

The Flaws in Our Perception and Memory

Quote of the day:

“Instead of reality being passively recorded by the brain, it is actively constructed by it.”

-- neuroscientist David Eagleman

Thursday exam: bring blue book, no pages missing; no leaving the room until you finish

fallacies and biases: a conclusion could be right even if the reasoning is wrong; many fallacies are exaggerated versions of reasonable starting points

long question on exam: more is not necessarily better; be sure to address all parts of the question; make reference to authors from the course organically rather than mechanically; organize your thoughts prior to writing

naïve realism: the belief that we see, experience, and remember the world as it really is



However, expectancy effects (“believing is seeing”) undermine naïve realism. Our expectations influence our perceptions.



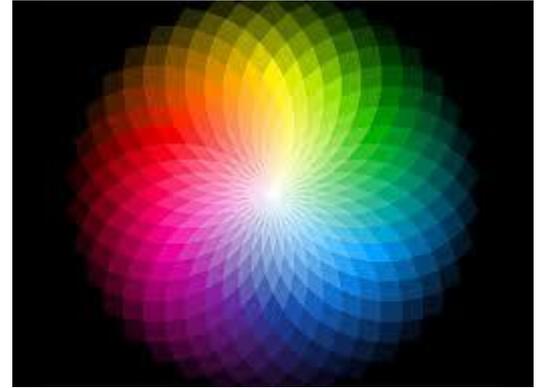
David Rosenhan, “On Being Sane in Insane Places” (1973). Researchers sent into psychiatric hospitals eight healthy individuals who fabricated hallucinations that then subsided. The hospital staff stuck with their initial diagnoses (schizophrenia) even though the patients’ later behaviors did not match the illness.



Robert Rosenthal and Lenore Jacobson, *Pygmalion in the Classroom* (1968). Researchers randomly selected 20% of students, then told their teachers that an IQ test revealed they were ready for an intellectual growth spurt. At the end of the year, the children had improved relative to their peers on a subsequent IQ test.

Backmasking: Most people can't hear the alleged messages on their own, but they can when told what they are supposed to hear.

Maybe naïve realism is accurate with respect to objective attributes of objects such as color?



In reality, however, we construct colors through our visual system. Each object absorbs certain wavelengths of light and reflects others, which our brains *interpret* as a certain color.

<https://www2.lbl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.html>

Different languages slice up the color spectrum somewhat differently, which affects how fast people can distinguish one color from another.



Naïve realism is false, but we shouldn't, replace it with cynicism and despair. Our perceptions are usually good enough.

Rather than throwing perceptions (ours or someone else's) into the trash, we need to check them against other forms of evidence and what we already know. (The same applies to intuition.)



The workings of memory provide the final nail in the coffin of naïve realism. Most people (63% in a representative survey) erroneously think that memory works like a videorecorder.



In reality, we construct our memories anew every time we recall an incident. We often correctly recall the gist but change or invent the details. Different incidents sometimes get meshed together, and we occasionally “remember” something that actually happened to someone else.

An example of someone remembering the gist (about my dad) but misremembering details.

Elizabeth Loftus has shown that (a) leading questions and misleading information can cause people to alter their memories, and (b) people can be induced to hold a false memory.

Her research is relevant to the controversial phenomenon of “recovered memories,” which were part of the Satanic ritual abuse allegations of the 1980s.



Ulric Neisser, study of memories of the Challenger space shuttle explosion. Students gave different accounts 2 ½ years later than they gave the day after the explosion, and yet they insisted that their later memories of the details were accurate.

In Neisser's and other studies, there is no relationship between a person's confidence in the details of their memories and the accuracy thereof.

A large body of research thus indicates that some of our memories—yours and mine—are flawed.

The fallibility of perception and memory has obvious applications for eyewitness testimony. Subsequent evidence from DNA and other sources has exonerated over 1500 people in the U.S., most of them convicted based on eyewitness testimony.



Once again, the point is not to throw out memories and eyewitness testimony, but to corroborate them against other forms of evidence. All forms of evidence, including DNA evidence, have limits.

Better criminal justice procedures could improve (and have improved) the value of eyewitness testimony.

More cognitive biases, to complete our coverage of fallacies and biases

fundamental attribution error: in explaining why other people behave as they do, we place too much weight on their personalities and not enough on the situations in which they find themselves

Stanley Milgram study on obedience (1963). Would people be willing to administer increasingly intense shocks to someone as part of a learning experiment?



In the actual study, when the learner was in another room, 65% of participants were willing (though often with resistance) to go to the highest level of shocks.

Why? Because of the situation—an authority figure told participants to continue, participants could hear but not see the victim, and the shocks increased gradually.

self-serving bias: the tendency for a person to construct flattering explanations of what happens in their life. Positive outcomes resulted from ability, hard work, smart decisions, etc. Negative outcomes were somebody else's fault, or resulted from bad luck or external circumstances.



Self-serving bias is more general than self-justification bias, which involves justifying a decision or behavior in situations of cognitive dissonance.

spotlight effect: we overestimate the extent to which other people notice us



**Thomas Gilovich et al. study (2000).
Would others notice the picture (Barry Manilow) on a particular student's t-shirt?**



Subjects thought 47% of the other students would notice, but only 23% actually did.

Some concluding thoughts on fallacies and biases.