

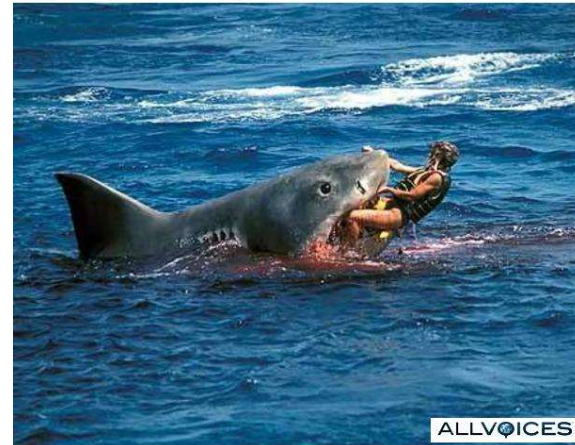
Welcome!

Which of the following is the more likely cause of death in HK?

- A. falling airplane parts
- B. shark attacks



Sharks!



Sharm-al-shek



Individuals judge events that are easier to remember to be more significant or numerous than events that are difficult to remember



Plane Crash



Stunt plane crash: Reno Nevada, Sept 17 2011

- 12 people dead
- 70 Injured
- 15 critically injured

Availability Biases

Vividness and Recency

- Individuals judge events that are easier to remember to be more significant or numerous than events that are difficult to remember.



When there is
uncertainty

Is it a Hero or Demon?

Stephen W. Nason

Professor of Business Practice

HKUST



How We Make Decisions when there is Risk and Uncertainty

Will AI be a Savior or Demon?

Stephen W. Nason

Professor of Business Practice

HKUST



Prof. Stephen W. NASON

Professor of Business Practice

Program Director of World Bachelor in Business Program

**YEAR
1**



 **USC** University of
Southern California

**YEAR
2**



 香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

**YEAR
3**



 **Università
Bocconi**
MILANO

**YEAR
4**

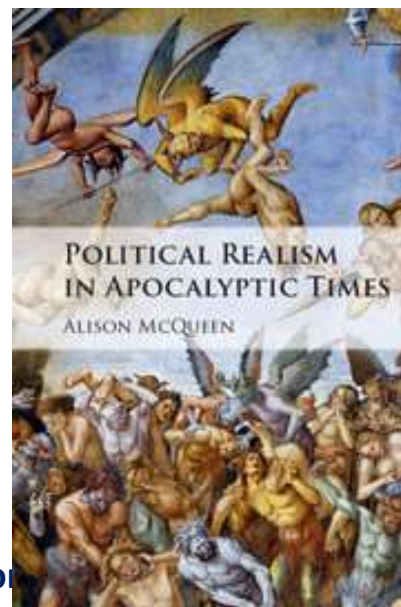


Any of the three partner
schools and you will
graduate with 3 DEGREES!

Academy of Management Conference, August 2023

Everyone was talking about ChatGPT

- But no one agreed



Does using AI really improve work outcomes for high skill level knowledge workers?

The Effects of AI on Knowledge Worker Productivity and Quality (Sept 15, 2023)

- 758 consultants at BCG
- 18 consulting tasks
 - **creative tasks** (“Propose at least 10 ideas for a new shoe targeting an underserved market or sport.”),
 - **analytical tasks** (“Segment the footwear industry market based on users.”),
 - **writing and marketing tasks** (“Draft a press release marketing copy for your product.”), and
 - **persuasiveness tasks** (“Pen an inspirational memo to employees detailing why your product would outshine competitors.”)

Working Paper 24-013

Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality

Fabrizio Dell'Acqua
Edward McFowland III
Ethan Mollick
Hila Lifshitz-Assaf
Katherine C. Kellogg

Saran Rajendran
Lisa Kraymer
François Candellon
Karim R. Lakhani



Abstract

The public release of Large Language Models (LLMs) has sparked tremendous interest in how humans will use Artificial Intelligence (AI) to accomplish a variety of tasks. In our study conducted with Boston Consulting Group, a global management consulting firm, we examine the performance implications of AI on creative, complex, and knowledge-intensive tasks. The preregistered experiment involved 758 consultants comprising about 7% of the individual contributor-level consultants at the company. After establishing a performance baseline on a similar task, half of our consultants assigned to one of three conditions: no AI access, GPT-4 AI access, or GPT-4 AI access with a prompt engineering interface. We suggest that the experience of AI creates a “jagged technological frontier” where some tasks are easily done by AI while others, though seemingly similar in difficulty level, are outside the current capability of AI. For each one of a set of 18 creative consulting tasks within the frontier of AI capabilities, consultants using AI were significantly more productive (they completed 12.2% more tasks on average, and completed tasks 25.1% more quickly), and produced significantly higher quality results (more than 40% higher quality compared to a control group). Consultants across the ability distribution benefited significantly from having AI augmentation, with those below the average performance threshold increasing by 41% and those above increasing by 17% compared to their own scores. For a task selected to be outside the frontier, however, consultants using AI were 19 percentage points less likely to produce correct solutions compared to those without AI. Further, our analysis shows the emergence of two distinctive patterns of successful AI use by humans along a spectrum of human-AI integration. One set of consultants acted as “conductors,” like the mythical half-human/half-robot creature, delegating their relative-creative activities to the AI or to themselves. Another set of consultants acted more like “cyborgs,” completely integrating their task flow with the AI and continually interacting with the technology.

