



Mu Sigma

Behavioral Economics – A deeper dive

Current Applications of Behavioral Economics in Industry - 2

Do The Math

Chicago, IL

Bangalore, India

www.mu-sigma.com

28 May 2021

Agenda

- ▶ Introduction to Behavioral Economics
 - Biases and Heuristics

- ▶ Utilizing Biases – Nudging
 - Future of Nudging

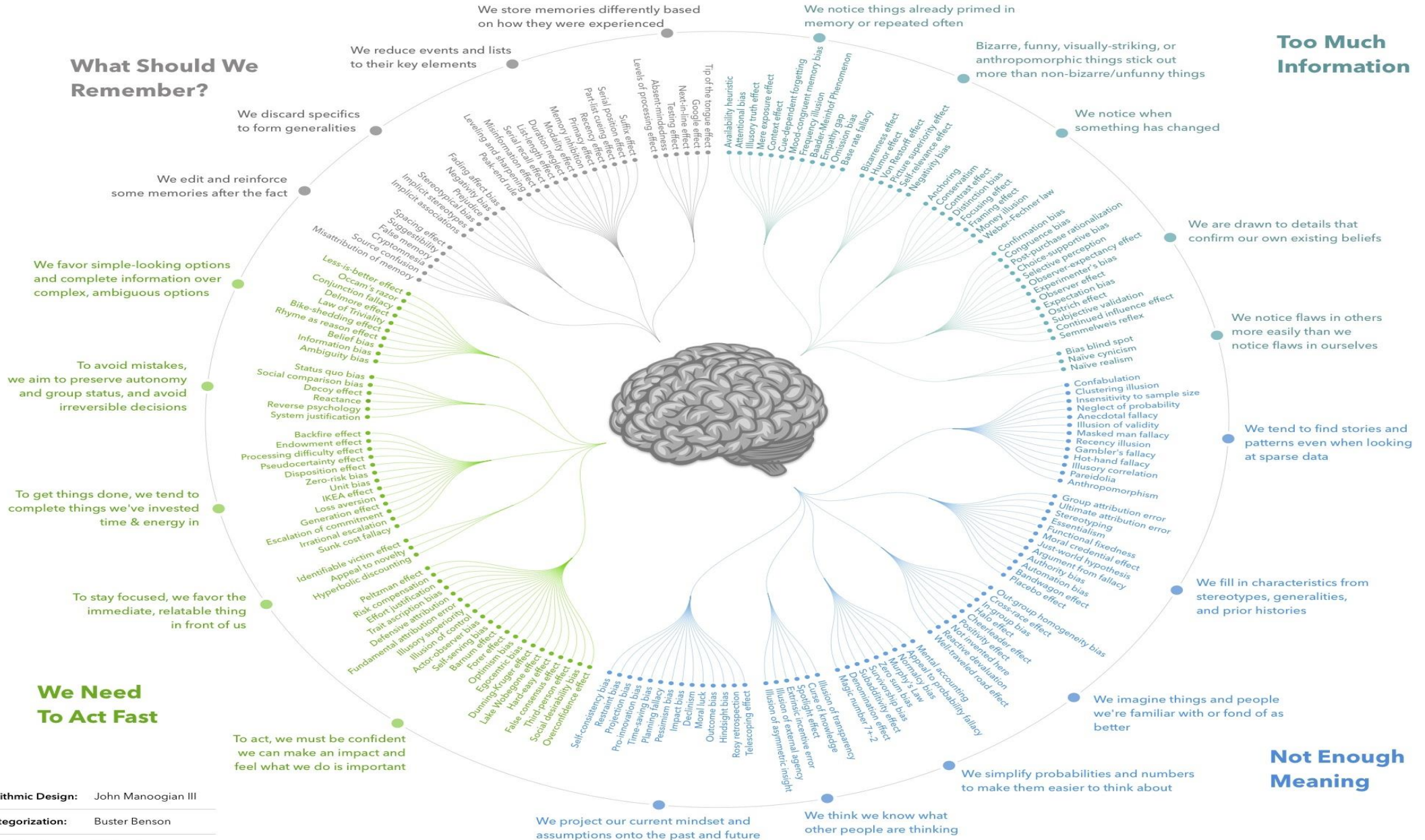
- ▶ Utilizing Biases – Social Media and Social Engineering
 - Virality of 15 min of fame
 - Creating Addictive games

