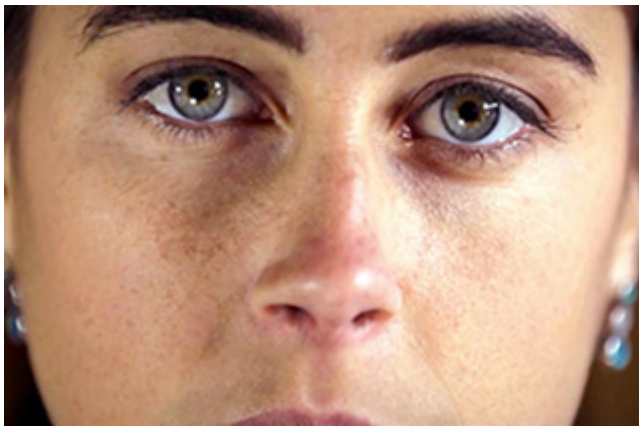


Learn, Teach and Repeat

Learning never stops, especially for good teachers.

COURSE NOTES

Think101x The Science of Everyday Thinking



Date: November 10, 2016 □ **0 Comments**

The course 'Think101x The Science of Everyday Thinking' is offered by the University of Queensland on the edX platform. Some of it is interesting in terms of the content and delivery, but its practicality is fairly limited. It tells us things about how we think, but not always how to utilise that in ourselves or others, necessarily (perhaps because there are no universal ways to do so).

It also has some awkwardness in that many videos don't have strong points or purposes, but rather just seem to fit with the image they want to portray. They also have these 'conversations' and interviews where two people are standing, making uncomfortable hand gestures, and the lone cameraman walks between them to shoot the person speaking. I think they're making an effort to break away from traditions, forgetting that traditions generally become traditions because they're good enough to be repeated.

Much of it is quite interesting, but I'd much prefer a to-the-point, practice-focused course (which would cut most of the existing content).

Episode 2: Illusions

People can identify things a certain way, either at their own accord or being guided by others. Once an identification has been established, it often can't be changed.

Memory is a reconstructive process. We're taking bits and pieces of experience—sometimes things that happened at different times and places—in constructing our memories. It's possible for false memories to be implanted.

Seeing, hearing, and remembering all involve considerable knowledge of the world (i.e. calling on prior experiences).

Episode 3: Know Thyself?

Your unconscious is a slave working for you 24 hours a day. If you set your brain in motion on a thinking task days in advance, much of the work will be done without effort.

The planning fallacy: when there's any sort of complex thing that we have to do in the future, we're really bad at planning for it.

People are bad at self-assessment.

People are bad at knowing what affects their happiness.

Job interviews don't give a good indication of performance as an employee. They are better if all interviewees are asked the same questions, as opposed to questions about specific things on their resumes.

Episode 4: Intuition and Rationality

Many decisions in our lives should be made with careful deliberation, but we simply don't have time for that. And even if we did, it can be pretty much impossible to evaluate that decision.

There are two modes of thought. System one is fast, automatic and effortless, like adding two plus two. System two is slow and deliberate, like 17 times 24.

There is a difference between intelligence and rationality. Rationality is what we mean by system two processing, the extent to which people put in the effort to process the information a bit more carefully.

Our pupils dilate when using system two, in an amount which reflects the effort involved.

Thoughts can be anchored. For example, one group of people was asked whether Ghandi died at 140 years old, and another at 9. The first group guessed a higher age at death than the second.

The availability heuristic is the notion that if you have something in mind – even if it's not necessarily related – your thoughts will be linked to that. (This wasn't explained very clearly; that's just what I took out of it).

Episode 5: Learning to Learn

Problem-solving skills and thinking power can't compete with knowledge in a domain – improving your thinking ability will give us marginal improvements in success in general. We can increase our learning capacity, however.

- Re-reading is fairly useless. Cramming is not effective.
- Retrieval practice (recall) is very effective.
- Flashcards are effective not just for simple things, but complex matters, too.
- Distributed practice, as in spreading study sessions out before exams, is far more effective than cramming for the same amount of time.

Memory storage creates capacity for additional storage. The more knowledge you have in some domain, the more ways there are to link things up and hook things up.

We should link this to our everyday experience, to what we already know; think of an example, try to extend it—all of those things really help at the stage of trying to encode the information. Almost any way you can be active really helps.

