

DESCRIPTION

The tendency to interpret new information to confirm one's beliefs or theories.

This impacts how one gathers, interprets and recalls information.

I believe this



True, reliable

I don't believe this → Wrong, not reliable

Confirmation Bias



EVIDENCE

Mendel R. et al (2011)

Aim: To study whether psychiatrists and medical students are susceptible to confirmation bias and whether this leads to poor diagnostic accuracy.

Method: Presented 75 psychiatrists and 75 medical students an experimental decision task.

Findings: 13% psychiatrists and 25% of students showed confirmation bias after having a preliminary diagnosis. Psychiatrists carrying out a confirmation search made a wrong diagnosis 70% compared to 27% or 47%.

Conclusion: Confirmatory information search bears risk of wrong diagnostic decisions.

Tips

- Look into the accuracy of the source. See what biases the author may have.
- Look at all relevant evidence closely, not only evidence that supports beliefs/theories.
- Don't take offense to being wrong.
- Be open-minded of other opinions, beliefs and evidence.

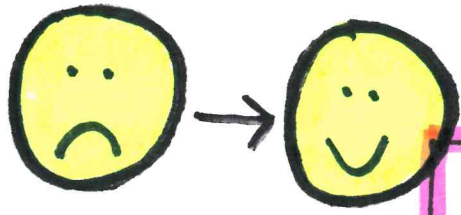
EXAMPLES

- A patient, coworker, or boss could question your judgement, work or views because of confirmation bias.

- Someone who disagrees with you may not be open about their beliefs or opinions because you have confirmation bias.

It could also mean the opposite, in which a person gets angry and get into an argument.

- These examples could happen because a person may feel the need to combat or act on the bias. They may just want the truth or act out in their own beliefs.



Optimism Bias

A cognitive bias that causes a person to believe that they are at a lesser risk of experiencing a negative event compared to others.

Example:

People may underestimate their risk of being in a car accident or getting cancer relative to other people.

↑ Factors that increase optimism bias:

- infrequent events
- people believe the events are under direct control & the influence of the individual

↓ Factors that decrease optimism bias:

- depression & anxiety
- experiencing certain events
- comparison to friends & family

Love et al (2015)

aim: to see if the NFL environment structure will be supportive of optimism bias.

method: Participants indicated their favorite team using a dropdown menu, & a second dropdown menu to predict the total # of wins for the 2015 season.

findings: the average win projection for each team averaged across participants not biased to overweight successful teams, which may be more popular with fans. Predicted more wins for teams they favored, than teams they disliked.

Conclusion:

Fans have more faith & predict more wins for their favorite teams due to bias.

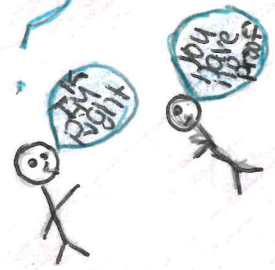
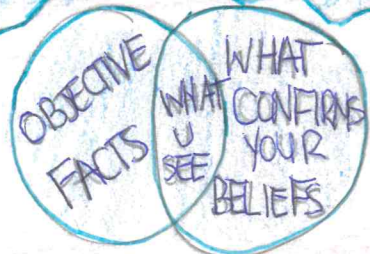
How does the likelihood of different events occurring affect our mindset?



TRUE OR FALSE

Confirmation Bias

The tendency to interpret new evidence as confirmation of one's existing beliefs or theories.



Examples

If we believe something so true you stick with it no matter what, even when it could cost you a great amount of money. We tend to stick to our incorrect conclusions. This happens from the direct influence of desire and beliefs.

Tips...

If we know about confirmation bias and keep the fact that it does exist, we make an effort to recognize it by working to be curious about opposing views and really listening what others have to say and why. This can help us better to see issues and beliefs from another perspective.

Examples

Another example is believing the first link you press you believe it's true because it's on the internet. No matter what people tell you, you believe in what you see.

More Information

Confirmation bias is a type of cognitive bias and a systematic error of inductive reasoning. Also to favor information that confirms their assumptions whether they are true or not. Confirmation bias impacts how we gather information and how we interpret information.