- ▶ Utilizing Biases for Personal Growth
 - Hacking your biases

Biases and Heuristics – Causes of Irrationality



COGNITIVE BIAS CODEX



Visual & Algorithmic Design: John Manoogian III
 Concept & Categorization: Buster Benson
 List of 188 Cognitive Biases: Wikipedia

Utilizing Biases - Nudging

- ▶ Beta- Delta model of hyperbolic discounting – How utility is discounted irrationally
 - Today vs tomorrow
 - Credit card vs cash
 - Exercise

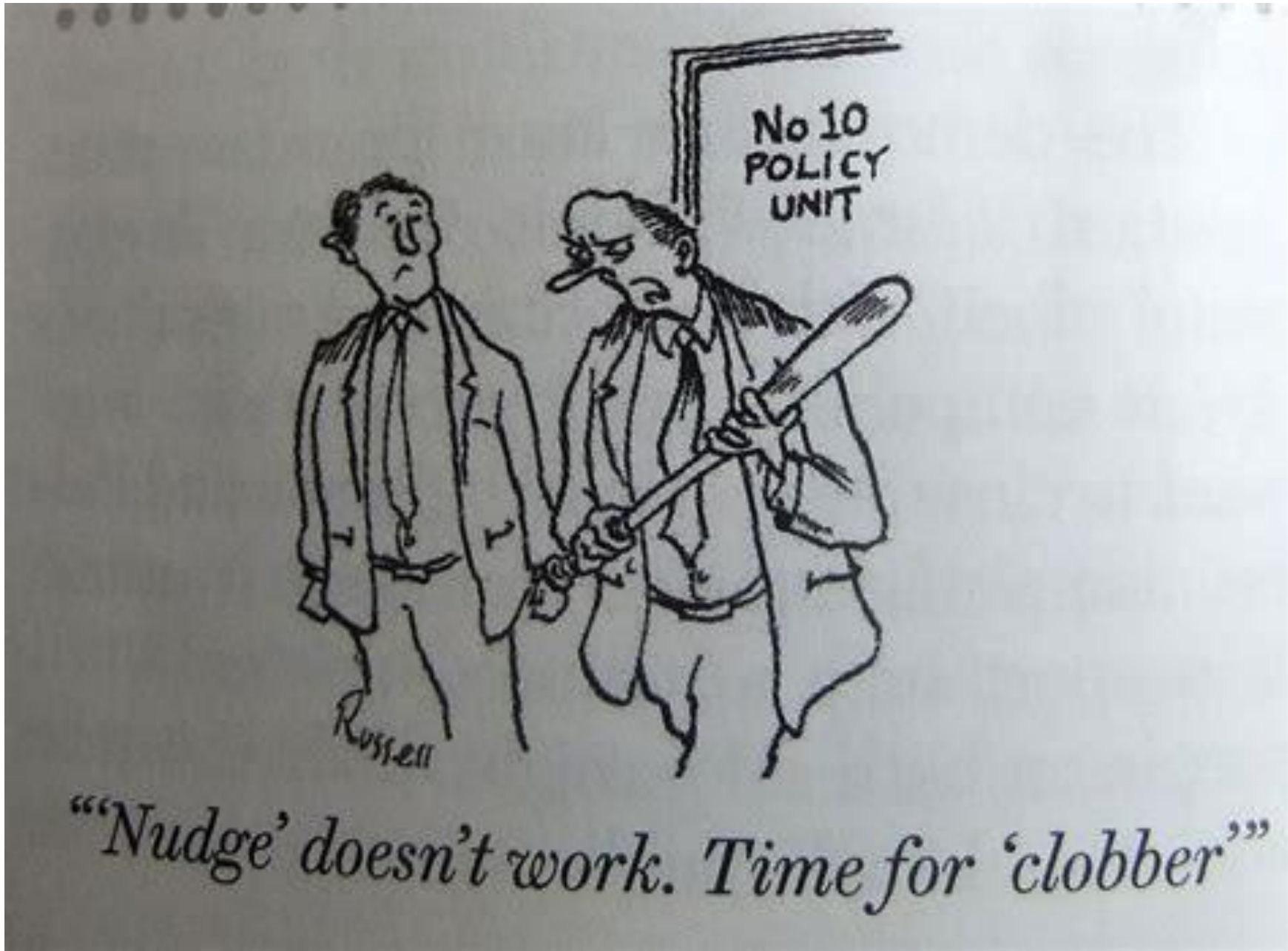
- ▶ A nudge is a small change in the surroundings that make it more likely for a desired option to be chosen
 - Fries and Coke? Dessert? Naan or Roti? Chef's Choices on the menu
 - Apple care? Insurance? Payment Protection Plan? Installment Payments?
 - Mask Anyone? Did you wear mask? Masks saves lives
 - NEST and Connected homes
 - Appointment reminders
 - OBI framework