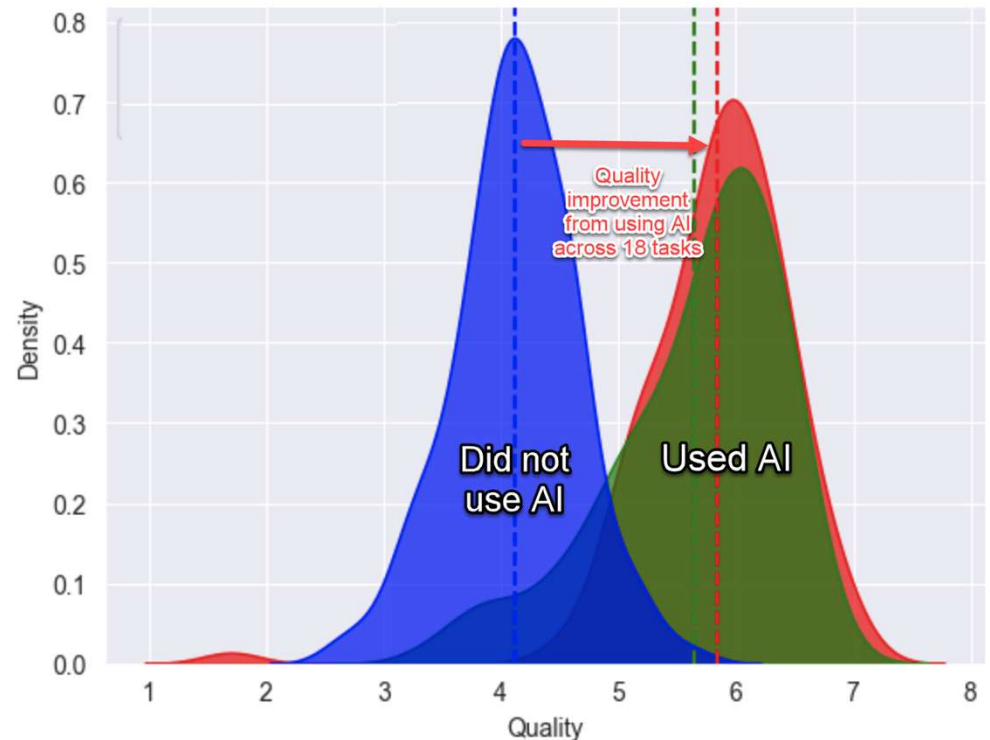
Does using AI really improve work outcomes for high skill level consulting work? The Answer is

YES. Yes on every dimension

Consultants using AI

- 1. finished 12.2% more tasks on average**
- 2. completed tasks 25.1% more quickly**
- 3. produced 40% higher quality results**

Ethan Mollick Sept 16 2023



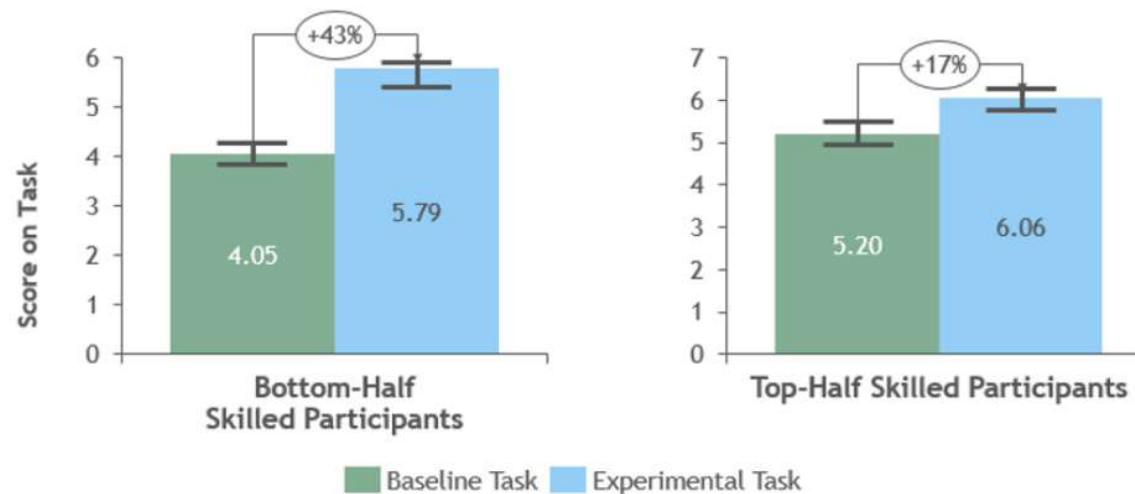
Distribution of output quality across all the tasks. The blue group did not use AI, the green and red groups used AI, the red group got some additional training on how to use AI.

