Critical Thinking Bootcamp

Sharing skills, tools, and resources for librarians and faculty to combat misinformation in the face of constantly changing technology

SAGE Publishing

Filled with insight provided by the speakers and audience members of the 2022 Critical Thinking Bootcamp, as well as resources from SAGE Publishing, this toolkit will help educators instill critical thinking in students.

This toolkit includes:

- A link to the Bootcamp's recording
- Key insight from our speakers
- Advice from the Bootcamp's chat
- Resources shared in the chat
- Recommended SAGE content
- Additional questions to reflect upon

If you have any feedback or questions, please reach out to **pr@sagepub.co.uk**.

Follow **#CriticalThinkingBootcamp, @SAGE_Publishing**, and our Bootcamp speakers on Twitter for more:

- **Dr. Nicole A. Cooke,** @BakerChair
- **Renée DiResta,** @noUpside
- **Dr. Brooklyne Gipson,** @brooklyne
- **Dr. Mata Haggis-Burridge,** @matahaggis
- **Alexis Bonnell,** @alexisbonnell
- **Dan Chibnall,** @BookOwl
- **Rosalind Tedford,** @RozTedford
- **Sarah Morris,** @MissionInform

Bootcamp recording

Access the recording **here**

Insight from Bootcamp speakers

We've pulled some key quotes and suggestions from our panelists to better help you and your students combat mis- and disinformation.

We need to be **intellectually and culturally humble** – as professionals, we know a lot of things but we don't know everything. We want to encourage our students to have this characteristic and we want to do this as well, so we can continue to disrupt misinformation...

Be the protagonist and not the spectator. Everything has context; forgetting or ignoring this could actually perpetuate mis/dis/mal information. We need to actively disrupt the normalization of untruths and don't shy away from partnerships, or theory. We need all of the tools that we can get our hands on.

– Dr. Nicole A. Cooke

What's really important is for us to **think about artificial intelligence in the way that we can supplement our information flow** or 'super process' that information. It's not the right solution for everything we do, but it really can help us process more information faster and protect that attention and direct it to the right places.

Alexis Bonnell

When we think about data, we often think of it in numbers and, you know, perfect and sort of set aside from the real-world and unquestioned because it's a fact, you can put a number to it so it's trustworthy. But the trouble is **those numbers come from an untrustworthy world**, a world which has biases built into it, and that's where we get into problems.

Dr. Mata Haggis-Burridge

Coming from a library perspective and teaching at my school I'm really interested in the **different lenses through which you can approach and view [AI]**. There's ethical implications, there's legal issues, and privacy issues; there's representation and tech, you can look at the public health angle, skill building for students, all sorts of things.

Sarah Morris

One technique I like to use a lot...is to basically do that **tracing back to find out where the information comes from**. So, we'll look at a social media post or a TikTok, or just something that's like gone viral or people are talking about, but there's sort of a lot of like jet skiing at the surface and not a lot of scuba diving. I'll basically work with them to build a map of, 'Okay where did this come from, what parts of this are true and which parts of this are basically just overinflated or they're using terminology wrong?' So I'm helping them to build research habits and build those mental steps, so that when they see something they don't just say, 'that's 100% true.'

Dan Chibnall

I get students to really delve into where they're spending time online… when you get them to start to list their time to see how many hours in a week they've been spending on these things, then you can interrogate the experiences they're having and whether that time they're spending is actually improving their quality of life. Often, they tell me it makes them stressed, it makes them angry, it makes them feel bad about themselves. And…I always throw it back and say if a friend came to you and said dating this person and this person makes me angry and feel bad about myself, what would you tell them?

Rosalind Tedford

I start off typically in my classes with **'troubling' our understanding of epistemology**, or how we know what we know. I also start off with troubling concepts like critical media literacy. Of course, I always double down on how media literacy is really important, but critical media literacy is even more important. And what does that critical word mean? Because we're in this kind of like market in academia where we just throw critical at the front, and a lot of people don't realize like that actually means that you have to dig deeply and do that work.

Dr. Brooklyne Gipson

What does it mean to be for instance, a science communicator in a world where Flat Earth conspiracies are running amok? What does it mean for all of us to have a social media account and be engaged in producing and sharing information regularly? What does it mean to be a content producer and a world run by click bait?... And so something I've really started trying to do in my own teaching…is to **consider the context of the information world we're all in, how we can build off of things we might already be doing in the classroom**, and how do ethical dimensions sort of come into play with all of this.

