

# The Confirmation Bias

## ACADEMIC PERSPECTIVE

Let's play a game. I'm going to give you sequence of numbers, and your job is to figure out the rule that defines the sequence. Here's the sequence: 2, 4, 6.

Our game's rules allow you to guess other sequences of numbers to test your theory before declaring your answer. Maybe you're privately guessing the rule is even numbers that increase by two. A good place to start testing could be 8, 10, 12. And I'd say, "Yup, those numbers fit the rule!" Next, you might say "10, 12, 14" or "20, 22, 24," and I would continue to say your sequences fit the rule. Eventually, you might get responses that you believe affirm your hypothesis and you commit to your answer, "The rule is: even numbers that increase by two." In that case, I'd have to reply, "Sorry, that's not right."

It turns out you could have guessed 3, 6, 9, and I still would have said "Yes!" I also would have said yes to 15, 20, 25. In fact, the only sequence that would have garnered a "Nope!" would have been something like 5, 3, 1.

As it turns out, the rule isn't as complicated as even numbers that increase by 2. Rather, it's any sequence of increasing numbers.



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## Seeking Affirmation Can Lead to the Wrong Conclusions

This riddle might be frustrating, but it illustrates a point. Many people, when faced with this sort of exercise (introduced in 1960 by P.C. Wason), start by guessing sequences of numbers that fit their hypothesized rule. But, if you really wanted to see if your hypothesis was right, you could have tested it by asking about sequences of numbers that would violate your rule, like "3, 7, 9." If I said, "Yup, that fits!" you'd know right away that your original hypothesis wasn't correct.

Whether it's trying to figure out riddles I've laid out for you or decisions that you're making about important things in your life, it's common to approach the world with hypotheses and guesses. And then, even if you're not consciously aware of it, you go about testing those hypotheses.

## We Gravitate Toward Information That Confirms Our View

Let's say you're in the market for a new house. After some searching, you find what seems like an ideal four-bedroom home, but it's slightly outside your predetermined budget. You start with the question, "Is this the right house for my family?" From there, you might quickly move into the hypothesis generation phase: "Yes, I think it probably is the right house for our family." Here is where you start testing your hypothesis. Are the schools nearby good? Yes! Are the neighbors friendly? Yes! Is the backyard big enough? Yes!

But notice what this hypothesis-testing process shares with the 2, 4, 6 riddle from earlier. In both cases, the tendency is to ask questions that only confirm our hypotheses, but don't reject them. Or, if you've ever had a friend in a bad relationship ask you about the reasons why they should stay with their partner (rather than leave), that's also the confirmation bias in action.

## Examples of Confirmation Bias Abound

Raymond Nickerson's more formal definition of confirmation bias relates to our tendency to seek out—or interpret—evidence that is partial to our existing beliefs or hypotheses. I once heard it described as an internal "yes man," and it's easy to see why. Our tendency to seek out confirming, rather than disconfirming, evidence can lead us to say yes to some questions that should be given more careful thought.

We see examples of the confirmation bias across all sorts of domains, from life decisions to personal finance to policy decisions. Even at the highest levels of government, it can be prevalent. In a 2005 Intelligence Committee Report to former President George W. Bush, committee members noted the confirmation bias may have been partially responsible

for the decision to invade Iraq: "When confronted with evidence that indicated Iraq did not have [weapons of mass destruction], analysts tended to discount such information. Rather than weighing the evidence independently, analysts accepted information that fit the prevailing theory and rejected information that contradicted it."

Imagine if the home-buying conversation had gone a different direction. Instead of looking for evidence for why your initial hypothesis was right, what if you looked for evidence that might suggest you were wrong? Are there any features of the house that wouldn't work for your family? Is the property tax amount something you will be able to cover annually?

## Don't Surrender to the Yes Man

This tendency to seek out confirming evidence and discount disconfirming information is unfortunately a very human one. Yet, being aware of our propensity to act in such a way can actually help. In a study published last year, Anne-Laure Sellier, Irene Scopelliti and Carey Morewedge led graduate students through a video game training program, in which the students act as amateur detectives trying to find a missing person. The game gives ample opportunity for students to exhibit the confirmation bias, before going through a review session where they receive personalized feedback.

Can a game like this affect subsequent behavior? Weeks after playing the training game, as part of one of their courses, the students solved a business case that is known to elicit the confirmation bias. This particular case is actually based on the decision to launch the Space Shuttle Challenger, in which a hypothesis-confirming strategy possibly led to the wrong decision to launch the shuttle. Compared to students who did not go through the training game, the students who did learn about their own confirmation bias tendencies were 19% less likely to do so when solving the Challenger case.

## Approach Investment Decisions With an Open Mind

There are some obvious implications when it comes to investing. Whether it is the most recent top-performing stock discussed on TV, or an upcoming initial public offering we hear about from a friend who would benefit from an emerging trend, it is natural for us to feel that our investment thesis is justified. And, seeking

out evidence that confirms our hypotheses and conjectures about the world isn't always the worst thing to do. However, it can also be smart to keep an open mind and consider why we might be wrong.

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### ENDNOTES

<sup>1</sup>P.C. Wason, "On the Failure to Eliminate Hypotheses in a Conceptual Task," *Quarterly Journal of Experimental Psychology*, (1960).

<sup>2</sup>Raymond S. Nickerson, "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises," *Review of General Psychology* 2, no. 2 (1998): 175-220.

<sup>3</sup>Commission of the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, Report to the President, (March 31, 2005).

<sup>4</sup>Anne-Laure Sellier, Irene Scopelliti and Carey K. Morewedge, "Debiasing Training Improves Decision Making in the Field," *Psychological Science* 30, no. 9 (2019); 1371-1379.

<sup>5</sup>Elizabeth Howell, "Challenger: The Shuttle Disaster That Challenged NASA," *Space*, May 1, 2019.

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