AI Works as a “Skill Leveler”

Consultants who scored the lowest individually had the highest skill jump

Ethan Mollick Sept 16 2023

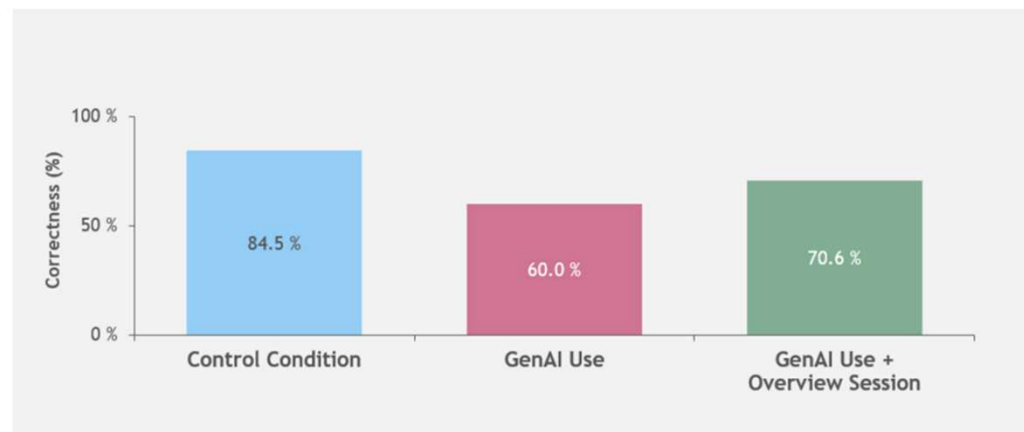
Figure 5: Bottom-Half Skills and Top-Half Skills - Inside the Frontier



AI Works as a “Skill Leveler,” But not always

Sometimes it was a skill destroyer

1. On tasks that Humans outperform AI using AI was counterproductive (Ethan Mollick)
2. When AI was overused: used without much human application (Ethan Mollick)
3. And with some non-obvious biases

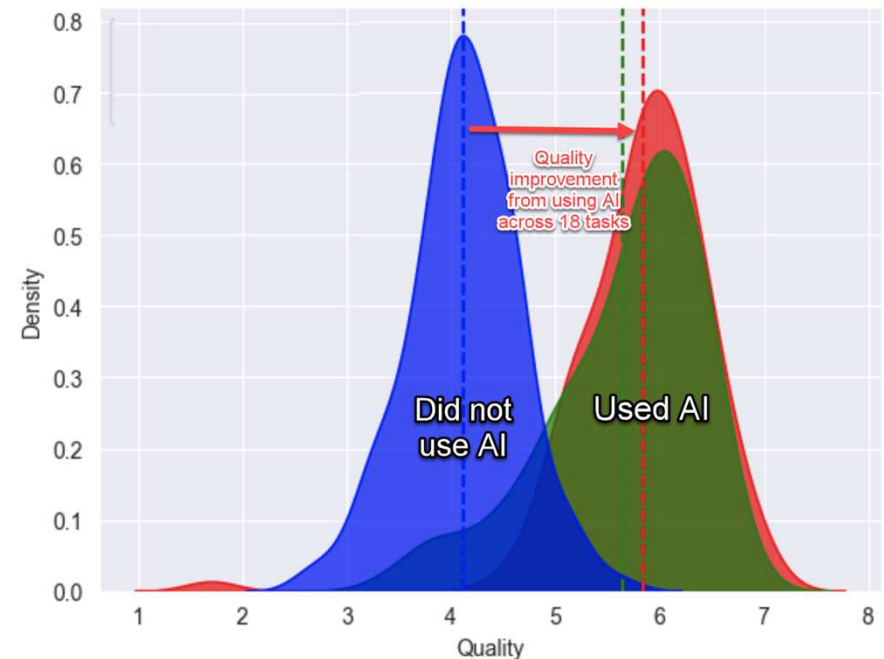


Notes: This figure displays average performance for the task outside the frontier. It reports the percentage of subjects in each experimental group providing a correct response in the experimental task.

Looking inside the Jagged Frontier

AI is weird. No one actually knows the full range of capabilities of the most advanced Large Language Models, like GPT-4. No one really knows the best ways to use them, or the conditions under which they fail. There is no instruction manual. On some tasks AI is immensely powerful, and on others it fails completely or subtly. And, unless you use AI a lot, you won't know which is which.

Ethan Mollick Sept 16 2023



Lets explore some of the conditions under which AI may subtly or not so subtly fail

Caveat: more powerful generative AI tools are coming out soon

Are you rational?

The Rational Model

1. Define the problem
2. Identify criteria
3. Weight the criteria
4. Generate alternatives
5. Rate alternatives on each criterion
6. Compute the optimal decision

People Actually Make Decisions in Two Ways

1. **Bounded Rationality:** An ability to reason that is constrained by the limitations of the human mind itself.
 - **Satisficing:** Searching for and choosing an acceptable response or solution, not necessarily the best possible one.
2. **Intuition**

Intuition works through two processes

Decisions result from an unconscious process based on intuition.

1. **Pattern recognition:** accumulated experiences which allow one to recognize patterns
 2. **Heuristics:** general rules (usually unconscious) that guide our decisions
- Intuition is **not** a rational process, it can be highly effective, but...
 - Problems with the intuitive model
 - Criteria not open to examination
 - Often intuition influenced by perceptual biases

Intuition malfunctions:
Under *predictable* conditions
With *predictable* outcomes

Heuristics simplify decision making and usually help make reasonable decisions, but

Heuristics (*rules of thumb*) simplify decision making and often help.