- ▶ Small actions have large impacts – Value theory

Future of Nudging will be Personal

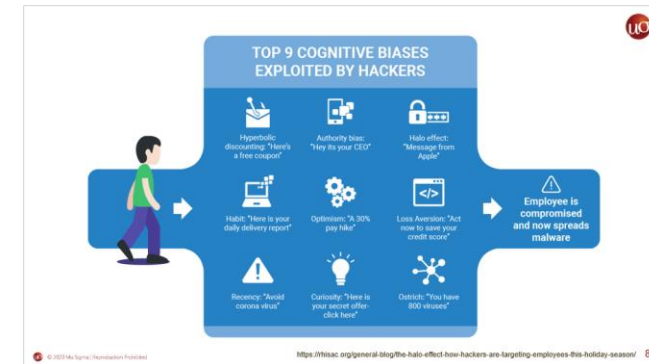
- ▶ Successful nudges tend to harm subgroups of the population¹
- ▶ While a nudge might appear effective because a population benefited on average, at the individual level the story could be different – Example of Spendthrifts
- ▶ Nudges can be personalized – Choice and Delivery
 - Choice personalization means that we can personalize the outcomes we nudge people toward
 - Delivery personalization means that we can personalize which nudge we use, such as using a default or social norms, in the service of a similar goal
- ▶ Data explosion and data driven choice algorithms are driving people towards greater automation in nudges
 - Care should be taken not to build our biases in AI/ML algorithms – Self Thinking AI is at least a generation away

1. <http://www.bengilbert10.com/uploads/6/3/1/1/63118797/nudgesthathurtpublishedversion.pdf>



Utilizing Biases – Social Media and Social Engineering

- ▶ **Social Engineering** - Social engineering is the art of manipulating users of a computing system into revealing confidential information that can be used to gain unauthorized access to a computer system.
 - Familiarity Exploit
 - Intimidating Circumstances
 - Phishing
 - Human Greed and Curiosity



- ▶ **Social Media Algorithm Bias** – In search of addiction, confirmation bias seeps in for a vicious circle
 - Research has proved that Internet addiction is as or more powerful as drug addiction²
 - It exploits the hyperbolic discounting theory of recent awards vs long term loss (opposite of credit cards)