The Wason Rule Discovery Test

Aim: to demonstrate that most people do not proceed optimally in testing hypothesis.
Method: Wason made up a rule for the construction of the given sequence of numbers.
Findings: the rule was simply increasing numbers.
Conclusion: very few tried to make up a number sequence that might disprove their hypothesis.

Cognitive Dissonance

Description:

The mental discomfort experienced by a person who simultaneously holds two or more contradictory beliefs, ideas, or values. This discomfort is triggered by a situation in which a belief of a person clashes with new evidence perceived by that person.

Real World Examples:

- Knowing smoking's harmful while liking to smoke
- Believing lying is bad and being forced to lie
- Liking a friend, while knowing that he hates your brother
- It is important for man to take care of the environment, yet he drives a car that is not environmentally friendly



Evidence:

Study: Festinger and Carlsmith (1959)
Aim: Investigate if making people perform a dull task would create cognitive dissonance through forced compliance behavior
Method: 71 male participants performed a series of dull tasks, then paid \$1 or \$20 to tell a waiting participant that the tasks were interesting, almost all agreed.
Results: when the participants were asked to evaluate the experiment, the participants paid only \$1 rated the task as more fun than those paid \$20 to lie.
Conclusion: Being paid \$1 is not sufficient incentive for lying and those paid \$1 experienced dissonance. They could only overcome their dissonance by coming to believe that the tasks were interesting and enjoyable. Being paid \$20 provides a reason for turning people, therefore no dissonance.

Tips to Avoiding the Bias:

- Change your attitudes, behaviors, beliefs, to make the relationship between two elements consistent
- Acquire new information that outweighs the dissonant beliefs
- Reduce the importance of the cognitions
- Removing the conflicting attitude

Optimism Bias

Described as; A Cognitive Bias that causes a person to believe they are at a lower risk than others at experiencing a negative event.

Example: People who believe "that won't happen to me."

Example: "That can't happen to me."

"So far so good"



Confidence

^{the effect of optimism}
Name: Bias on decision to terminate failing projects
By: Werner G. Meyer.

Aim: To what extent do decision makers suffer from optimism bias

Method: 345 individuals who were involved in project decision making

Findings: Post-project OB

is an overly optimistic belief that a project will deliver better

Conclusion: Both post-project bias and in-project biases have significant effects on the escalation commitment to failing projects.

Tips

- * Set realistic goals
- * Don't be too objective to new ideas
- * Don't neglect information
- * Make decisions when not experiencing extreme emotions.

Illusory Correlation

Perceiving a relationship between variables even when no such relationship exists

Hamilton, D.L., & Gifford, R.K. (1976)

Aim: Find if people will have a stereotypical bias towards certain jobs

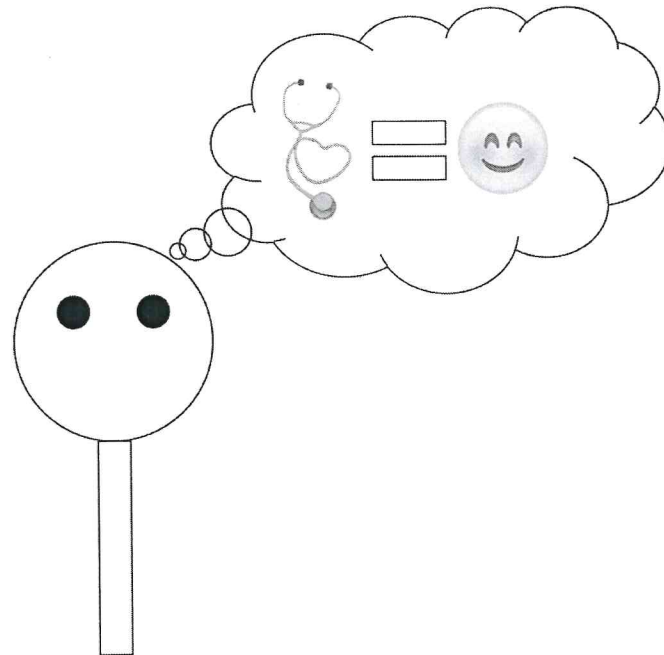
Method: Had participants read sentences describing people with different occupations. Each sentence describes a person with a trait word that was either stereotypic of the occupation or neutral. All adjectives paired with occupations an equal number of times.

