



Speaker	Dr Julie Ji
Talk title	Imagine that! Cultivating the mind's eye to promote flourishing lives
Venue	The Mezzanine – Grand Bar & Bistro
Time	Tuesday 29 October 2019, 7.00pm

Professor Robyn Owens

Hi Ladies and Gentlemen

I hope you are enjoying yourselves this evening, we are just about ready to start our second talk and before we do and I know that I have already done this already for our first speaker, but I would just like to acknowledge once more that we are meeting on the land of the traditional lands of the Whadjuk people of the Noongar nation and that we pay our respects to their elders, past, present and emerging.

I hope you are really enjoying this evening and that you have all got a drink and that you have had some food and your brain is tuned to listen to a fascinating talk and to think of some great questions to ask our speaker when she has finished.

At UWA, we are really excited to be able to bring some of our research into the city and to make it part of the popular culture of the city and also to give you the opportunity to learn about some of the things that we are doing and to provide some feedback on that work.

Raising the Bar is an event that UWA has a franchise for, for Perth and if you are a social media person and if you are going to share any of this evenings event on social media, can I ask you to use the tag @UWAresearch and #rtbperth19 that's for Raising the Bar in Perth in 2019, so we will share all your posts. That will be fabulous.

Tonight's talks are being recorded and if you miss anything because they are very noisy downstairs, it's hard to hear, you can listen to it on the podcast that will be shared on our social media channels.

Great!

We are now moving onto our second speaker, Dr Julie Ji.

Julie is one of the Inaugural Forrest Post-Doctoral Research Fellows who works at the Centre for the Advancement of Research on Emotion in the School of Psychological Science at UWA. She is an expert on the link between emotion and cognition and her research investigates how imagination-based, mental simulations of future experiences, you got that? Can be leveraged to promote greater reward-seeking behaviour in depression via its impact on judgement, motivation and decision making. Imagination, a future, depression – got it!



Over to Julie.

Dr Julie Ji

Great.

Thank you all for coming. I think some of you can even sit on the floor if you want, a weirdly small venue?

Thank you Robyn for that introduction.

I am really excited to be here tonight because the topic of my research, “The Human Imagination” I think is extremely exciting, but people don’t always realise this. It certainly took me a long time to realise that this was going to be my research area.

Back in high school, when I was in Year 12 for our HSC exam back in Sydney, New South Wales, I wrote this really elaborate short story for the exams and it was basically a mash-up of 1984 which we were studying at the time and the invasion of Iraq which was happening at the time as well. I wrote this very extreme, utopian, futuristic story with a strong moral lesson in it and I just focused on the fact that I really enjoyed the writing process. I literally just created this whole world in my head and wrote it down and I never really thought about, “How am I able to do this? What is this process in my head?” because it was invisible to me, it was just something I did and enjoyed and how I came to my research?

I started my PhD quite late, when I was twenty-seven and it was really by random chance, I was living in Nepal at the time in Kathmandu and my housemate sent me this article from the Economist which had mentioned this area of research called “Compromised Modification” and the two people in that article then became my research supervisors, so Colin MacLeod in the audience and Professor Emily Holmes became my primary PhD advisor in Cambridge and then that’s how I really stumbled across this area and so, before I start my talk, I would just like to thank Colin and Emily for ... and our lab groups for opening my research ... for opening my eyes to research and to thank the Forrest Research Foundation and the School of Psychological Science for giving me a job and a really nice place to live and work, so, please keep doing that. [laughing]

We just heard the previous talk if you were here, all about how do we stay resilient in the face of adversity? So thank you Lies for that great talk and now we shift our focus a little bit to the positive side of things, to talk about, how do we promote wellbeing? How do we actually flourish more? And when most of us have a pretty good idea about what makes a good life? What do we want in life? So, we want to be healthy, we want to feel connected to people we care about, we want to do things that are engaging and meaningful to us and we want to be good people, we want to help others and we want to be ethical. That’s all good, but the thing is, these things take effort, so we actually have to do things actively to experience these things.



Positive wellbeing and flourishing doesn't just come from a lack of bad things happening to us, so we actually have to constantly be doing things, to get these positive things in our lives and through doing things that feel good or make us feel good about ourselves, we can actually and it is one of the ways to stay resilient when something bad happens.

