“The Happiness of your Life Depends upon the Quality of your Thoughts”

— Marcus Aurelius
Dear colleagues,

Our October newsletter celebrates “diversity of thought”, which forms the very center of our diversity initiative. Diversity of thought refers to the concept that each human being has a unique blend of identities, cultures, and experiences that inform how he or she thinks, interprets, negotiates, and accomplishes a task. Diversity of thought enables us to generate a broader spectrum of creative solutions to clinical and scientific problems. Great problem solvers leverage experiences from other fields or disciplines to make conceptual leaps.

Our newsletter shows how diversity of thought can influence and enrich our community. We will learn how experiences from different contexts can inform our work as clinicians and researchers. Diversity of thought can facilitate “out of the box” thinking as an antonym to bias: While bias uses personal judgment to create shortcuts to our thought patterns and disconnect people, “out of the box” thinking combines different experiences to produce new insights and expand our collective horizon.

Importantly, our thoughts and perceptions are constantly changing. What might seem impressive today might be replaced by the next innovation tomorrow. I recently read about an interesting experiment: People were asked how much they were willing to pay to see their favorite band from 10 years ago today and how much they were willing to pay to see their current favorite band in 10 years from now. Interestingly, people were willing to pay more to see their current favorite band in 10 years from now than they were to see their favorite band from 10 years ago today. It seems that we underestimate our own evolution.

Heike E. Daldrup-Link
Associate Chair for Diversity
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https://www.youtube.com/watch?v=GEPgLqwKo6g
https://www.youtube.com/watch?v=JKKBnpDpBY
https://www.ted.com/talks/apollo_robbins_the_art_of_misdirection#t-468763
As a senior faculty member, a woman, and a member of a minority group, I am both delighted and excited about our department's current activities and efforts in promoting greater inclusiveness and respect for diversity in our workplace. At Stanford, we are privileged to work in an academic environment where the value of multidisciplinary teams composed of individuals with differing disciplines, perspectives, and experience, has long been recognized and where “strength through differences” has served as a core tenet that has contributed mightily to our institution's successes.

Each individual (faculty, trainees, university and hospital staff) in our department provides a unique and important contribution to our collective missions; luckily, each of us comes with a different personal history and cultural identity that has been shaped by a myriad of influences including our age, ethnicity and gender. I believe that our department’s ability to engage and fully benefit from the talents and creativity of our constituent members will be commensurate with our willingness to encourage, hear, and act upon their diverse viewpoints.

Thanks to Dr. Sam Gambhir for his ongoing commitment and support for inclusiveness and diversity within Radiology as well as to Dr. Heike Daldrup-Link for her passion and leadership in heightening our awareness of and sensitivity to these important issues.

Ann Leung, MD
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Would you be shocked if I were to tell you that the scientific community has a tremendous amount to learn from the world’s magicians about how to do better science? These two communities might seem worlds apart, with one focused on truth and discovery while the other is focused on secrets and deception. But dig a little deeper and you will find that magicians and scientists have a lot in common—we both attempt to push the boundaries of what’s possible! For example, one of the most miraculous examples of brilliant science cultivating the impossible can be found in Seaborg’s classic paper, “The Energy Dependence of 209Bi Fragmentation in Relativistic Nuclear Collisions.” Charlatan alchemists attempted for millennia to turn lead into gold - Seaborg made it happen.

Magicians have a few specific approaches for cultivating the impossible. One approach begins with a vision for an impossible outcome (e.g. making an assistant levitate, or an object disappear). Starting with this vision, the magician then spends years developing methods to make the impossible a reality. A second approach begins with a method (i.e. a way to move an object from one place to another), followed by exploring applications of that method. These approaches that magicians take to realizing the impossible are not so different from what we do at the Canary Center, where we work diligently to find methods to make cancer disappear. By studying the way that magicians approach a new illusion, the scientific community can likely find new ways to approaching science.

Beyond dreaming of the impossible - magicians are among the world’s foremost students of perception, constantly experimenting on their cohorts (audiences) to examine how biases and perceptual gaps lead our brains to perceive miraculous events that never actually occurred. Teller, of the famous duo Penn and Teller, said it well: “At the core of every trick is a cold, cognitive experiment in perception.”

Magicians know that their hands can never be faster than your eyes. However, they also know that the brain is a well-intentioned liar. These lies are essential to our everyday function. Think about your drive to work this morning. At any point did you stop at a stop sign? Your brain took in some observational (optical) information and then used that information to infer the presence of a stop sign, triggering you to stop. What would have happened if you were only able to see half of the stop sign, either because it was blocked by another car or a tree branch? Would you have still stopped? More than likely, yes. Despite having incomplete information, your brain is drawing on its experience and making a series of assumptions, filling in the blanks and perceiving a stop sign—even when you haven’t actually seen the entirety of one.