Findings: Participants were asked to estimate the number of times each pairing occurred. They found that the participants consistently over estimated the number of times each pairing occurred. They consistently overestimated the number of times that each stereotypic-traits had been paired with their corresponding occupation.

Conclusion: People's stereotypic expectancies about certain occupations lead them to perceive a relationship where none actually exists.

Examples

- Pitbull dogs are dangerous and noisy
- Next door neighbors are loud
- Police are brave
- Cats are rude



Additional Examples

Participants were given a random number from 1 to 10 and were asked to guess how many African countries were represented in the UN. Those with low numbers guessed lower than the ones with higher numbers

Optimism Bias

Description: Optimism Bias causes a person to believe that they are at a lesser risk of experiencing a negative event compared to others.

Evidence: Jansen et al (2011)

→ Aim: to investigate the extent of optimism bias in early-phase oncology trials on cancer patients.

→ Method: Conducted survey with patients over 18 years of age, who had phase I, phase III, or phase II clinical cancer in NYC, conducted between August 2008 to October 2009. Patients were asked to compare their own chances of risks and benefits related to the trial they were enrolled in versus chances of other trial participants.

→ Findings:

- patients tended to over estimate the benefits of the trial and underestimate the risks

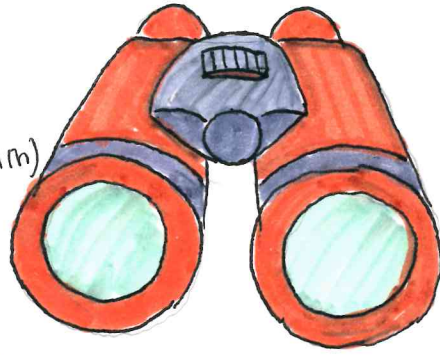
Conclusion: improving the constant process of oncology requires more than addressing deficits in understanding

Example:
Telling someone the risks of smoking causes them to believe they will not be negatively affected by smoking.

Optimism is normal but some fortunate people are more optimistic than the rest of us. If you are genetically endowed with an optimistic bias, you hardly need to be told that you are a "lucky person" - you already feel "fortunate" - Daniel Kahneman

Real World Applications

- Politics
- Sports (Finding stats that support your team)
- Movies (Finding movie reviews)
- Support of a product or brand



"Confirmation bias is our most treasured enemy. Our opinions, our acumen - all of it, are the result of years of selectively choosing to pay attention to that information only which confirms what our limited minds accept as the truth"

← Ina Carhescu

"the tendency to believe only things that confirm what you already believe is true"

Confirmation Bias

EXAMPLE

If you are sure you will draw a blue jellybean after 3 tries and you don't, then you may keep drawing until you get blue to support your initial belief.

DESCRIPTION: The tendency to interpret new evidence as confirmation of one's existing beliefs or theories.



STUDY

Name: Upshot Study (2014)
Aim: Find out if confirmation bias affects people when concerning political elections.
Method: Participants spin a spinner that either says a democrat or republican will win the election.

Findings: People who believed democrats would win were more likely to spin again when the spinner showed a republican winning and vice versa.

Conclusion: People look for information that confirms their views, and will keep looking if they have not seen their preferred outcome.



Anchoring Bias



DEFINITION

Anchoring bias is the idea that people tend to rely most heavily on the first piece of information that they learn.

People can believe false information because they learn false facts.

Examples

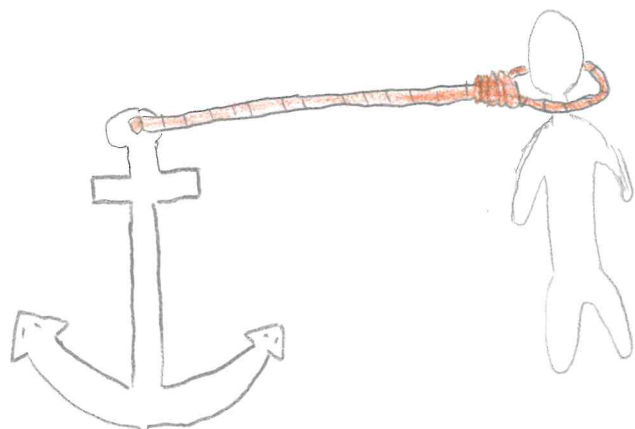
Evidence: Fritz et al

Aim: To find if anchoring bias is real.

