Think 101

(Thinking about Thinking)

Reference: https://www.youtube.com/c/Think101Org/playlists

Episode 1: Taste

- How do we make choices? Decision Making.
- How do we turn someone who does not know anything to an expert?
- Bringing scientific rigor out of labs to everyday life.
- How to learn? Not easy. The ultimate survival skill.
- Its possible to imbibe false memories into people. Intellect there does not protect you.
- Part of being skeptical to be have an open mind. Demanding evidence. Then make up your mind.
- To test whether you will be able to do something in future, is to simulate it now.
- Smartest people often say that they don't know.
- Science is not for scientists but for anyone with integrity who wants to know the world.
- Making mistakes is important. If it feels easy, you probably are doing it wrong.
- Get realistic idea How to mind works.

Episode 2: Illusions

- Tap a song and let audience guess it. 2.5% do it right. Even if it very familiar like National Anthem.
- Issue is, only you (the tapper) knows weather the pause is a musical rest or continuous note!!
- It's a major divide between you and the audience. You feel it's obvious, but others simply don't.
- Looking from others perspective is the key.
- Backward messages: Actual saying is something, but some may hear (or sounding like) differently. Some instrumental sounds may be taken as "Do It". That's Illusions.
- In a scary night, at a jungle, while walking, many things/sounds may appear like that of predators, even though the animal may not be there. These illusions are important for survival as one needs to be extra careful. But in a normal situation, you need to calibrate how much to believe the illusions. Ie. in a busy city road, what's the chance of something sounding like a roar?
- Your mental status also calibrates what you hear vis-à-vis what's there.
- Payoffs decide the calibration of illusion, the sense that is it useful to interpret the illusion in a specific way.

Episode 3: Know Thyself?

- Naïve realism: The world is what we see.
- What we see, goes into memory and is retrieved when necessary in form of experience.
- Identical products should get preferred with equal probabilities, but order seems to play here.

- People chose the right most, most. Why? Order matters, unconsciously. We don't know how decisions are made in our mind.
- Know Thyself: We claim to know but we don't know how we make the decisions. No access to the process. You have a slave working for you. That's your unconscious. Being quite may help.
- Know Thyself: People cannot self-assess correctly. 1 in 100 would agree that he/she is below average in the driving skills!!!
- We cannot predict what people will think.
- Know Thyself: We think we know what will make us happy. But not so, at least all the time. If I get good marks, I feel happy. That's agreed. But, say a general idea is that rich are happy and vice versa? Not sure. Higher salary job but with a longer commute, preferred? Only for some.
- Happiness and Sadness does not last long. Famous saying: "Even this will pass!!"
- Will knowing something personally vis-a-vis reading article, help make decision better?
- But either don't matter. In interview you may get impressed, but later the employee does not do well. Variance was around 8% ie. interview is about 8% more effective. So, its useless. Past performance may be a better indicator. Hard to fake.
- Continuous evaluation is better than one final exam or interview. Just being lucky or unlucky.
- Thinking can be upgraded by understanding concepts like Opportunity cost, sunk cost, control group sampling, etc.

Episode 4: Intuition and Rationality

- World is complex and ambiguous. So much information is coming our way. How do we deal with this?
- We are so rushed that we don't get time to sit down and analyze by doing +ves and -ves of the decision. We just do it. We often use shortcuts, habits to navigate through.
- Generally, you make decision intuitively and then back it up later with evidence, feeling that you have done correct due diligence. Reviews by others are similarly un-founded, biased.
- Daniel Kahneman" "Thinking Fast and Slow":
    - System 1: Immediate, impulsive decisions. Habitual and intuitive. Useful for survival
    - System 2: Logical, well-thought, slow decisions. For long term planning.

    - Anchoring: If the hint is on higher side, the guess is on higher side as well and vice versa.
- Who is an Expert?
    - Chess experts know 1000s openings. Their System 2 has become System 1. It's a reflex now. Driving becomes habitual later, goes to autonomous system. Like breathing.
    - Some say, it needs 10000 hrs for this to happen. Practice with feedback. High quality instructions can reduce the time.
    - Face recognition is reflex. Upside down faces are difficult to detect.
    - Acting Experts maybe just confidence. Real Experts gets the results.

Episode 5: Learning to Learn

- Small classes do not help dramatically unless there is some special activity.
- Engage in activities related to the topic.
- Practice should be distributed.
- Highlighting and re-reading techniques does not help.
- Medical categorization: from symptoms doctors need to decide which disease it is, ie categories it. Exemplar way to collect samples for each category and then any new case is matched with all groups to find the one that matches the best. Sort of ML KNN way.
- Question: Say, you have been living in a area where there are only Huskies. How many chihuahuas do you need to see to recognize them separately. Answer: One. [So, do we come with pre-trained network??]
- Daniel Kahneman: Fast judgements (System 1) should be avoided as they are error prone, say, in serious cases like medical diagnosis. Geoff Norman contradicts. Says, accuracy of slow or fast is almost similar.
- Good Practice (learning by doing) and Quality Instructions (learning from experts/books) and upgrading based on Feedback are the keys to becoming expert.
- Is our memory limited? Meaning, once it gets full, if something new comes, it replaces some earlier portion. Do we retrieve information faithfully, i.e. the way it was recorded?
- Associating concepts being learnt with everyday examples helps encode/store it better.
- Writing notes verbatim from lecture, highlighting texts, re-reading, all do not help. Flashcards, activities, teaching/present-to-someone, help.
- Desirable Difficulties: Students if must put some efforts then the learning is retained more. Everything, if spoon fed, washes away easily.
- "Ignorance is Bliss" ie. System 1 or System 2? Think.

Episode 6: Experiment

- Intuitive Scientist? Or is it always that Scientist are thorough, analytical, rigorous, so basically System 2.
- Finding things firsthand. Adding salt while cooking rice, should you do it. Check yourself. Many are myths, they need to be verified, firsthand. We believe in myths as they seem to work and we don't have interests/time/patience to examine all of them.
- Perception of randomness is not clear.
- Gambler's Fallacy: If you see 6 HEADs in a row, people expect 7^{th} to be TAILS. But the reality is, that again is 50-50. Almost, thinking like we are DUE for a TAILS!!