In the real world, the distinction between reality, observation and perception is often fuzzy and under-appreciated. Magicians exploit this distinction to amuse and delight, by inducing you to perceive that the impossible actually occurred. Scientists must be acutely aware of this distinction to ensure the quality of their science. Every time we as scientists attempt to look at data ‘objectively,’ our brains are filling in the blanks, over-interpreting and bringing our biases to bear. The same factors of expectation-bias and change-blindness that are the foundation of many magic tricks also ruin many scientific studies.

Take it from a magician-scientist—we scientists have much to learn from the world’s magicians.

Parag Mallick, PhD
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Imagine you could have all the information ever known to humankind, instantly available, at any place and any time. This is our reality today. Whether we want it or not, we are flooded with information every day, through hundreds of notifications, emails, phone calls, text messages, social media, and chat boxes on our PACS workstations. We are hyper-saturated with unsolicited information and we invest a huge amount of energy sorting through irrelevant information and unwanted noise.

The bitter consequence is this: There has never been a time where we could explore more and learn more. But since we are overwhelmed with information influx, we have less and less time to think and actively seek new discoveries. By constantly processing incoming information, we kill our curiosity. We cannot possibly go out there and seek more. If we add one more piece of information, our brain might explode. There has never been a time where we were engaging more and imagining less. We are getting caught up in the past by constantly sorting through yesterday’s information.

Curiosity, imagination and creativity can solve problems, improve situations, build relationships and discover new and better worlds. Let’s focus on tomorrow: Let’s re-boot our imagination and rebuild our gleaming curiosity!

Anonymous
My name is Wei Wu. I completed my undergraduate education in China and am about to complete my PhD in Neuroscience at the Technical University of Munich, Germany. Currently, I work in the lab of Prof. Heike Daldrup-Link as a visiting student. I will be a postdoctoral fellow in her lab after defending my PhD thesis.

During my 10-year study and journey through 3 continents, I have gained not only academic experience but also lots of friends from different countries. I feel that cultural diversity sometimes can subtly influence the way people think and act. The living pace in China and the U.S. is relatively faster than Europe. I heard the phrase `Publish or Perish` from one of my friends the first day I came to the U.S. There is no doubt that the result-oriented way stimulates people to work more efficiently and effectively in North America. Comparably, my colleagues in Europe pay lots of attention to details of experiments and the arrangement of the lab. They tend to believe that a gentle pace of research with lots of repeated experiments ensures the quality and reproducibility of the experiments, which does make sense. Another difference is that the recreation and work are integrated in China but more separated in Europe and the U.S. When I studied in China, we usually took a longer break in the dormitories at noon or enjoyed a good supper with friends during the waiting time of the experiments in the evening. The reason could be that the dormitories in China are normally located inside the campus and easy to reach. It took me only a few minutes to walk from my dormitory to the lab. But I prefer a more compact working style during my overseas study because the commuting always takes more than half an hour by bike or by train.

The culture in different countries exert numerous effects on me. Prof. Xinrong Wu showed excellent multi-task processing ability, which influenced me to work efficiently. Prof. Jürgen Schlegel brought me the keen interest in scientific research, he let me know WHY is the most fascinating part of science. Prof. Heike Daldrup-Link enables me to get a clear motivation to do research since translational study is closely related to patients’ wellness. From my observation, there is one thing in common of the scientists who make great contributions. They normally have strong motivation and compassion, and enjoy what they are doing. I come to realize that publication should be a byproduct of strong curiosity and interest instead of an objective of research. I sincerely wish that I could be one of them in the future.
There is a vitality, a life force, an energy, a quickening that is translated through you into action, and because there is only one you in all of time, this expression is unique. And if you block it, it will never exist through any other medium and it will be lost. The world will not have it. It is not your business to determine how good it is nor how valuable nor how it compares with other expressions. It is your business to keep yours clearly and directly, to keep the channel open.

*From: The Life and Work of Martha Graham (1991) by Agnes de Mille, p. 264*
20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

1. Anchoring bias. People are over-reliant on the first piece of information they hear. In a salary negotiation, whoever makes the first offer establishes a range of reasonable possibilities in each person's mind.

2. Availability heuristic. People overestimate the importance of information that is available to them. A person might argue that smoking is not unhealthy because they know someone who lived to 100 and smoked three packs a day.

3. Bandwagon effect. The probability of one person adopting a belief increases based on the number of people who hold that belief. This is a powerful form of groupthink and is why meetings are often unproductive.