Method: students were given anchors that were obviously wrong, then asked questions about the same topic as their anchoring info.

Findings: Students consistently answered their questions with numbers far closer to their anchor numbers.

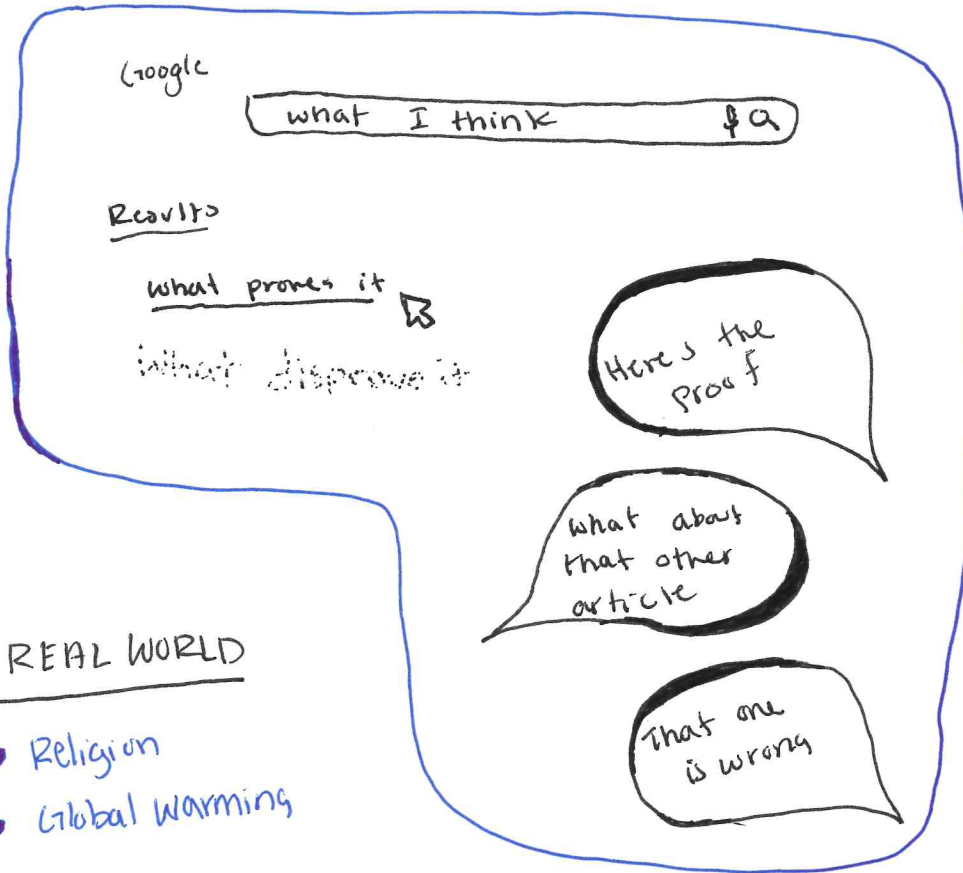
Conclusion: Anchoring bias causes people to rely and anchor themselves on the first piece of info they hear, even if this info is clearly fake.



Confirmation Bias

THE TENDENCY TO INTERPRET NEW EVIDENCE AS CONFIRMATION OF ONE'S EXISTING BEHAVIOR

Not only are people more likely to believe information that fits their pre-existing beliefs, but they're also more likely to go looking for that information



EXAMPLES IN REAL WORLD

- Elections
- Religion
- Anti-vax
- Global Warming

People's tendency to succumb to the phenomenon of making confirmation biases may lead to disastrous decisions

WASON RULE DISCOVERY TEST (1960)

AIM To demonstrate that people are biased toward their beliefs

METHOD subjects were asked to identify a rule that applies to a series of numbers to find out what rule is they are allowed to

construct a series of numbers after being given (2,4,6) and it either confirms or denies their theory

FINDINGS Most people said it was even numbers even when the rule was just increasing numbers.