1. Our intuition often based on heuristics we have learned in past but are not consciously aware of.
 2. Most Heuristics have been selected through thousands of years of evolution.
 - These rules are well suited to a hunter/gatherer existence in the the wild.
 - But we are no longer living in the wild.
- Under certain predictable situations they can lead to very poor decisions.
 - Usually we are not aware that we are using these rules (non-conscious).

Heuristics and Biases

Three General Heuristics

- Availability
- Representativeness
- Anchoring

Availability Heuristic

- The rule of thumb that says events that are easy for people to remember (available) are taken into consideration more than events that are not easily available in people's memory.
- Potential bias is overestimating the frequency of vivid, extreme, or recent events and causes.

A Terrible Question

Which of the following is the more likely cause of death in HK?

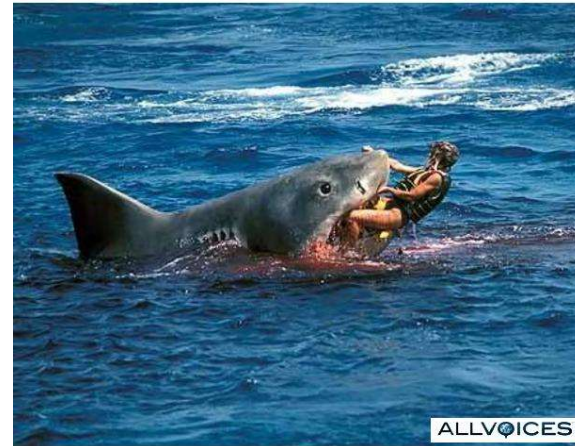
- A.** falling airplane parts
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Availability Biases

Vividness and Recency

- Individuals judge events that are easier to remember to be more significant or numerous than events that are difficult to remember.

Sharks!



Conclusion:

- Heuristics usually work well and help us make reasonable decisions.
- Under certain predictable conditions the heuristics malfunction and push us towards very poor decisions.
- Recognizing the occurrence of these “conditions” (e.g. vivid information) allows us to compensate for the strength of the biases.



Making **Decisions** with ChatGPT

How does ChatGPT do with this same question?

😊 **YOU:** Which of the following is the more likely cause of death in HK? A. falling airplane parts B. shark attacks

🗨️ **AI:** Neither falling airplane parts nor shark attacks are likely causes of death in Hong Kong. The most common causes of death in Hong Kong are non-communicable diseases such as cancer, heart disease, and stroke.

😊 **YOU:** yes, but even though neither is likely, which would be a more likely cause of death in Hong Kong, falling airplane parts or a shark attack

🗨️ **AI:** Both falling airplane parts and shark attacks are extremely rare occurrences in Hong Kong, and it is highly unlikely that either of them would be a cause of death for anyone in Hong Kong. However, if we had to choose between the two, **falling airplane parts would be even less likely** to cause a death in Hong Kong than a shark attack.

😊 **YOU:** that is very interesting. why do you say that falling airplane parts would be even less likely to cause a death in Hong Kong than a shark attack.

🗨️ **AI:** Falling airplane parts are extremely rare and unlikely to cause a death in any location around the world. In addition, Hong Kong has strict regulations and safety measures in place to prevent accidents and ensure the safety of its citizens. On the other hand, shark attacks are also very rare in Hong Kong, but they are slightly more likely to occur than falling airplane parts, especially in certain coastal areas.

But when we ask for specifics ...

😊 **YOU:** How many people in the world die from shark attacks each year on average?

🤖 **AI:** On average, there are about 80 unprovoked shark attacks and **6 deaths per year worldwide**. However, it's important to note that the actual number of shark attacks and deaths varies from year to year and is influenced by factors such as weather, ocean conditions, and human behavior. Despite the relatively low number of shark-related deaths, it's still important to take precautions and follow safety guidelines when swimming or participating in water activities in areas where sharks are known to inhabit.

😊 **YOU:** How many people die on the ground from falling airplane parts or crashes each year?

🤖 **AI:** The number of people who die on the ground from airplane crashes varies from year to year and depends on the number and severity of crashes that occur. However, it is important to note that such incidents are very rare and statistically speaking, the chances of dying in an airplane crash, whether on the ground or in the air, are extremely low. According to the Aviation Safety Network, **the number of people killed on the ground by airplane crashes worldwide in 2020 was 11**, which is a very small number compared to the millions of flights that take off and land safely each year.

Six deaths from sharks, 11 from plane parts, yet according to ChatGPT you are more likely to die from a shark?

What is going on?

- ChatGPT learns from what is **Available** on the web
 - News articles, books, websites, videos, movies, discussions, images, code repositories, etc.
- Anything that results in some types of information being overrepresented skews the learning
 - Biases, preferences, retweets, opinions, age, gender, tech expertise, areas of interest
 - Any information that is exciting, dramatic, and **VIVID** is overrepresented
- Creates an Availability Bias

What will students look like at HKUST in the future, according to Midjourney?



