

RISING ABOVE COGNITIVE ERRORS: IMPROVING SEARCHES, EVALUATIONS AND DECISION-MAKING

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During information processing (defined as our collecting, sifting through, and interpreting information), most of us often *unwittingly* take cognitive shortcuts and fall prey to cognitive errors. These shortcuts and errors compromise decisions and evaluations within various domains. In experimental work at labs and government institutes, in piloting aircraft, in diagnosing medical ailments and disorders, in investing of small and large sums of capital—in all these arenas, brain scientists and other experts are finding that decision-makers unwittingly rely on *cognitive shortcuts and biases* as they do their jobs. These “contaminants” in decision-making can have serious consequences. They can bring about: unfair personnel evaluations and unfair hiring/firing/promoting; patient suffering and death; crashes of aircraft, with widespread human and property damage; unraveling of seemingly sound financial enterprises; and misleading results from experiments. These same contaminants, in our daily lives, can affect all of us. ***How to recognize and begin rising above unintended biases and cognitive errors—especially in the academic arena--will be one focus of Dr. Moody’s highly interactive sessions on campus. Below are some points to muse over, prior to Dr. Moody’s sessions.***

- 1. In medicine, “predictable and preventable cognitive errors” mar diagnosticians’ cognitive processes and decisions** (Groopman). Three examples include: rushing to closure; failing to revise first impressions (a kind of “anchoring”); selectively choosing information that supports one’s initial hunch. More errors are discussed in the following publications.

Groopman, Jerome (2007). *How Doctors Think*. (Boston: Mifflin).

Singh, H. et al (2006). Understanding Diagnostic Errors in Medicine: A Lesson from Aviation. *Quality and Safety in Health Care* 215(3): 159-164.

Redelmeier, Donald (2005). The Cognitive Psychology of Missed Diagnoses. *Annals of Internal Medicine* 142 (2): 115-120.

Bond, W.F. et al. (2004). Using Simulation to Instruct Emergency Medicine Residents in Cognitive Forcing Strategies. *Academic Medicine* 79:438-446.

Croskerry, Patrick (2003). The Importance of Cognitive Errors in Diagnosis and Strategies to Minimize Them. *Academic Medicine* 78(8): 775-780.

Phelps. E. et al (2000). Performance on Indirect Measures of Race Evaluation Predicts Amygdala Activation. *Journal of Cognitive Neuroscience* 12(5): 729-738.

- 2. In our daily lives and in our work at colleges, universities, and professional schools, most of us also prove susceptible to cognitive contaminants. The following are findings from almost a decade of operation of the Project Implicit program (see Implicit.Harvard.edu).**

Three major researchers (at Harvard and the Universities of Washington and Virginia) created a website for self-administered Implicit Association Tests. More than 5 million visitors have taken the tests. Other countries have started participating. The excerpt below is from the Project website at implicit.harvard.edu.

- **Implicit biases are pervasive.** They appear as statistically "large" effects that are often shown by majorities of samples of Americans. Over 80% of web respondents show implicit negativity toward the

elderly compared to the young; 75-80% of self-identified Whites and Asians show an implicit preference for racial White relative to Black.

- **People are often unaware of their implicit biases.** Ordinary people, including the researchers who direct this project, are found to harbor negative associations in relation to various social groups (i.e., implicit biases) even while honestly (the researchers believe) reporting that they regard themselves as lacking these biases.
 - **Implicit biases predict behavior.** From simple acts of friendliness and inclusion to more consequential acts such as the evaluation of work quality, those who are higher in implicit bias have been shown to display greater discrimination [and hostility]. The published scientific evidence is rapidly accumulating. Over 200 published scientific investigations have made use of one or another version of the IAT.
 - **People differ in levels of implicit bias.** Implicit biases vary from person to person --- for example as a function of the person's group memberships, the dominance of a person's membership group in society, consciously held attitudes, and the level of bias existing in the immediate environment. This last observation makes clear that implicit attitudes are modified by experience.
- 3. Biases can be negative or positive.** A few years ago, the Swedish Research Council made an astonishing discovery: a female applicant for SRC post-doctoral funding had to have 2.5 times greater credentials (articles published, etc.) than a male applicant—just to reach the threshold of “competency,” enabling her to have her proposal reviewed by a panel. [Wenneras, C. & Wold, A. (1997). Nepotism and sexism in peer-review. *Nature* 387: 341-3.] Another way to view the findings at the Research Council: men's track records could be considerably weaker but they would still be deemed competent. *The remedy for this inequity?* Merely removing names from the applications! Likewise, journal editors in several countries are increasingly removing authors' names and institutional affiliations from their articles before they are sent to peer reviewers for their reactions. In a similar way, equity in orchestras has been bolstered by having all applicants for musical posts anonymously perform their auditions behind a screen, so that gender is not a factor in the hiring decision. “Blind reviews,” in short, can reduce unintended negative bias for some and positive bias for others.
- 4. The good news:** At times all of us (most of us?) unwittingly make cognitive errors. BUT there are several ways to prevent or diminish these errors. What protocols or strategies might help? As one example, checklists for evaluation committees and for medical diagnosticians are proving invaluable to use during information processing and decision-making (A. Gawande, *The Checklist Manifesto: How to Get Things Right*, New York: Holt, 2009.)

In addition, giving ourselves and our colleagues consistent prompts and reminders has been proven useful (C. Sustain and R. Thaler, *Nudge: Improving Decisions*, New Haven: Yale U. Press, 2008). Finally, social cognition expert and professor Susan Fiske has been experimenting with how to “prime” subjects so that they intently concentrate on recognizing and rising above biases and errors and begin to build self-correction habits of mind (see her publications at the Princeton U. website). By the way, using brain-imaging technology, neuroscientists can pinpoint the specific brain areas activated---when we learn to self-correct/minimize predictable errors and become “primed” to develop new cognitive habits.

IN THE SESSIONS RUN BY CONSULTANT JOANN MOODY, she will provide problem-based scenarios for review by campus participants--so that they, collectively, can analyze and determine good and bad practices and cognitive errors embedded within those scenarios. Second, Dr. Moody will encourage and assist participants in considering feasible remedies for the bad practices and errors they have identified. Finally, Dr. Moody will engage participants in constructing Next Steps.