Video 12-4 Lateral Thinking, Reframing

Well, in the previous video we talked about how divergent thinking and convergent thinking are mutually beneficial, and these two thought processes are harness in a design thinking process.

On the other hand, I believe that most of us are comfortable and familiar with convergent thinking, but perhaps do not naturally divergent think, unless, of course you are a woman asking this question every morning: "Hmm…what should I wear?" Imagine a women spending time in front of the wardrobe coming up with many alternatives and combinations to the problem of dressing up before making a decision. Compare this to a man, who simply takes from his wardrobe the nearest piece of garment to his reach. Perhaps a women's ability to divergent think in this situation makes them generally more well dressed than men! Of course I am exaggerating here and this is meant to be a joke, but there is certain pinch of sensibility in it.

There are many reasons for most of us not to think divergently instinctively, and some experts has blamed the over emphasis of rote learning in education. However, Edward de Bono, who has written many books on creativity and lateral thinking, proposed that our minds are dominantly wired as a pattern making system, and this self organizing system helps us make sense of our world though deductions. Deductive reasoning, being a logical process in which a conclusion is based on the concordance of multiple premises that are assumed to be true, is certainly a type of convergent thinking.

For example, a small child, in his natural ability to make sense of the world through deductive reasoning, has might have learnt through several experiences that vegetables tastes awful by recognizing that they are generally green. When given a something green to eat, he may recognize the "pattern" of green colour equals awful tasting, and refuse to taste a green pear, kiwi, grape, or even an ice-cream if its green!

In his book "Lateral Thinking", Edward de Bono puts forward "lateral thinking" as a form of creative thinking and this aptitude can be trained, and one has to be intentional about using this skill as it is not a natural thinking mode for most people. He uses "Lateral thinking and Vertical thinking" as a parallel dichotomy to "Divergent thinking and Convergent thinking".

In his words: "**Lateral thinking is quite distinct from vertical thinking which is the traditional type of thinking. In vertical thinking one moves forward by sequential steps each of which must be justified…. in lateral thinking one uses information not for its own sake but for its effect. In lateral thinking one may have to be wrong at some stage in order to achieve a correct solution…. Lateral thinking is concerned with the generation of new ideas and breaking out of the concept prisons of old ideas."**

You will learn more about what Edward de Bono has to say about creativity and lateral thinking in his article "Serious Creativity" that is part of the Q pillar design segment's reading. For further reading, you can work your way through many of the books he has written on creativity, such as "Lateral Thinking" and "How to have a beautiful mind". There are many exercises in some of his books that you can use as

practice to improve your ability to think laterally. Most of these exercises are kind of like a word game, so you don't need a background in any field to be able to practice.

One of the earliest tests for creativity based on language is the **Remote Associates Test (RAT**). It was originally created by Sarnoff A. Mednick and Martha T. Mednick in 1967, based on Sanoff Mednick's associative interpretation of the process of creative thinking in 1962. This test, typically lasting forty minutes, evaluates one's ability to make connections for seemingly unrelated words.

Lets put YOU to the test. I will give 10 example questions from the RAT and lets see how well you fare.

The test is simple. You are given 3 seemingly unrelated words, such as "falling , actor, dust", and you are asked to come up with a fourth word that connects all 3 words. In this example, the answer is "star" for "falling star", "movie star (actor)" and "stardust".

Now get a piece of paper to jot down your answers. Here are the questions, it will get harder towards the bottom.

	3 words	solution
1.	Broken Clear Eye	
2.	Coin Quick Spoon	
3.	Playing Credit Report	
4.	Manners Round Tennis	
5.	Notch Flight Spin	
6.	Mouse Sharp Blue	
7.	Ink Herring Neck	
8.	Thread Pine Pain	
9.	Foot Collection Out	
10.	Magic Plush Floor	

Please pause the video now and give yourself some time to work on this. The answers are going to be revealed in 5 seconds (countdown 5,4,3,2,1). All right, I'm going to give you the answers now. Here it is:

	3 words	solution
1.	Broken Clear Eye	GLASS
2.	Coin Quick Spoon	SILVER
3.	Playing Credit Report	CARD
4.	Manners Round Tennis	TABLE
5.	Notch Flight Spin	TOP
6.	Mouse Sharp Blue	CHEESE
7.	Ink Herring Neck	RED
8.	Thread Pine Pain	NEEDLE
9.	Foot Collection Out	STAMP
10.	Magic Plush Floor	CARPET

How many did you manage to get a correct answer for? Did you have different answer to any of the questions this is just as good?

You might have realized that there are many game shows and board games with RAT-like word games, such as Jeopardy, or Taboo, or more recently the "Cash Struck" game show in Singapore where contestants are tasked to guess a word that links two images.

And if you remember, in Philosophy lecture 2-7, Professor John Holbo played a Mad Libs word game with you. You were asked to come up with a list of 14 seemingly random words constrained by conditions, and the words were used to replace 14 words from a William Wordsworth poem, resulting in a new poem. Professor Holbo then went on to interpret his wife's version of the poem, and here's where it got interesting.

Lets first look at the first 2 lines of the original Wordsworth poem:
A slumber did my spirit seal; I had no human fears.
She seemed a thing that could not feel; the touch of earthly years.

And here's his lovely wife's new version:

An ashtray did my spirit seal; I rode no human shoes.
She seemed a vase that could not feel; the tent of earthly news.

Being a husband with great wisdom, Holbo gave meaning to his wife's words by attempting to make sense of the new poem. The new poem might sound like gibberish at face value, but he was able to interpret it by being creative with the associative value of words. I am going to show you how he applied lateral and vertical thinking cognitively, by deconstructing his thinking process.