Let's do a little exercise. Hands up if you are currently trying to exercise more.

Most of you.

Who is trying to make more time for family and friends or yourself, at the moment?

There are a lot of you.

Who is trying to eat less meat or maybe use less plastics?

Oh, this a very ethical group!

And who is trying to make more time for hobbies and learn new skills and improve themselves?

Yes, again!

I could go on, but you get the point.

The point is that the issue is not usually about knowing what to do, it's about how do we get ourselves to do more of it. So we need to be doing these things even though they are rewarding, they are good things and we want to do them, they come with barriers! We are constantly pressured from other things, we have to put in the effort, mental and physical and these things can be difficult and even unpleasant sometimes.

Even though coming to the talk, coming to the bar to hear science talk is extremely pleasurable, you still have to, book the ticket, find out who you can come with, how you are going to get here, how you are going to get home and you had to probably move things around in your diary and make time, so it takes effort. And you are here because you deemed the benefits to outweigh the costs and that's why you are here and you are correct. [laughing]

I am going to be convincing you in my talk that the imagination can really play a really big key, a big role in helping us to do more of the things that we want to do. I am going to try and convince you that this is a superpower, a hidden superpower, that you are not aware of yet but you will be after tonight and if used correctly, it may be able to help us, it might make it easier for us to do more of the things that we actually want to do.

I will be doing this in four steps.

First I will demonstrate what I mean by the imagination through a little exercise that's really fun and the second will consider, "Why do we even have this ability by looking at people who don't have this ability?"



Then, we are going to look at some evidence that it can actually help us to motivate ourselves to behave in more goal consistent ways and then we are going to end on a word of caution which is when this can backfire on us, so you are going to want to know that one.

Usually when people say, “imagine this” they typically mean, “just consider this possibility”, “contemplate this”, think about “what if this happened?”

That’s a very broad definition, it’s very abstract. So when I say, “imagine this” in this talk, I mean literally having mental pictures and little movie clips in your head. There is a really nice German word for this, “hauptkino” and literally means “head cinema”. There is a cinema in your head and I am going to show you that it’s not just a traditional 2D cinema. I want you to close your eyes and picture this, literally picture it.

It is a long weekend and you are on a camping holiday and you are camping by the river and the weather is really nice and you decide you are going to go for a swim and this is going to be a really special swim because the river is made of chocolate. Now you are walking over towards the river bank and you dip your toes into the liquid to test it out and the temperature is good, so you decide to just jump in, like a grenade.

Now you are in the river, this chocolate river and you are paddling, you are moving your arms and legs through the liquid and you are looking around at the surroundings, maybe you see some trees and you look in the distance and you see these giant blobs, floating, bobbing along on the river and they are giant marshmallows and they are gently floating towards you.

That’s it, you can open your eyes.

Can we have a show of hands? Who actually saw a brown chocolate covered river with green on the river bank and maybe pink and white marshmallows?

Almost everyone, that’s good news and who actually heard a splash when you jumped into the river?

Oh, only two people? Three, three, okay.

Alright, who felt resistance on their arms and legs moving through the thick liquid?

More of you! Great!

Who actually viewed everything like a bird person, bird’s eye perspective?

Ah, some of you! Most of you actually saw it from your own eyes? You were seeing from the first person through your own eyes?

The final question.

Who actually felt that they were really, actually in that river? They were transported in time and space?



A few reluctant people.

As you can see, really this ability varies. Most people have visual imagery but lots of people have other modalities of imagery as well and for some people, it's just a picture, for some people it's like a little movie clip and for some people, it's like an I-Max cinema or a virtual reality goggle that they are wearing in their head. They really feel a bit like they are really there and so, what is this ability? How are we able to do this?

So what happens is, we are able to use past experiences and knowledge stored in our memory to flexibly recombine this to voluntarily generate anything that we could piece together and this is pretty important because the idea is that it's evolutionary very adaptive if we are able to capture a past experience and then use that to predict the future.

We are not just predicting what logically could happen, we could get eaten by a lion but we could actually picture where exactly it might jump out from and that actually allows us to really use past experience for survival.

Actually, Picasso has a really nice quote, and he said, "Everything you can imagine is real." Scientifically this actually checks out, because, imagine seeing and imagine hearing and imagine touch and so on, in the brain that actually is like a weaker version of real seeing and real hearing and real touch.