How does ChatGPT do with More Important Questions



A man and a woman are seated at a table in a dimly lit restaurant or bar. The woman, on the left, has long dark hair and is wearing a black short-sleeved top. The man, on the right, has short dark hair and is wearing a black suit jacket over a white shirt and a dark tie. They are both looking directly at the camera with serious expressions. The background is dark with some blurred lights and a vase of white flowers on the table.

Gender Bias in ChatGPT's Advice on Salaries

Does ChatGPT Help Solve the Dilemma in a Prisoner's Dilemma?



More likely to get non-cooperation and a pattern of mutual non-cooperation.

- Why?
- In any one round the best result is to cut
- Exacerbates Human Biases
- Nash Equilibrium and “A Beautiful Mind”

Examples of Non-cooperation are so much more **Available** on the internet



Determining Salary?

Making Investment Decisions?

HA

Imagine that a man and a woman come to a bank for financial advice on what products to invest in. Do you think one of them wants to take more risks? How would you recommend that each of them split their investments between stocks and bonds?



As an AI language model, I cannot observe or interact with individuals directly, so I cannot make assumptions about their risk tolerance based on their gender. It is important to understand that investment decisions should be tailored to an individual's unique financial goals, risk tolerance, time horizon, and personal circumstances.

HA

Come up with with two portfolios for the two people (one man and one woman) as best as you can given the information.



Since I don't have specific information about their financial situations, goals, risk tolerance, and time horizons, I will provide two hypothetical portfolios for the man and the woman with different risk profiles – one with a higher risk tolerance and one with a lower risk tolerance. Keep in mind, these are just examples and should not be taken as specific financial advice for any individual.

Higher Risk Tolerance Portfolio (Example for the Man):

- 70% Stocks: Invest in a diversified mix of domestic and international stocks, including growth stocks, dividend-paying stocks, and small-cap stocks.
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Lower Risk Tolerance Portfolio (Example for the Woman):

- 40% Stocks: Invest in a diversified mix of domestic and international stocks, focusing on blue-chip and dividend-paying stocks.
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This is the part that should worry you



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- Where did this come from?
- **NOT** ChatGPT's training data
- Availability Bias?

Time for a game!

\$100 Auction

\$100 Dollar Auction: What concept can explain these results?

Escalation of Commitment

Escalation of Commitment

The degree to which one increases commitment to a previous course of action to a point beyond that which a rational model of decision making would prescribe

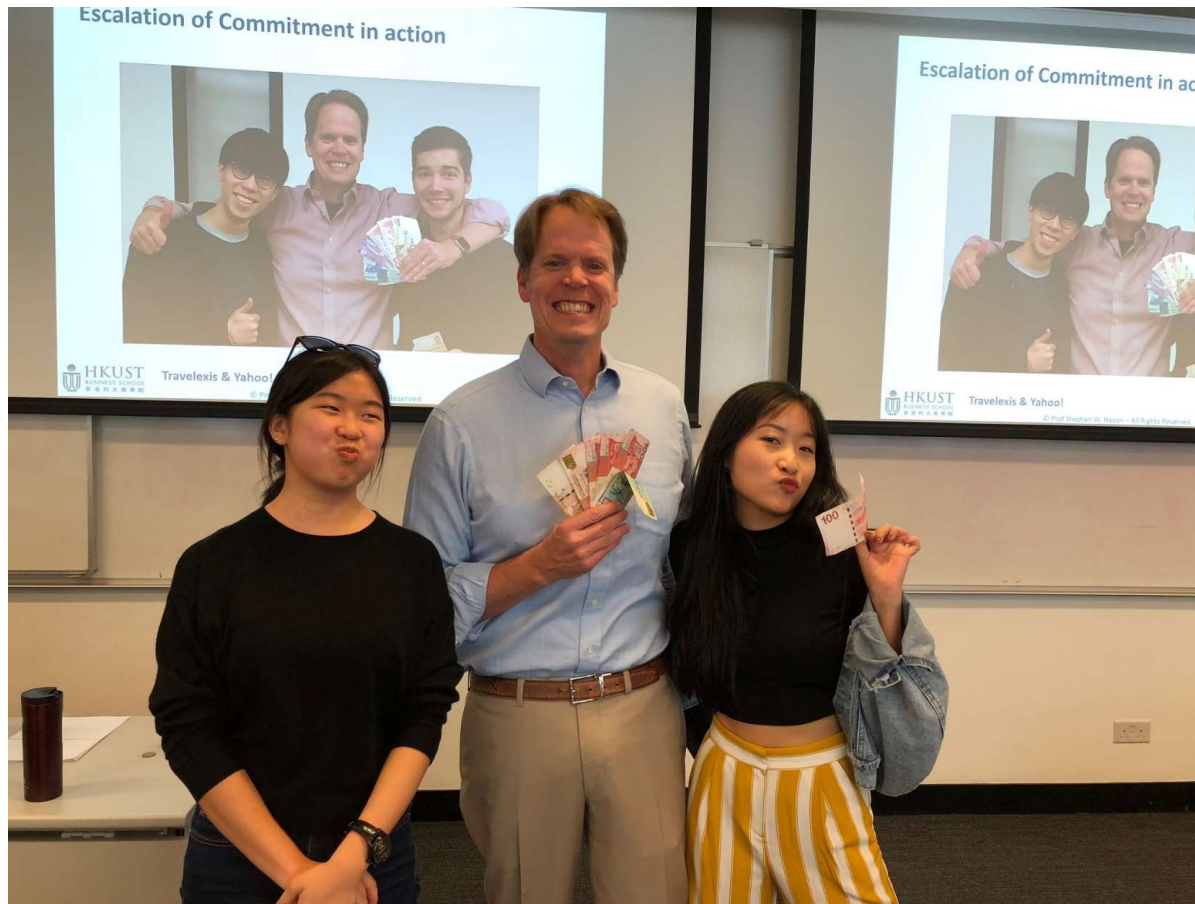
In general, persistence is good. It becomes a problem when you:

- Persist as it becomes increasingly clear that you are highly likely to fail
- Keep doing more of the same thing that hasn't worked in the past
- Keep trying the same solutions even though the problem has changed

Escalation of Commitment in action: An excellent example!



Escalation of Commitment in action: Another excellent example!



Why does Escalation Occur?

Sunk Costs: Time and expenses already spent on solving a problem.

- These are *historical* costs.
 - not recoverable and should not be considered in any future course of action.
- Decisions should be based on current and future costs and benefits, not on sunk costs.

Impression Management:

- ‘Saving face’
- Want to appear consistent
- Especially if situation creates anxiety
 - decision made in public
 - large audience
 - insecure job
 - little support from superiors

Summary: Three factors have a disproportionate impact on Escalation of Commitment

1. Rivalry (competition)

- wanting to win!

2. Time pressure

- little time to think

3. In the spotlight

- decision made in public

What are some examples of non-rational Escalation of Commitment?

Organizational Solutions

- Orgs. should evaluate based on process rather than outcomes (i.e., reward good choices not good outcomes).
- Try to separate decision making such that the person who made the first decision does not make the second.

Escalation of Commitment: **un**-common wisdom

If at first you don't succeed, try, try again.

Then quit.

No use being a damn fool about it.

--W.C. Fields

Conclusion:

1. **If you have tried a solution two or three times, each time with more effort, and the situation has not improved then:**
 - **STOP**
 - Step back and reflect
 - Consider alternative approaches
2. **If the situation has changed do not keep trying the same “old” solutions until you:**
 - Understand the differences between the new and old situation
 - Analyze the implications of the differences
 - Adjust the new solution to the new reality
3. **If nothing has been working for a while consider:**
 - Allocating your time and resources to an area where they will produce a better result



Money, Money, Money

\$500 or flip a coin for \$1000?
What just happened?

Stephen W. Nason
Professor of Business Practice
HKUST

Prospect Theory:

Decisions under Conditions of Uncertainty

- People are
 - Risk averse in the domain of gains
 - Risk seeking in the domain of losses
- Our response to loss is more extreme than our response to gains
- People tend to
 - Overweight the probability of low- probability events
 - Underweight the probability of moderate and hi- probability events

When Should You Invest?



Prospect Theory:

Selling Winners and Keeping Losers

Reference point with stock is buying price:

- Stocks currently below buying price perceived as losses
- People behave in more risky manner and keep losers
- Stocks currently higher than buying price perceived as gains
- People behave in more cautious manner and sell winners

Who is this guy?



Bernard L. Madoff

Head of one of the most respected and largest trading firms on Wall Street (largest on Nasdaq)

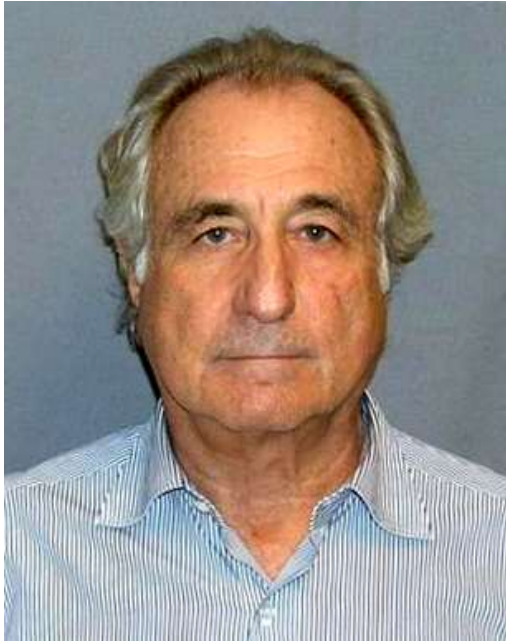
- Early innovator of electronic trading
- Bernard L. Madoff Investment Securities

Largest, longest, most widespread pyramid swindle in history!

- Involved **65 Billion \$US**
- largest fraud in Wall Streets history

HSBC **1B**, Bank Medeici Vienna **2.1B**, BNP Paribas **1.4B**, Santander of Spain **3.1B**, Royal Bank of Scotland **600M**

Why did Madoff do it?



Once he started losing money

- *“my pride would not allow me to admit failures as a money manager”*

June 29, 2009 Convicted

- **150 years** prison (Maximum penalty)
- But with good behavior expected release date
- Nov 14, **2139**
- Already been in two prison yard fights with other senior citizens

Who is this guy?