2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3354400/>

Utilizing Biases – In search of Virality



SPIN Framework – Utilizes modification of cognitive biases³

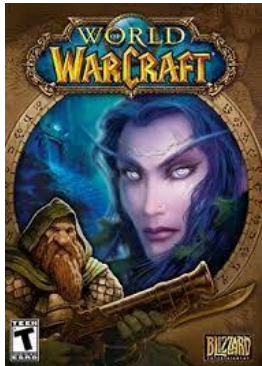
1. The attention span of humans is less than that of Goldfish – Nobody has patience to read anymore⁴
2. The shorter and captivating the better for virality – Dubsmash, TikTok, Snapchat
3. Virality and instant fame has the same mathematical explanation of hyperbolic discounting and the biological process of eating sugar

3. Purva Grover et al. / Procedia Computer Science 122 (2017) 292–299

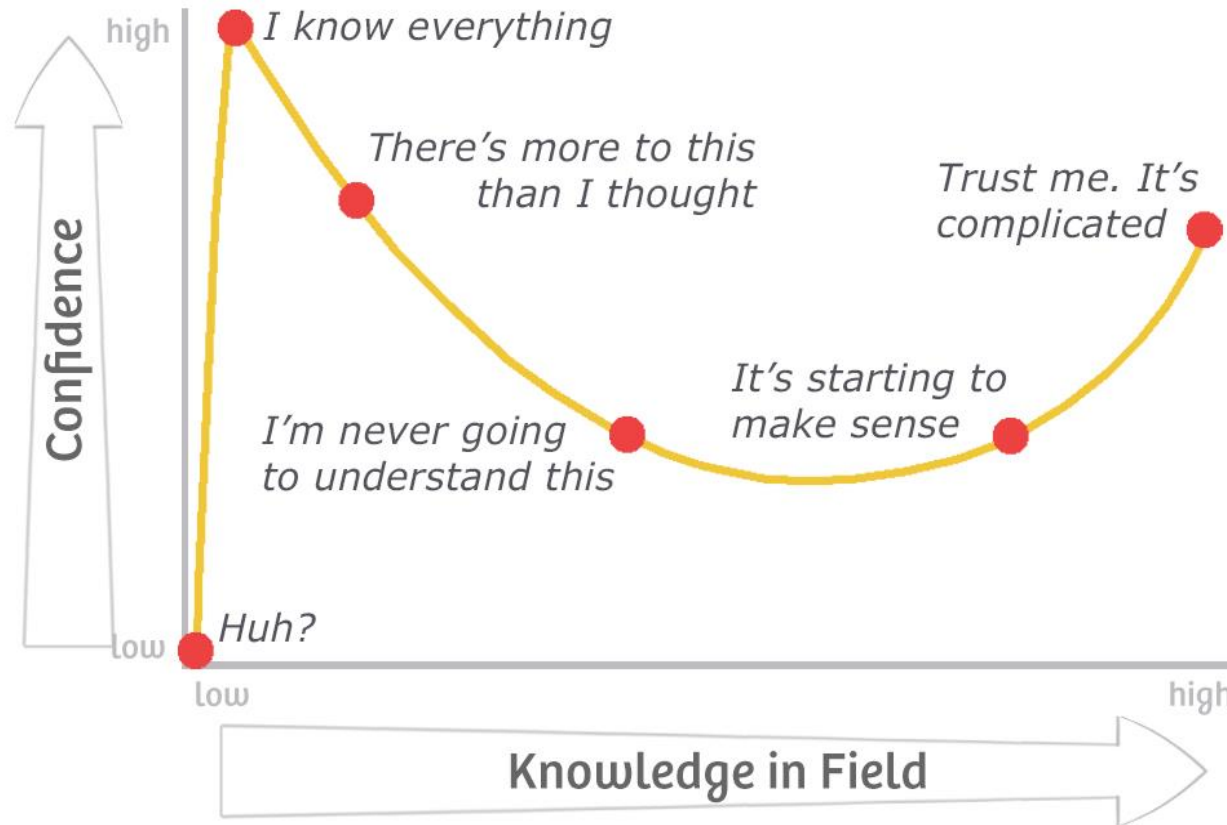
4. <https://www.wyzowl.com/human-attention-span/#:~:text=According%20to%20research%2C%20our%20attention,or%20object%20for%209%20seconds.>