For the person who is able to imagine this extremely vivid experience, it is real for them! It is basically real for them in that moment. I don't know what Picasso meant but that's how I am interpreting it.

Why do we need this? ... We talked a little bit about why we might need this, we need it to predict the future, but let's look at people who actually were born without this ability at all.

The term "aphantasia" was only coined in 2015 by the British neurologist, Adam Zeman over at Exeter, but actually, it was already documented back in 1880 by the English naturalist Francis Galton. He studied many, many things, one of them was mental imagery. He was fascinated by our ability to imagine and so in his "breakfast study," he got people to describe and write down what they had for breakfast that morning. He wanted them to remember what they ate and he asked them questions like, "What's the lighting like?" "What are the colours on your plate?" "What was your tablecloth?" "How is the sharpness of the image?"

To his astonishment, some of his subjects could not tell him anything, they literally had nothing, they could not see anything, and they could maybe tell him vaguely what kind of items of food they ate but they really just saw nothing in their head.

That was back in 1880 and now, we estimate that about 2% of the population really don't have this ability to visualise or experience any other sensory imagery in their head and so, in preparing for this talk, I actually discovered that Lies is one of these people, the previous speaker, and maybe even



more people in my lab. It is only supposed to be 2% of the population but it seems to be a high percentage in my lab.

Lies can you just come up again, please?

Do you need the microphone?

I am going to ask Lies what she experienced during that chocolate river exercise. So what did you actually see?

Dr Lies Notebaert

I saw an ... so when you said, “imagine you are at a river,” I just followed the Swan River but in an abstract way and then you said, “in the bush,” and then I was thinking back of when I camped at a river in the bush and I remember a picture that I took there. I can pull up that picture but only from that perspective and nothing else. So I was thinking back of the river and was there and then the bush was there.

Dr Julie Ji

It was like a spatial sketch?

Dr Lies Notebaert

Yes.

Dr Julie Ji

Why do you take a lot of pictures when you go on holiday?

Dr Lies Notebaert

Because otherwise, I cannot remember anything! [laughing] And I always ... also take trophies, so I take, rocks – I have a large collection of rocks, because I think, “ah the colour of this rock” for example down south in Esperance, it’s really beautiful but I won’t be able to remember this when I get back, so I need to have the rock in my house to be able to look at it to appreciate how beautiful it is.

Dr Julie Ji

But you know that you went to Esperance and you know when you went and what happened and whether you liked it? But you can’t have a visual ... you can’t re-experience that trip again?

Dr Lies Notebaert

No, no, only through pictures or trophies.



Dr Julie Ji

When you go to the restaurant, how do you order food if the menu is just words, how do you pick?

Dr Lies Notebaert

I pick the words that I know represent items that I like. I like cheese, I like tomatoes, so if a recipe describes something with cheese and tomatoes in them, then I'll go, "I am going to like this" because it has the ingredients that I like.

Dr Julie Ji

Hopefully, this is different to how you do it because it's really different to how I do it.

Thank you Lies for sharing that special experience.

So I also found that my friend Vanessa's sister, Janice is really aphantasiac, she can't have any visual, she can't picture anything and for her, it's literally ... I interviewed her and I was just really ... my mind's eye was blown that for her it's out of sight, out of mind. It literally is that. Unless she ... when she is experiencing something, unless she codes that experience in a verbal way like, "Oh, I like this. I like this about this thing, I want to come back here." She can't remember what she thought of it. She can't just go and remember the experience and then extrapolate, based on what she can visualise or see or remember to the feeling, there is none of that. So, what happens to her?

Bear in mind, these are people, who are completely normal in every other way of life, they usually don't realise that they don't even have this ability until they read about it on the internet and they are like, "Oh my gosh, I thought that was just meant to be a figure of speech when you say 'picture this' or ...".

When Janice is hungry, she sits there and she's hungry and she doesn't really know what she wants to eat, so she literally has to go to the fridge to see what is in the fridge and see what "speaks" to her. When she's bored, she has put everything she likes to do, in her house, in a specific room, so when she's bored she will go to that room and be reminded of the things she likes to do and then she will start doing them. And it's interesting, if she is reading, if the paragraph is very rich in description, she will get really bored and confused because she ... by the end of the paragraph, she would have forgotten what it was talking about earlier because she's not building a scene and increasingly adding to it. There is no movie in her head.