Sarah Morris

Now, sometimes, this [algorithmic content-based filtering] works out very well. Sometimes it creates serendipity. People feel, 'Oh I've just found a new interest a new community, a new person to pay attention to.' But there are also of course unintended consequences. For a while we would see people who believed in one conspiracy theory, being recommended content to another adjacent conspiracy theory... **this led to the establishment of particular networks, through that system of nudges not because of proactive searching on behalf of the user**.

Renée DiResta

One assignment I have a lot of my students do in my various classes, is to do this thing called an 'awareness and action assignment' where I asked them to tell me, what are they now more aware of in terms of say algorithms or cognitive biases. And then, what are they going to do with that new information? So, are they going to help a friend understand it, or they're going to make changes within their own lives? Are they going to do something for their community? So, this helps them to see what they've learned, and then how to put it into action.

Dan Chibnall

"The human brain is programmed to be attracted to the new and be attracted to the first thing you see, so we talk a lot about **how algorithms can then sort of you know play into the worst parts of our sort of human brain failing**. I always start my class with getting them to just brainstorm together… all the places they spend time and where they spend the most time. And I don't do that for them as much as I do that for me—and I cannot emphasize enough that if you think you know, the information ecosystems your students are spending their time and I guarantee you, you do not.

Rosalind Tedford

Advice from the Bootcamp's chat

These various takeaways and additional thoughts were shared by participants and speakers in the chat.

"I use this Pokémon Go example in my classes on algorithmic bias and it **really resonates with students**. Our current undergrads were the Pokémon Go generation."

"**Awareness of our biases is key**, especially when we are creating messages - to each other or to the masses."

"Important to understand AI is a "LEARNING" tool, it should not be "set it and forget it" you should be intending to learn from it and pivot it based on what you learn. Rarely would your AI stay the same from the day you launch an AI to use one month or 6 months later."

"We also have to be careful not to ignore what we perceive to be "exotic;" sometimes putting things in an exotic category allows us to say 'not relevant to me' when in fact that might be in wide use, AI is an example of this."

"Slow information...kind of like the slow eating movement. We need to take our time."

"One of the things we do at the beginning of our classes is to encourage 'I statements' and not 'you statements' so don't say 'you are wrong' - say 'I'm hearing you say X and I'm not sure that's accurate' or 'I see it a different way' or -- it's easier said than done but can be helpful especially when there's a power dynamic at play already in a classroom."

"Lots of misinformation, especially around conspiracy theories, is couched in language that SOUNDS like critical thinking, right? 'Do your own research' 'Don't believe everything you hear'"

"Knowing when, and how, you want to consume/share/create information is key in a world filled with 24/7 information."

"We often tell our students the oft-repeated phrase in this space "if you are not paying for a product, you ARE the product" -- your data, your activity, your attention - that is what is making them money."

"To foster critical thinking, I first assess the student's critical thinking level using the Watson-Glaser Critical Thinking Appraisal. Next, I ensure students know their deficiencies. To allow them to develop sound critical thinking, I use news stories and videos that illustrate misinformation, resulting in flawed thinking. I use these as case studies where students, using the critical thinking process, analyze what led to the flawed thinking. We then discuss how to prevent or mitigate flaw thinking. Critical thinking is a skill. If you don't use it regularly, you lose proficiency in critical thinking... I regularly remind students of "use it or lose it."

Resources from the Bootcamp's chat

This list of resources was pulled from the Bootcamp's chat log. We've sorted them based on type.

Websites/tools

- **Games** for teaching about misinformation and disinformation
- **Data Detox Kit**
- **Google: How Search Algorithms Work**
- **A Guide to Prebunking: A Promising Way to Inoculate Against Misinformation**
- **A Guide To Anti-misinformation Actions Around The World - Poynter**
- **A Field Guide to "Fake News" and Other Information Disorders**
- **Fact Check Tools**
- **Center for Critical Race + Digital Studies**
- **The Conscious Advertising Network**
- **DEDA (Data Ethics Decision Aid):** a toolkit facilitating initial brainstorming sessions to map ethical issues in data projects
- **Mozilla Community Participation Guidelines**
- **News Literacy Project**
- **Quiz: How well can you tell factual from opinion statements?** from the Pew Research Center
- **Sifting Through the Coronavirus Pandemic** by Mike Caulfield
- Spot the Troll Quiz: **https://spotthetroll.org/start**
- **Stanford Internet Observatory Cyber Policy Center**
- **Teachable Machine:** Train a computer to recognize your own images, sounds, & poses
- **The Media Manipulation Casebook**