CONCLUSIONS subjects only tested sequences that only prove their hypothesis

WHY IT WORKS

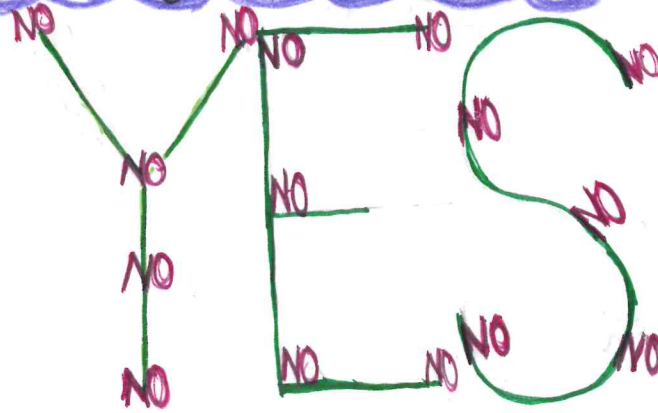
People only confirmed their theory and didn't bother to confirm others that may disprove their theory

CONFIRMATION BIAS

The tendency to interpret new evidence as existing beliefs, or theories.

Examples

- Religion (stories over facts)
- Medicine (body can heal itself)
- Politics (people don't like one thing so won't listen)
- Climate change



"Self-deception can be like a drug, numbing you from harsh reality, or turning a blind eye to the tough matter for gathering evidence, and thinking"

Study: Sunstein et al (2016)

Aim: To identify confirmation bias, and how beliefs are altered.

Method: Information was presented to people who believed that climate change is man-made, as well as skeptics.

Findings: Man-made doubters = change their response from unexpected good news, and fail to change their mind with bad news.
Man-made believers = change their responses from bad news, but not from good news.

Conclusion: Both groups strengthened their pre-existing beliefs when the new data confirmed their original position, but ignored data that challenged their views.

Optimism Bias

A belief that our chance of experiencing negative events are lower and our chances of experiencing positive events are higher than those of our peers.

Strunk et al (2006)

Aim: examine the relationship between depressive symptoms & bias in prediction of future life events

Method: 153 participants w/ self-reported depression estimate the probability of 40 events over 30 days. After 30 days, participants report which events occurred.

Findings: Optimistic bias characterized the participants w/ little depression whereas a significant pessimistic bias characterized participants w/ high depressive symptoms.

Conclusion: Depression is associated w/ pessimistic bias rather than accuracy in judgement.

"Humans are more optimistic than realistic but we are oblivious to the fact"

-Tali Sharot



Real World Examples

- smokers believe that they are less likely than other smokers to contract lung cancer by smoking
- underestimate our risk of being in a car accident or getting a divorce.

Causes of the Bias

- a number of factors can explain this: such as self-serving biases, perceived control & being in a good mood.

Tips to avoid this Bias

Study how probability works and the likelihood that it's correct.

Research statistics on many things and understand ~~that~~ them as well as be able to apply them to daily life.

Study: N Eng. J Med. 2012
Mitch Palmer

Aim: Sought to characterize the prevalence of the expectation that chemotherapy might be curative to Optimism Bias.

Method: Studied 1193 patients who were alive 4 months after diagnosis and received chemotherapy for newly diagnosed Stage IV lung or colorectal cancer. Professional interviewers conducted the survey and medical records were also observed.

Findings: Overall, 69% of patients with lung cancer and 81% with colorectal cancer did not report understanding that chemotherapy was not at all likely to cure their cancer. Education level, functional status, and the patients role in decision making were not associated with such inaccurate beliefs about chemotherapy.

Conclusions: Many patients receiving chemotherapy for incurable cancer may not understand that chemo is unlikely to be curative. This compromises their ability to make informed treatment decisions. Also if they were completely informed they would most likely be unhappy with their physician ~~and~~ with

Optimism Bias



Definition: A cognitive bias that causes a person to believe that they are at a lesser risk of experiencing a negative event compared to others.

Info: Because of this bias it leads to an increase in mortality in an otherwise simple minimal risk circumstance such as not wearing a seatbelt because they believe they won't crash and not getting vaccinated or receiving cancer treatment in time for cancer because they believe they won't get sick.

Example: There are 6 million car crashes per year in the U.S. It is expected that the average person will experience up to 4 crashes in their life yet many people with optimism bias believe they will never get in a crash.