4. Blind-spot bias. Failing to recognize your own cognitive biases is a bias in itself. People notice cognitive and motivational biases much more in others than in themselves.

5. Choice-supportive bias. When you choose something, you tend to feel positive about it, even if it's a bad choice. Like how you think your dog is awesome — even if it bites people every once in a while.

6. Clustering illusion. This is the tendency to see patterns in random events. It is key to various gambling fallacies, like the idea that red is more or less likely to turn up on a roulette table after a string of reds.

7. Confirmation bias. We tend to listen only to information that confirms our preconceptions — one of the many reasons it's so hard to have an intelligent conversation about climate change.

8. Conservatism bias. Where people favor prior evidence over new evidence or information that has emerged. People were slow to accept that the Earth was round because they maintained their earlier understanding that the planet was flat.

9. Information bias. The tendency to seek information when it does not affect action. More information is not always better. With less information, people can often make more accurate predictions.

10. Ostrich effect. The decision to ignore dangerous or negative information by "burying" it or in the sand, like an ostrich. Research suggests that investors check the value of their holdings significantly less often during bad markets.

11. Outcome bias. Judging a decision based on the outcome — rather than how exactly the decision was made in the moment. Just because you won a lot in Vegas doesn't mean gambling your money was a smart decision.

12. Overconfidence. Some of us are too confident about our abilities, and this causes us to take greater risks in our daily lives. Experts are more prone to this bias than laypeople, since they are more convinced that they are right.

13. Placebo effect. When simply believing that something will have a certain effect on you causes it to have that effect. In medicine, people given fake pills often experience the same physiological effects as people given the real thing.

14. Pro-innovation bias. When a proponent of an innovation tends to overvalue its usefulness and undervalue its limitations. Sound familiar? Silicon Valley?

15. Recency. The tendency to weigh the latest information more heavily than older data. Investors often think the market will always look the way it looks today and make unwise decisions.

16. Salience. Our tendency to focus on the most easily recognizable features of a person or concept. When you think about dying, you might worry about being mauled by a lion, as opposed to what is statistically more likely, like dying in a car accident.

17. Selective perception. Allowing our expectations to influence how we perceive the world. An experiment involving a football game between students from two universities showed that one team saw the opposing team commit more infractions.

18. Stereotyping. Expecting a group or person to have certain qualities without having real information about the person. It allows us to quickly identify strangers as friends or enemies, but people tend to overuse and abuse it.

19. Survivorship bias. An error that comes from focusing only on surviving examples, causing us to misjudge a situation. For instance, we might think that being an entrepreneur is easy because we haven't heard of all those who failed.

20. Zero-risk bias. Sociologists have found that we love certainty — even if its counterproductive. Eliminating risk entirely means there is no chance of harm being caused.

SOURCES: Brain Bias: Ethics Unwrapped; ExploreHarvard Magazine; HowStuffWorks; LearnVest; Outcome bias in decision evaluation; Journal of Personality and Social Psychology; Psychology Today; The Bias Blamed; Perceptions of Bias in Self Versus Others; Personality and Social Psychology Bulletin: The Cognitve Effect of Mass Communication, Theory and Research in Mass Communication: The less-is-more effect; Predictions and tests; Judgment and Decision Making; The New York Times; The Wall Street Journal; Wikipedia: You are Not So Smart; ZnanstveniWit

Diversity of Thought
Three ways to address biases and be a better ally in the workplace

We're taught to believe that hard work and dedication will lead to success, but that's not always the case. In her TED talk, writer and advocate Melinda Epler describes that race, ethnicity, religion, disability and sexual orientation are among the many factors that affect our chances of success. It's up to each of us to be allies for those who face discrimination. Melinda shares three ways to support people who are underrepresented in the workplace: (1) Step back and Listen; (2) Change Power Dynamics: If you see someone being belittled, say something. (3) Change someone's life by giving him/her an opportunity to grow. “There’s no magic wand for correcting diversity and inclusion,” she says. “Change happens one person at a time, one act at a time, one word at a time.”

https://www.ted.com/talks/melinda_epler_3_ways_to_advocate_for_a_more_inclusive_workplace

Flow - the Secret to Happiness

In positive psychology, flow, also known colloquially as being in the zone, is the mental state of operation in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. In essence, flow is characterized by complete absorption in what one does, and a resulting loss in one's sense of space and time:


https://www.ted.com/talks/mihaly_csikszentmihalyi_on_flow

Energy follows thought, when held in focus by sustained attention.

Where do you want the energy to flow?

To the problem or the solution?
Understanding is deeper than knowledge. There are many people who know you, but very few who understand you.

- Nicolas Cage -
Diversity of Thought