Articles and books

- **Fake News and Alternative Facts: Information Literacy in a Post-truth Era** by Dr. Nicole A. Cooke
- **Information Services to Diverse Populations** by Dr. Nicole A. Cooke
- **Lexicon of Lies: Terms for Problematic Information** by Caroline Jack
- **Weapons of Math Destruction** by Cathy O'Neil
- **You Think You Want Media Literacy… Do You?** by Danah Boyd
- **7 Ways to Avoid Becoming a Misinformation Superspreader** by H. Colleen Sinclair
- **3 Reasons For Information Exhaustion – And What To Do About It** by Mark Satta
- **Your Happiness Was Hacked: Why Tech Is Winning the Battle to Control Your Brain—and How to Fight Back** by Vivek Wadhwa and Alex Salveker

Videos and podcasts

- **Stop assuming data, algorithms and AI are objective** by panelist Mata Haggis-Burridge TEDx Delft
- **What Hath We Wrought?** Danah Boyd SXSW EDU Keynote
- **What Obligation to Do Social Media Platforms Have to the Greater Good** by Eli Pariser

Syllabi

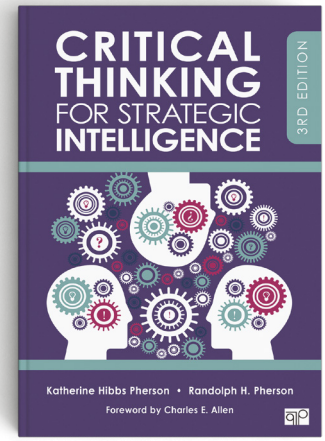
- **Critical Disinformation Studies: A Syllabus** by Alice Marwick, Rachel Kuo, Shanice Jones Cameron, and Moira Weigel
- **Disinformation & the Literacy Landscape** by Keynote Speaker Dr. Nicole A. Cooke
- **Tech Ethics & Policy Class (Social Media Version)** by Dr. Casey Fiesler

Twitter accounts

- Claire Wardle, **@cward1e**
- Joan Donovan, PhD **@BostonJoan**
- Mike Caulfield, **@holden**
- Kate Starbird, **@katestarbird**

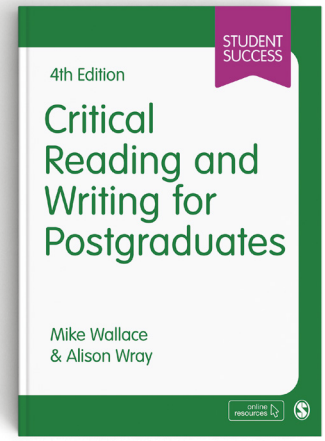
Recommended reading from SAGE:

Drawing from our collection of books, journals, and digital tools, we've rounded up additional resources to assist you in the classroom.



9781544374260 (2020)
Critical Thinking for Strategic Intelligence
Katherine Hibbs Pherson
and Randolph H. Pherson

The Third Edition includes suggested best practices for dealing with digital disinformation, politicization, and AI. Drawing upon their years of teaching and analytic experience, Pherson and Pherson provide a useful introduction to skills that are essential within the intelligence community.

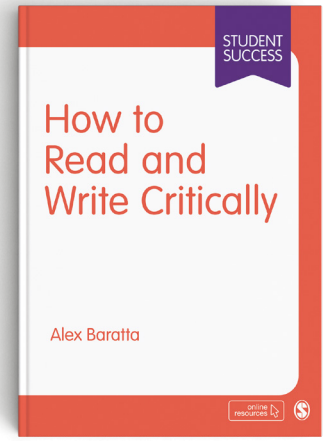


9781529727647 (2021)
Critical Thinking and Writing for Postgraduates, 4e
Mike Wallace and Alison Wray

Reading critically, and writing using critical techniques, are crucial skills you need to apply to your academic work. If you need to engage with published (or unpublished) literature such as essays, dissertations or theses, research papers or oral presentations, this proven guide helps you develop a reflective and advanced critical approach to your research and writing.

