

## FINAL REPORT

# Understanding Cognitive Bias To Improve Critical Thinking and Address Equity

Professor Tom Logan, English

- a. *Describe the focus of the work proposed and completed during your leave.*

As stated in my leave application, the work I proposed was a “rigorous study of the literature on cognitive bias, including historical and current applicable research,” focusing on “its uses in pedagogy and in addressing equity; understand[ing] the theoretical and applied overlap between cognitive bias and implicit bias.”

I was able to complete the reading and research proposed to support my study, though of course my initial list led me to other works and research, and a few works on my initial list proved less relevant than I’d expected. (See attached list *Sources Consulted*). I was able to prepare a one-hour workshop presentation for faculty, to introduce the key cognitive bias concepts and overview how they might be used in their classrooms to teach and model better critical thinking. (See attached slide presentation.)

- b. *What was accomplished as a result of your leave?*

During my leave, I was able to successfully gain an overall understanding of cognitive biases and its potential pedagogical applications, both as a critical thinking concept to teach students and as a tool to help instructors address equity in their classrooms. I will also confess that the research that I did humbled me because, put simply, I underestimated both the foundational knowledge in the related fields (psychology, behavioral economics, cognitive science, *et al.*) needed to truly understand, synthesize, and then present the material. But I was also well-positioned, as a non-specialist, to understand what my (mostly) non-specialist audience for the workshop presentations would need to grasp the concepts and apply them in their classes. (This statement is possibly an example of *Dunning-Kruger bias*, wherein one overestimates their own ability or skill in a particular area, although, in my defense, my willingness to admit this possibility undercuts that identification. But now this last defense is possibly an example of *self-serving bias*... You see what we’re up against as we try to untangle the matrix of rationalizations and shortcuts that permeate the streams of our thinking.)

The most helpful framework I found in my research for understanding the psychological dynamics that inform cognitive bias is from *Thinking, Fast and Slow*, by Nobel-prize winning psychologist Daniel Kahneman. Kahneman theorizes a model of thinking with two modes, the “fast” mode with intuitive judgments and conclusions, and the “slow” mode which requires conscious, deliberate thinking. “Fast” is the first impression we have of a new speaker at the front of the room; “slow” is multiplying two 2-digit numbers. Cognitive bias comes into play in this model as a way to assist the fast thinking, to provide shortcuts and narrative coherence for waves of input as we move through our lives—even as those shortcuts often lead us to false conclusions or mistaken beliefs.

The challenge when mitigating cognitive bias is that the mechanisms often serve people very well, even when they head to mistakes or invalid conclusions. For example, the psychological benefits of participating in ingroup bias are significant and account for its pervasive presence in human behavior: people simply don’t want to stop rooting for the home team and tearing down the opposition. The research shows that mitigating cognitive bias requires a comprehensive approach that includes but is not limited to awareness. That awareness is the pedagogical goal of the assignments and of my workshop presentations.

- c. *Explain how the work completed during your leave relates to ARC's goals and focus areas, and to the state's professional development guidelines.*

I think the work done during my leave particularly serves the following ARC Strategic Goals.

2. *Exemplary Teaching, Learning & Working Environment.* Understanding the overlap between implicit bias and cognitive bias will help instructors make their classrooms more equitable and inclusive. It can also serve as a foundation for all students (indeed, everyone in a classroom) to understand and take account of the biases we all have.

4. *Vibrancy and Resiliency.* For too long, “critical thinking” in our English courses has been limited to a list of concepts that are necessary but incomplete: inductive and deductive reasoning, logos, pathos, and ethos as rhetorical tools, and logical fallacies. What’s innovative about teaching cognitive bias is that it is a dynamic, psychology-based model that informs most critical thinking dynamics. For example, we reach for a logical fallacy when our cognitive bias requires we stick to our pre-ordained conclusion; or we resort to pathos when a belief we disagree with gives us cognitive dissonance that we must resolve, regardless of evidence. Moreover, cognitive bias, for all its multifarious complexity, can be effectively overviewed in an hour and applied immediately.

The work completed during my leave serves the following State’s PD Guidelines:

**Guideline A: Course instruction and evaluation and Guideline B: Staff development, in-service training, and instructional improvement.** The cognitive bias workshop presentations will give instructors a tool they can immediately apply in any course that relies on critical thinking--which is virtually any course ARC offers. It improves instructor metacognition as well by making them aware of cognitive biases we all have.