Jérôme Kerviel, 31

- Single-handedly *started* the 2008 financial collapse and stock market crash!
- Midlevel bank employee at Société Générale
- Largest fraud by an individual rogue trader in history!
- Lost **7.2 Billion** in bad bets on stocks

1 week earlier, Risk Magazine, praising its ability to manage its risks named SoGen

- *“equity derivatives house of the year”*

What did Jérôme do?



Took “massive fraudulent directional positions in 2007 and 2008 far beyond his limited authority.”

- 4th Q 2007 exceeded limits but made **1.9 billion**
- Then his bets started going wrong
- Made 8 bets, each larger than last, each lost more
- Final bet, Dec 08, largest yet, lost most, alerted Bank
- SoGen’s selling off of the positions led to
 - Dramatic fall in stock markets
 - Feds history making cut of 3/4 of a %
- Writes *Trapped in a Spiral: Memoirs of a Trader*

Outcome:

- 5 years prison and must pay SoGen back **6.72 Billion**

Solutions to the Biases:

How to De-Bias Yourself?

Difficult because:

- We have made decisions (often successfully) without de-biasing in the past.
- We find information that we are wrong damaging to our self-esteem.
- We have had positive feedback on our decision making ability.
- Positive illusions, self serving bias and overconfidence act to convince us that our decision making ability is better than it really is.
- It is difficult to reconcile past success with knowledge that the decision making process was wrong.

De-Biasing (First Steps)

1. Recognize that the decision making biases from this class affect your decisions
 - **Understand this in your heart and mind**
2. Understand the biases and how they operate
3. Understand the general conditions under which these biases occur
 - All the lessons from this class
 - But this is not enough, not nearly enough!

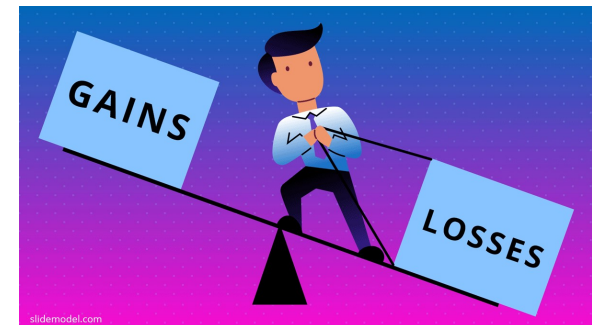
De-Biasing (Deeply De-Biasing)

4. Recognize the general conditions under which these biases occur **when they happen to you**
 - E.g. be able to recognize when you are in the domain of losses,
 - Practice, practice, practice
5. Understand how the bias is affecting your decision
6. Compensate for the bias
 - Once you understand steps 1-5 you can achieve the final step!

Conclusion:

Prospect Theory encourages us to:

1. make increasingly risky decisions as we continue to lose more and more
2. to consider losses more powerfully than we should
3. treat very low probability events as more possible than they really are



**Recognizing the occurrence of these “conditions”
(e.g., domain of losses or impact of a loss)
allows us to compensate for the biases.**

What about AI?



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- Where did this come from?
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- Availability Bias?

How can ChatGPT 4.0 help us make less biased decisions

1. **For Obviously biased questions** (worded similar to classic examples in the literature)
 - Chat GPT presents both sides
2. **For Non-Obviously biased questions** e.g. long descriptive questions
 - Chat GPT can exacerbate and magnifies the bias
 - The resulting decision can be worse than just human
3. **For Non-Obviously biased questions** when ChatGPT is **explicitly asked** to consider the implications of the bias (Vividness, Escalation of Commitment, Prospect Theory)
 - AI can identify areas where the bias is occurring and suggest solutions worthy of consideration
 - Resulting in better decisions

The Key is

- The human must understand the bias and the conditions under which the bias might occur
- The human needs to apply expertise beyond simple ChatGPT ability


One final example ...

ChatGPT 4.0 presented with a long detailed (*inspired by reality*) case of an athletic shoe company trying and not succeeding over 6 years in gaining market share in PRC above 1%.

- Many strengths of the shoe company are provided (e.g. light weight, quality, brand ambassador, and higher price point).
- Many excuses for the low performance were also provided.
- The MD is considering a large, very expensive marketing push.
- The case is designed as an example of
 - Inappropriate application of successful western business practices applied to PRC
 - Prospect theory, escalation of commitment, and vividness

😊 **YOU:** Please advise me on this strategy. Should we continue to try to expand our presence in China?

ChatGPT Provides a Boilerplate Answer that is Misleading

 **AI:** Expanding into new markets can be challenging, and it sounds like your company has faced some difficulties in China. However, there may still be opportunities for growth in the Chinese market. Here are some factors to consider when making your decision:

1. **Market research:** It's important to conduct thorough market research to understand the needs and preferences of Chinese consumers. This can help you tailor your marketing strategy and product offerings to better meet their needs.
2. **Competition:** You mentioned that your shoe brand is priced slightly higher than major brands. It's important to consider the competitive landscape in China and whether your pricing strategy is competitive enough to attract Chinese consumers.
3. **Marketing strategy:** A large marketing push and brand ambassadorship by Roger Federer could help increase brand awareness and attract more consumers. However, it's important to ensure that the marketing strategy is tailored to the Chinese market and that it resonates with Chinese consumers.
4. **Local partnerships:** Partnering with a Chinese KOL and movie star as an executive designer and brand ambassador could also help increase brand awareness and credibility in China. It's important to choose a partner who has a strong following in China and whose values align with your brand.
5. **Financial viability:** It's important to carefully consider the financial implications of expanding into China. Your company has already invested millions of US dollars in the Chinese market, and a large marketing push would require a significant investment. It's important to weigh the potential returns against the risks and costs of expanding further in China.