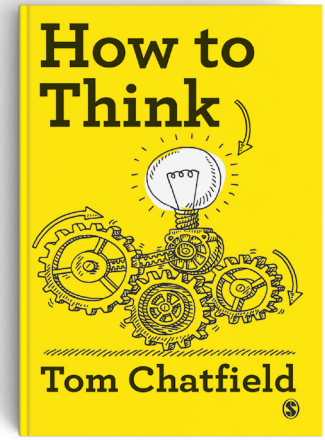
9781529759785 (2021)
Check that Fact
Sarah Morris

Knowing how to check and challenge information is essential for academic study – and our everyday lives. This practical guide shows you how to be savvy about using sources and improve your information literacy.



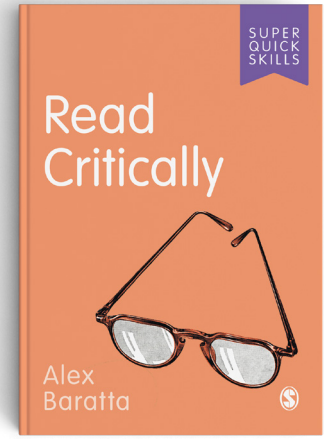
9781529757996 (2021)
How to Read and Write Critically
Alex Baratta

This book takes a hands-on approach to helping you think, read and write critically. Packed with examples from different disciplines and subjects, it talks through dozens of written extracts so you can see what criticality actually looks like.



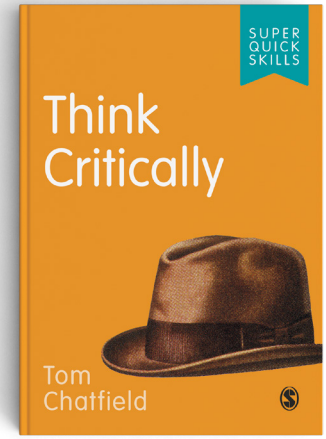
9781529727418 (2021)
How to Think: Your Essential Guide to Clear, Critical Thought
Tom Chatfield

Short and punchy, the book views critical thinking as a skill to be continually practiced and developed. It equips you with a toolkit for clearer thinking, describing ten key concepts that help you to apply what you have learned. Including regular reflective exercises, key concepts, further readings, each chapter also offers recommendations for how to put the ideas it discusses into practice.



9781529713350 (2020)
Read Critically
Alex Baratta

A basic introduction to finding meaning in texts and sources. It helps students to understand assignments and how to judge the quality, relevance, and significance of the academic material they are reading.



9781526497406 (2019)
Think Critically
Tom Chatfield

A short, sharp starters kit on how to think critically. Practical skills are presented in a step-by-step format with interactive pedagogy to encourage application and to facilitate immediate improvement.

9781529717884 (2021)
What Do We Know and What Should We Do About Fake News
Nick Anstead