Utilizing Biases – Addictive Games

- ▶ Dopamine driven Development
- ▶ Random Rewards
- ▶ Forced Commitment
- ▶ Recency gains vs future loss



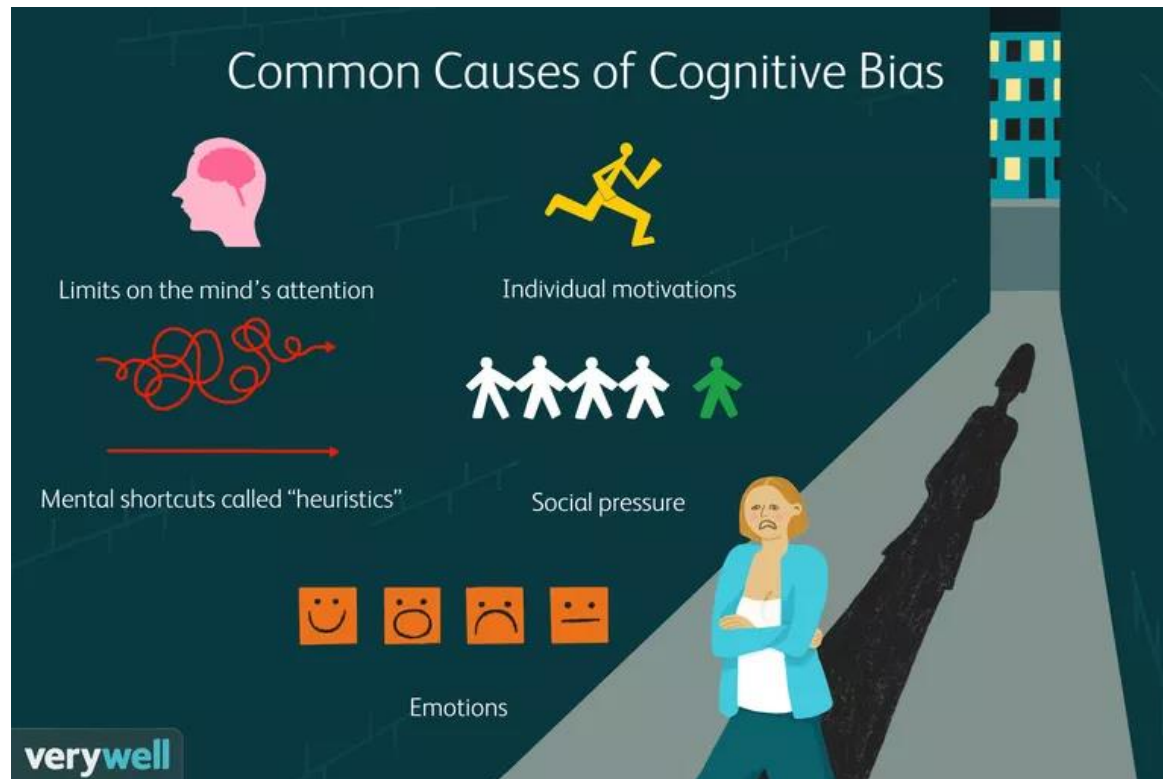
Utilizing Biases for Personal Growth



Dunning Kruger Effect

David Dunning and Justin Kruger (1999). "Unskilled and Unaware of It: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments". Journal of Personality and Social Psychology.

Utilizing Biases for Personal Growth



- ▶ **Cognitive Bias vs. Logical Fallacy** - A logical fallacy stems from an error in a logical argument, while a cognitive bias is rooted in thought processing errors often arising from problems with memory, attention, attribution, and other mental mistakes.
- ▶ Know your bias – be conscious and try to understand without short cuts



Thank You!