Example: Many people believe they won't get sick so they don't vaccinate and those who ~~believe~~ believe they will never get cancer, they most likely

Optimism

Description:

• Causes a person to believe they are at less risk of experiencing a negative event compared to others

- likely to attain success
- can lead to poor decision making.
- egocentric
- less stress

Tips

- accept failures
- learn from experiences
- Think ahead

Examples:

- Smarter children
- live longer
- Happier life
- engage in risky behaviors
- motivation to pursue goals

Bias

Evidence:

↳ Study Name: Weinstein (1980)

Aim: How much their chance of experiencing future life events differed from average chances compared to their classmates.

Method: One group made different judgements. Testing group of students. 120 female students from a psychology course from the same university.

Findings: correlation between positive and negative events (clear differentiation) The least undesirable of all negative events still perceived -- undesirable. Least undesirable of positive events -- relatively desirable.

Conclusion: Negative + Positive -- decrease optimism

Additional Information:

- Some individuals underestimate they can get sick easily
- overestimate probability of positive events.
- Underestimate of negative events
- "Boost Happiness"
- good news doesn't shatter illusion
- "Belief that future will be better"
- Individuals learn from failure.

↙
Positive values:
believe own chance are greater than average.

Negative:
students believed chance was less than average.



OPTIMISM

Definition: cognitive bias that causes a person to believe they are at a lesser risk of experiencing a negative event compared to others

BIAS



Evidence:

WEINSTEIN 1980

Aim: investigate college students estimation of how much their own chances of experiencing life events differed from their classmates

Method: One group of students made judgements about the likelihood that 18 positive and 24 negative life events would occur (120 female students from same university)

Findings: showed a clear differentiation between positive and negative events. The least undesirable event = relatively undesirable and least desirable = relatively desirable

Conclusion: Positive events → chances are greater than average, negative events → chances are less than average

Real World examples:

- * think they will be more successful in life
- * engage in risky behaviors
- * motivation to pursue goals
- * belief that they will live longer
- * believe they will have smarter children compared to the average

TIPS

1. accept failures or mistakes in life and learn from them
2. think about outcomes of making decisions
3. success doesn't come by luck but through hard work

Definition:

Human tendency to think that examples of things that come to mind are more representative than reality shows.

Study:

Amos Tversky & (1973)

Daniel Kahneman

- Aim: Judge how people evaluate the frequency of classes or probability of events by availability.

- Method: 1500 people were evaluating a word problems and given 7 seconds to guess the # of words.

- Conclusion: people can recall information in front of them quickly and accurately.

Quote:

"The subject could, therefore, use the number of instances retrieved in a short period to estimate the number of instances that could be retrieved in a much longer period of time"

Availability Bias

Hypothesis:

"There may be a plane crash!"

-I am not flying

you could win the lottery!"

-Then let me pour all my money into it.

Real:

- People were asked to evaluate the divorce rate within their community and guess the average # per year. To achieve this many relate it to what they know / heard of.



Cade McCarty

Over Confidence

Definition: The quality of being too confident; excessive confidence

Research Study: Ola Svenson

Date: February 1981

Aim: To see if American drivers thought they were good at driving

Method: surveyed a number of Americans to see what they thought about their driving skills

Findings: Over 93% of American drivers claimed to be better than the average driver.

Conclusion: It is statistically impossible for 93% of Americans to be better than the average driver, so in conclusion, overconfidence bias plays a big role in how people perceive their driving skills.

Examples from real world

- when you don't study for a test because you think you are prepared and then you fail it
- Not running every day when you are a track star and then you get beat

Tips to avoiding overconfidence

- Always over prepare
- be honest with yourself
- Test yourself cautiously
- listen to criticism
- Treat commitments seriously



Alivia B

OVERCONFIDENCE

Bias

A person's subjective confidence in his or her judgements is reliably greater than the objective accuracy of those judgements, especially when confidence is relatively high.

★ Tips ★

are you sure?
Make sure you KNOW you're ready

Study: Svenson 1981

Aim: To discover if American drivers see themselves driving

Method: surveyed a number of Americans to see what they thought of driving

Finding/Conclusion: what scientists found was that 93% of American drivers claimed to be better than average.



examples + uses



- ★ not studying, thinking you're gonna do good with no fails
- ★ going down a hill on a skateboard with no padding

Alivia B