Lets start with the first line.
An ashtray did my spirit seal; I rode no human shoes.
In this case, Holbo had to find an associative concept between "ashtray" and "spirit seal", and link it to another concept for "rode no human shoes". Lets take this slowly, and map his mind out visually. While looking for a link between "ashtray" and "spirit seal", he first had to use lateral thinking, or divergent thinking, to come up with many ideas relating to each of these individual words.
For "ashtray", it could have been "ash", "cigarettes", "metal", "burn", "unhealthy", "cancer", "smoky", "bar", "butt".
Next, for "spirit sealed", the associated ideas could have been "satisfied", content", "death", "permanent", "soul", "religion", "memories", "mental scar".
For "rode no human shoes", associative ideas could have been "barefoot", "poverty", "prosthetics", "cyborg", "supernatural being".

Using convergent or vertical thinking Holbo realized that not only was "death from cancer" a meaningful link between "ashtray" and "spirit sealed", it also connected to "rode no human shoes" with the concept of lying "barefoot" in a casket.
Thus, the first line of his wife's poem could very well suggest - a person that passed on from a smoking related disease lay barefoot in a casket.

Well, the second line got more difficult.
She seemed a vase that could not feel; the tent of earthly news.
With the theme of death brought forth by the interpretation of the first line, it wasn't difficult to link "vase" to "death" by imagining a deceased female body lying still, it even conjures a rather romantic scene of Juliet laid down pristine but motionless while Romeo mourned.

When it came to "the tent of earthly news", it became a challenge when there are no apparent links between "tent" to "news" or the theme of "death". Holbo dug deep as he was forced to think more laterally, or out of the box, in his attempt to think of wider ideas associate with "tent". With a stroke a genius, he recalled the use of the word "tent" in Shakespeare that could refer to a surgical probe used for physical examinations.

Therefore, the second line of his wife's poem could be interpreted as "the stiff body of a female that could not longer feel the probe of the world".

Quite a decent opening 2 lines to a romantic poem. I hope my interpretation of Holbo's interpretation of his wife's poem gave you some cognitive insights into lateral thinking, and how we can use it to help us move out of existing frames of references, as it did for Prof Holbo, even if the whole thinking process I just described happened within a few seconds or minutes.

Sometimes, our abilities to come up with good and innovative ideas are hampered by the problem definition, or the hypothesis, or the question in the first place. Lets go back the simple arithmetic problem we used in the previous video.
Consider these two questions:
What is the sum of 21 plus 4?
What 2 numbers add up to 25?

The first question suggests that there is one answer, while the second question suggests many answers, and more accurately, an infinite number of answers. These two problems are seemingly identical, but differ in the way they are framed. By changing the frame, one can drastically alter the range of possible solutions.

Framing is a mental structure that is built upon a set of beliefs and values we have and it is a structure we use to ascribe meaning to given circumstances. In other words, the meaning you ascribe to any event is dependent upon how you frame it in your mind. As such, your frames shape how you see the world, how you see yourself, how you view others, and how you interpret things around you.

Therefore, when we approach a problem or challenge, how we "frame" the problem can determine how we react to it. We can frame a problem to invite more possible solutions, or even solutions with better quality. In Design, we call this **"Reframing".** And one very simple tool for reframing is the process of **asking "Why?".** Let me give you an example.

Imagine a village chief asks you to help him build a simple wooden bridge. If an engineer received this request, especially one inspired after reading Henry Petroski,

he will certainly put his knowledge in structural engineering to excellent use, by helping the village chief build the simple wooden bridge.

On the other hand, if the same village chief gives you, a person well versed in the art of Q, the same request, you would first try to reframe the problem. Image this conversation:

Village chief: Hello, could you help us build a bridge?
You: I will like to help you. First let me practice what I learnt in Q. Why do you want to build this bridge?
Village chief: To get to the other side of the river.
You: Why do you want to get to the other side of the river?
Village chief: There are many trees on the other side of the river we can log to build more houses.
You: In that case, the simple wooden bridge might not be the best solution because it is very difficult to carry heavy logs across a wooden bridge. Moreover, it might not be able to bear the weight of those heavy logs. Instead, let me google and teach you how to build simple floating platforms that use the water currents of the river to transport the logs to your village.

Asking "Why" helps open up the frame of possible solutions. You served the village chief well by helping him reframe his problem. You can use the "5 Whys" reframing technique to reframe problems before solving them. When you have a problem to solve, ask "why" at least 5 times to each consecutive answer you have. This technique was originally developed by Sakichi Toyoda that was used within Toyota Motor Corporation and later popularized by IDEO and used as a design thinking tool.

In fact, psychologists tell us that as humans we are subjected to an array of cognitive biases, one of which is the **"Framing Effect**". It is our tendency to react to how information is framed, beyond its factual content, and it is of the strongest biases in decision making. A simple example would be people who need surgery choosing no surgery when told that it has a 10% failure rate, where one would have opted for surgery if told is has a 90% success rate instead.

Likewise, in a design process, reframing techniques can help us mitigate biases we have towards the problem, it helps we "see" the problem differently, like we did for the village chief. **Finding the proper problem first is more important than solving the problem**.

As a bonus, Socrates, Carl Hempel and Paul Oppenheim will be really proud of you when you keep asking, Why?

I will end this video with a quote from Einstein:
"If I had an hour to solve a problem and my life depended on the solution, I would spend the first fifty-five minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than five minutes."

Now that's a really smart move. See you at the next video.