- d. *As a result of your leave, what will you take back with you to your current assignments and/or to the college as a whole (including how you shared or plan to share the results of your project).*

I will share my leave results by giving three one-hour workshop presentations in Fall 2019 on Teaching Cognitive Bias, open to all ARC faculty. Please see the slide presentation that will accompany the workshop, attached. (NOTE: In my original proposal, I had expected to be giving these workshops in Fall 2018: Then AB705 hit, requiring a once-in-generation transformation to our English composition sequence. To comply with the law by Fall 2019 as required, as English Co-Chair, I have been inundated with unexpected work this academic year as we transform our composition sequence from five levels to two, train faculty in a new composition course model (ENGWR 300+), convert four regular classrooms to computer classrooms, write proposals for reassigned time for numerous faculty for AB705 projects, among many, many other tasks that devolved to the English chairs. Moreover, when I saw that the *Misinformation in the Public Sphere* presentations by ARC faculty in 2018-19 would have some content overlap with my workshops this academic year, that reinforced my decision that Fall 2019 would be better for my workshop presentations.)

### Sources Consulted

*Blind Spot: Hidden Biases of Good People* by Mahzarin R. Banaji and Anthony G. Greenwald (2016)

*Blunder: Why Smart People Make Bad Decisions* by Zachary Shore (2008)

*The Checklist Manifesto* by Atul Gawande (2011)

*Choices, Values, and Frames* by Daniel Kahneman and Amos Tversky (2000)

*Everyday Bias: Identifying and Navigating Unconscious Judgments in Our Daily Lives* by Howard J. Ross (2014)

“Judgment Under Uncertainty: Heuristics and Biases” by Amos Tversky and Daniel Kahneman (1974)

*Mistakes Were Made (But Not By Me)* by Carol Tavris and Elliott Aronson (2015)

*Predictably Irrational: The Hidden Forces That Shape Our Decisions* by Dan Ariely (2008)

*Thinking Fast and Slow* by Daniel Kahneman (2011)

*Thinking: The New Science of Decision-Making, Problem-Solving, and Prediction in Life and Markets*, edited by John Brockman (2013)

*The Upside of Irrationality: The Unexpected Benefits of Defying Logic at Work and at Home* by Dan Ariely (2010)

Van Nunspeet, F.; Ellemers, N.; Derks, B. “Reducing implicit bias: How moral motivation helps people refrain from making “automatic” prejudiced associations.” *Translational Issues in Psychological Science*, dez. 2015.

**Essay Assignment: A Critical Analysis of Cognitive Bias in Action**

Length: 1000-1500 words

For this essay, you will identify and critically analyze biases—specifically, [cognitive biases](#)--from one of these events in popular culture, politics, or history:

- The Lance Armstrong Doping Scandal
- The WWII Internment of US Citizens of Japanese Descent
- President Trump’s Post-Election Voter Fraud Allegations
- The LAPD Rampart Scandal
- The Joseph McCarthy Congressional Hearings
- The Child Sex Abuse Scandals in the Roman Catholic Church

The model for this analysis comes from the examples given in chapters 3-5 in *Mistakes Were Made: Wilkormiski’s Fragments Controversy*; The McMartin Preschool Case; The Central Park Jogger Case.

Your essay will answer these questions: How did key actors in your story exhibit cognitive biases, and how did those biases contribute what was newsworthy, historical, or scandalous about it?

Like *Mistakes Were Made* authors Tavis and Aronson, you should research your chosen example in order to clearly present the facts and the story in your essay.

Your essay should **summarize** the story and facts of the event. It will then **identify** and **analyze** instances of cognitive bias, describing how they fit the definition and analyzing how those instances affected the story. It should **assess** how the biases were overcome (if they were), what overcame the biases, or it should offer explanations for why they weren’t overcome. You may draw conclusions about what kinds of actions or thinking might have prevented or minimized the harm of these events.

Keep in mind that cognitive bias might not be exhibited only by the main actor in the story: Lance Armstrong is far from the only person who demonstrated cognitive bias in his scandal; sportswriters (among many others) also evinced cognitive bias in their coverage of him.

Also remember that your task is not to adjudicate the issues the event touches on, but to analyze the actions and words of the participants in the event for cognitive biases. Also note that cognitive bias is also not the *only* explanation for these events, so be careful of attributing *every* failure or bad act to it.

Your essay should use **at least two outside sources** in addition to *Mistakes Were Made*, properly cited.