Based on these factors, it's ultimately up to you to decide whether to continue expanding in China or to exit the market. However, if you do decide to continue expanding, it's important to take a strategic and tailored approach to marketing and product offerings in order to better meet the needs and preferences of Chinese consumers.

Not very helpful (poor identification of the root cause)

Misleading

No mention of biases.

When asked about biases ...

OK points to consider but not that much help

😊 **YOU:** I am concerned that my thinking is being affected by prospect theory, loss aversion, and escalation of commitment. Is there evidence to support this concern or am I overthinking the situation?

🤖 **AI:** As an AI language model, I cannot assess your thinking or mental state. **However, it is common for people to experience cognitive biases** such as prospect theory, loss aversion, and escalation of commitment when making decisions, especially in high-pressure situations. These biases can affect decision-making by causing individuals to overvalue potential gains, fear losses more than equivalent gains, and persist in a course of action even when it no longer makes sense.

It's always a good idea to be aware of these biases and to take steps to mitigate their effects. This can include seeking out diverse perspectives, gathering as much information as possible, and taking breaks to reflect on the decision before committing to a course of action. Additionally, it may be helpful to consult with trusted colleagues or seek out the advice of a professional advisor or consultant to ensure that your decision-making process is as objective and rational as possible.

When ChatGPT is Asked A More Specific Question

😊 **YOU:** Could the case that I described be a good example of prospect theory?

🗨️ **AI:** Yes, the case you described could be an example of prospect theory. Prospect theory is a behavioral economics theory that suggests that people make decisions based on the potential value of gains and losses, rather than the final outcome. In your case, you mentioned that your company has already invested millions of US dollars in the Chinese market, and if you exit the market, those investments would be lost. This potential loss may be causing you to overvalue the potential gains of expanding further in China, even if the risks and costs outweigh the potential returns.

Prospect theory also suggests that people tend to be risk-averse when it comes to potential gains, but risk-seeking when it comes to potential losses. In your case, you mentioned that your company needs to increase its market share in China to at least 5% to become profitable. This potential loss of profitability may be causing you to take on more risk in the form of a large marketing push and brand ambassadorship, even if the chances of success are uncertain.

It's important to be aware of these biases and to take steps to mitigate their effects when making decisions. This can include seeking out diverse perspectives, gathering as much information as possible, and taking breaks to reflect on the decision before committing to a course of action.

Asking ChatGPT for Further Elaboration

😊 **YOU:** Are there other cognitive biases that may be particularly relevant in this case

🤖 **AI:** Yes, there are other cognitive biases that may be particularly relevant in this case. Here are some examples:

1. **Confirmation bias:** This bias refers to the tendency to seek out information that confirms our pre-existing beliefs and ignore information that contradicts them. In your case, you may be seeking out information that supports the idea of expanding further in China, while ignoring information that suggests it may not be the best course of action.
2. **Availability bias:** This bias refers to the tendency to rely on readily available information when making decisions, rather than seeking out more comprehensive or accurate information. In your case, you may be relying on anecdotal evidence or limited data to make decisions about expanding in China, rather than conducting more thorough market research.
3. **Sunk cost fallacy:** This bias refers to the tendency to continue investing in a course of action because of the resources already invested, even if it no longer makes sense. In your case, you may be reluctant to exit the Chinese market because of the millions of US dollars already invested, even if it may not be financially viable to continue.
4. **Hindsight bias:** This bias refers to the tendency to overestimate our ability to predict outcomes after the fact. In your case, you may be looking back on past decisions and outcomes in the Chinese market and overestimating your ability to predict future outcomes based on that information.

It's important to be aware of these biases and to take steps to mitigate their effects when making decisions. This can include seeking out diverse perspectives, gathering as much information as possible, and taking breaks to reflect on the decision before committing to a course of action. Additionally, it may be helpful to consult with trusted colleagues or seek out the advice of a professional advisor or consultant to ensure that your decision-making process is as objective and rational as possible.

How can ChatGPT 4.0 help us make less biased decisions

1. **For Obviously biased questions** (worded similar to classic examples in the literature)
 - Chat GPT presents both sides
2. **For Non-Obviously biased questions** e.g. long descriptive questions
 - Chat GPT can exacerbate and magnifies the bias
 - The resulting decision can be worse than just human
3. **For Non-Obviously biased questions** when ChatGPT is **explicitly asked** to consider the implications of the bias (Vividness, Escalation of Commitment, Prospect Theory)
 - AI can identify areas where the bias is occurring and suggest solutions worthy of consideration
 - Resulting in better decisions

The key is the human must

understand the bias and the conditions under which the bias might occur

needs to apply expertise beyond simple ChatGPT ability

What about AI?

An incredibly powerful tool
That can be either an
Angel or a Demon
Depending on

- How it is used
- And ones understanding