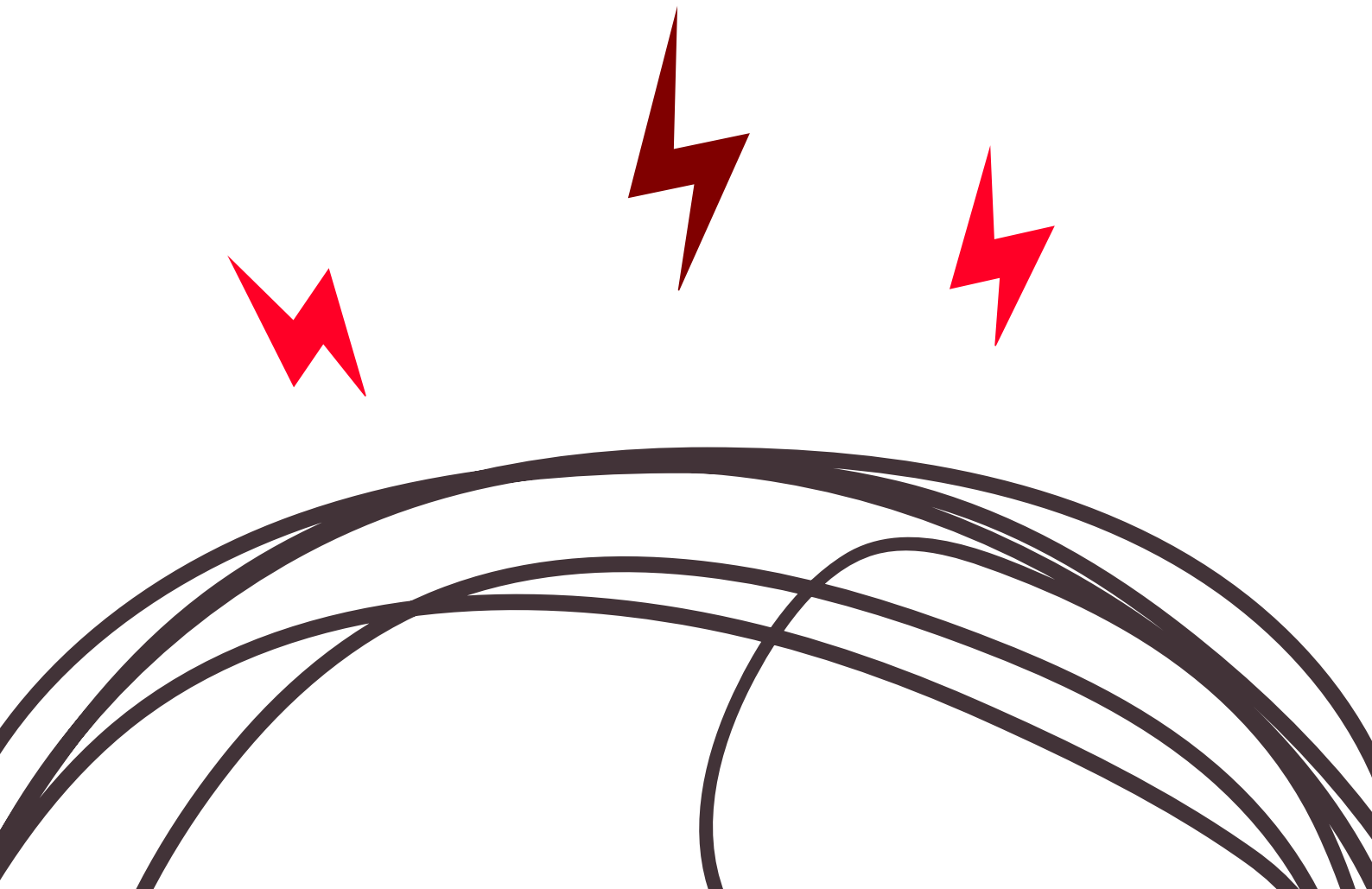
Drawing on examples and evidence from around the world, this book aims to make a timely intervention to the debate about the concept of fake news. Its underlying argument will have three objectives.

Additional recommended SAGE content:

These digital resources will further assist you in the classroom.

Digital resources:

- **Critical Thinking hub** – Here, you'll find all the latest resources from SAGE on Critical Thinking, as well as any forthcoming events.
- **Critical Thinking: An Online Course** – This SAGE Campus course by expert Dr. Tom Chatfield equips students with the skills and habits of critical thinking.
- **2021 Critical Thinking Bootcamp** – This recording and toolkit from our second Bootcamp included sessions on "Misinformation & Media: The Impact on Universities," "The Historical Use of Mis/Disinformation and What it Means for Educators," and "Informing Students About Algorithms and Information Ecosystems".
- **2020 Critical Thinking Bootcamp** – This recording and toolkit from the very first Bootcamp contain additional wisdom and advice from expert panelists.



Questions to reflect upon

Though we couldn't get to all audience questions during the Bootcamp, these questions require further thought, tips, and feedback. If you have any you'd like to share, tag us on Twitter with **#CriticalThinkingBootcamp.**

On the rise of AI:

- "I have students who question "authorized" sources. How do I get across that government information is an authority because their sample is so large?"
- "How are hyperlinks and references in a source affecting how AI categorizes≈"content"?

On technology and ethics:

- "With a class focused on technology, ethics, and critical thinking, how do you handle the digital divide and those students who are information or access poor?"
- "How much should librarians learn on accessibility technology, and does it have to be included in our Library courses?"

On why algorithms matter:

- How do you make the invisible / unknown information visible as part of a daily info habit?
- "How do we deal with the changes to what are authoritative sources?"
- "Where we might find algorithms and acknowledging these as proprietary, is there guidance for determining what type of algorithm (ala Renee's helpful categorization) is in effect on any given site?"
- "Where does one find the underlying algorithms for critique?"

Classroom advice:

- "How do you so respect to the student, without telling them they are wrong?"
- "Now that TikTok is an information source for our young people, how do you approach to them regarding this particular app?"
- "I teach 11- to 16-year-olds, who engage much more with social media as sources of information than other forms of media. How would you go about educating the parents of these students about the issues of online safety and mis/dis/mal information with regards to social media platforms such as TikTok, Discord etc.?"