when repeated contributes to more responsible decision-making in society, fostering a reflective approach to both personal and collective choices. Ultimately, these easy to grasp tools enhance our critical thinking skills overall, promote open-minded understanding of diverse perspectives, align our confidence with the quality of our reasoning, and encourage thoughtful consideration of how our beliefs impact others in the world around us.

Learn More

This post is part of our "What Works" series for educators and researchers. We are open to incorporating feedback into these modules before we publish them on our website. Please comment on this post to provide suggestions. We're particularly interested in additional applications, resources, and readings. All constructive feedback is welcomed. Thank you!

For all the modules in one place, visit our What Works to Build Mental Immunity Website page! See what's to come and download PDF versions of these modules.