### Small-Group Discussion Activity

*Instructor:* After overviewing motivated reasoning generally and three common types of cognitive bias with current event/popular culture examples, have students break into groups of no more than 4. Given them these instructions:

- 1) **Think** of an example for each type of cognitive bias, whether from your own experience or from popular culture;
- 2) **Identify** the type of cognitive bias;
- 3) **Describe** the evidence that helped you identify the bias;
- 4) **Speculate** what the motivated reasoning might be for that bias: What purpose did this bias serve?

As a class:

- Discuss examples where you disagreed about the type of bias;
- Brainstorm ways you think the holder of these biases could be persuaded out of their biased opinions;
- Discuss what (if anything) might make you change your mind about a bias of your own;
- Consider ways these kinds of bias could affect your course subject matter.

# **Understanding Cognitive Bias To Improve Critical Thinking and Address Equity**

Tom Logan, English

# Cognitive Biases

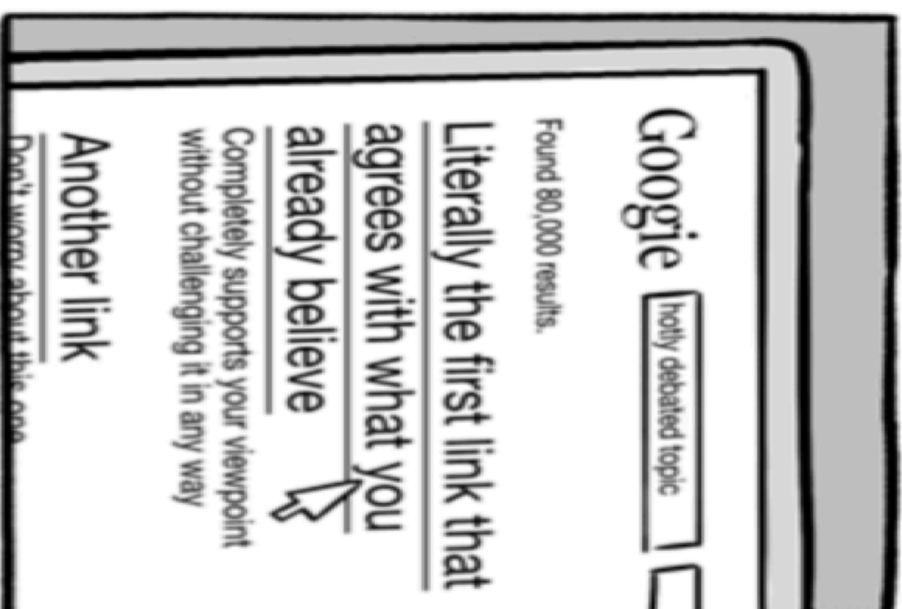
- **Cognitive biases** are errors in thinking driven by psychological processes
- Common examples: *confirmation bias*, *bandwagon effect*, *in-group bias*, *halo effect*, *the Dunning-Kruger effect*.
- Dozens of types identified in over six decades of research and study in psychology, behavioral economics, and other social sciences.



# Thinking **Fast** and **Slow**

- Model of Mind (Daniel Kahneman)
- **Fast** Thinking: Intuitive “gut” decision/belief, first impressions, feels “right” and coherent
- **Slow** Thinking: Effortful, deliberate

# Confirmation Bias



# Bandwagon Effect Bias



**Ingroup Bias**

*Me*

*vs*

**THEM**



# Halo Effect Bias



# Hindsight Bias



# Cognitive Bias Examples: Your Turn!

In groups of 3 or 4, take about 10 minutes to identify a current event or personal example of **at least three** of these common **cognitive biases** (listed on the handout):

- *Confirmation bias*
- *Bandwagon effect*
- *In-group bias*
- *Halo effect*
- *Hindsight bias*

# Addressing Equity

- Implicit Bias is **Fast** Thinking: Intuitive, emotionally satisfying & coherent—and often wrong
- Employs multiple cognitive biases (Stereotype & Availability Heuristic, et al.) for Coherence and Reinforcement
- Awareness of Bias Alone May Be Insufficient to Mitigate



# Reducing Cognitive Bias

- Significant psychological headwinds
  - Identity investment
  - Coherence (“But it’s such a good story!”)
- Awareness & recognition
- Comprehensive, multi-faceted approach

# Thank You!

Handouts To Take With You:

- *Cognitive Bias Sample Essay Assignment:  
Current Events*
- *Small-Group Discussion Sample Activity*
- *List of Helpful Sources and Resources*