Test yourself. Just reading and reviewing information gives a false feeling of understanding. Retrieving it makes it easier to retrieve next time.

The notion of desirable difficulties refers to a set of manipulations that all create challenges during the acquisition process. That's the sense in which they are difficulties. They're desirable in the sense that they enhance long-term retention and transfer.

Episode 6: The Experiment

We should seek to think more scientifically, asking why.

Many people believe theories that have no scientific basis, like the rule of threes, jinxes, etc.

Randomness generally matches the law of averages in the long term, but not the short term. The gambler's fallacy is the belief that a particular outcome becomes more likely as it's 'due', while in fact the odds don't change.

Wine experts aren't really that good.

Confirmation bias is very common (favouring evidence to support claims and ignoring contrary evidence).

Episode 7: Finding Things Out

Things regress to the mean (despite criticising the gambler's fallacy in the previous episode) and people often incorrectly attribute this regression to other factors (although seeing it as change rather than regression to the mean).

Source amnesia makes it difficult for us to change our minds – remembering why we believe something.

It's also hard to reconcile what you believed previously against new data.

Six leads of opinion change:

- What do you really believe?
- How well based is the opinion that you already hold?
- How good is the evidence?
- Does the evidence really contradict what you already believe?
- If the evidence presented is not enough to change your opinion, then what would be?
- Is it worth finding out about?

Episode 8: Extraordinary Claims

Parapsychology doesn't hold up to scientific testing.

Most unusual events can be explained by statistics – with 280 million people in the United States, 280 one-in-a-million shots will happen every day.

Practitioners appear to genuinely believe in their practices for a number of motivational and cognitive reasons.

Episode 9: Health Claims

What we see, hear and remember are all shaped by our experiences.

Regression towards the mean can explain belief in non-scientific medical practices – around the time somebody is feeling really unwell is the time they start to get better, and also the time when they seek treatment. Regardless of what treatment they receive, it is likely they will begin to recover soon afterwards, thus ‘confirming’ the effectiveness of the treatment.

The placebo effect is purely psychological. Even if a patient feels better, there is no physiological difference.

An example of response bias is given: A patient complains to his doctor of an inflamed appendix. The doctor will do one of two things; remove it or leave it. The patient’s appendix will do one of two things; burst or not burst. Thus there are four possible results:

1. The doctor removes an appendix which would have otherwise ruptured. Correct procedure.
2. The doctor removes an appendix which was fine. Incorrect procedure.
3. The doctor does not remove the appendix and it ruptures. Incorrect procedure.
4. The doctor does not remove the appendix and it’s fine. Correct procedure.

The consequences of the two incorrect procedures differ vastly, and because of this, doctors will be more likely to remove patients’ appendices (is that the right plural?).

It is suggested to think of this example when considering reports (or non-reports) of treatments. For example, when the patient got his appendix removed unnecessarily, he felt better.

It’s also noted that when alternative medicine is tested and results show it’s not effective, that’s not front page news. Everything has been tested many times, and results can be found on the Cochrane Library website.

‘Natural’ things are no better and no worse than ‘unnatural’ things.

Episode 11: Exploit the Situation

Personality traits don’t tend to apply across all areas. If a person cheats in one area of their life, it’s not a reliable measure of the likelihood of cheating in another area. Situational factors are more reliable.

Often we judge ourselves based on situations, and others on dispositions.

The ‘fundamental attribution error’ is the failure to recognise the power of the situation in making predictions about human behaviour.

‘Channel factors’ are things that make it easier for a person to act a certain way – to bridge intention and action. An example study is described where two groups of Yale students were advised to get tetanus shots. The first group was warned of the dangers of tetanus and how easily it can be contracted. The second group was given a map of the campus showing the health centre, asked when a convenient time to go would be, and asked to draw the directions on the map. 3% of the first group went, compared to 29% of the second group.

Episode 12: Change the World

We can’t substantially improve our overall thinking. The best we can do is use common sense. Specifically, to improve your thinking in a certain domain, learn more about that domain. If people are prone to make mistakes with a certain problem, take your time solving that problem.

Fallacies and other things are reviewed and tested in this final episode, but they really are all just common sense (well, maybe they do require a bit of brain power) and the names are not important.

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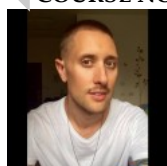
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