Basically, life for her is a logical list. She will find ... she will forget where she has put things and she will have to work backwards, like, "where was I before this? and where was I before that? and where is it likely to be?"

It really blew my mind when I heard this and so there is some big implications for this. Let's start with observation that these are all anecdotal evidence that I have presented so far, so what about the scientific evidence? Then we will talk about the implications.



There is a lab at the University of New South Wales, led by Professor Joel Pearson who studies these people, like Lies, and what they did was get them ... get two groups of people, people with the ability to imagine and people who can't imagine and they come into the lab and they read stories on the computer. These stories are neutral stories or things that are extremely frightening, like getting attacked by a shark when you are swimming and at the same time, they are reading this, the words on the screen and they are asked to imagine what they are seeing ... reading, so like a book.

At the same time, their skin conductance was being measured and that is basically measuring micro-level changes in how well your skin can conduct electricity and that is a measure of your emotional arousal at the time.

In the people with the ability to imagine, when the story got to the really frightening part, suddenly you turn around and you see the fin and it's coming towards you and then you get dragged under the water, the skin conductance shoots up and they become very, very scared. But in the people who couldn't imagine, there is no change in their skin conductance, so to them, it's like nothing happened, they are just reading a story.

You might think that "Well, what if these are just people who can't have any emotional response to anything?" "Maybe they are psychopaths?"

There is another condition in the study which is very clever, they show them pictures, just visual pictures of neutral things and scary things, like a snake charging at you. They saw that the two groups looked exactly the same basically when the pictures switched from the neutral one to the scary one, so it is not that they cannot respond emotionally to anything, it is that when they are reading the stories, literally there is no little scene in their head and to them it is just a story. It is just words.

This has pretty big implications because we actually, really rely on our emotional responses to things, to infer whether we like them or not. So, whether it's a good or whether it's a bad thing, it helps us to decide whether we want to move into action to approach and seek that thing or we want to actually avoid it and run away from it.

What mental imagery allows you to do, is to get that response from a simulation of an experience before you have that experience. You can try things out before they happen because maybe when they happen, is too late.

You can imagine what it's going to be like, what is going to happen and emotionally how you will respond to that. It gives you a lot of information and it tells you about how much you really want something in that moment. For example, Janice, my friend's sister, she has no cravings ever! She doesn't crave any food, so for me, if I am thirsty and it's very hot and someone says, "Beer" I immediately get an image, a picture of a cold glass of beer, glistening in the sun, waiting there for me and I will go on and elaborate on this and I will go and reach for it and I will take the first sip and



I will imagine how great it is going to taste. That motivates me to immediately spring into action and be at the pub in two seconds.

Research on craving and addiction has shown that the more intense your craving, the more vivid, perceptually strong your mental imagery of that consumption and what happens is, if you take away the visual special resources in your head that is needed to generate and maintain this imagery of consumption, your craving actually goes down. What this means is your imagined consumption is an indicator and a marker of how much you want something but actually you can also drive it because it is causally related to how much you are craving it. If you weaken the imagined consumption, you reduce the craving.

That is pretty important but of course we don't just care about food and drink and nice things, we care about rewarding activities that maybe are harder and everyday activities that we want to do more of and this is particularly important to motivate ourselves to do these things if we are feeling depressed or if we are experiencing depression because one of the core features of depression is that we lose interest in things that we previously found very enjoyable and what happens is that we then stop wanting to do them, so we don't do them and we become more behaviourally withdrawn and we start to have no positive emotional experiences whatsoever and this is very dangerous, they see hopelessness and increases the risk of suicide, so it is actually very important to make sure that we can do the things that bring back the positive side of things and not just get rid of the negative side of things.

A lot of my research focuses on depression and this year, we just finished the study with Dr Lisa Saulsman at UWA and our student Dylan Gyles and we looked at whether we can use imagery to amplify motivation in depression. We got first-year psychology students because that is who we test, to come into the lab and they are reporting moderate to severe levels of depression symptoms in the past two weeks, so they are not feeling very well. We got them to select two activities that they really wanted to do more of in the following week. One of these had to be something just intrinsically pleasurable and they put things like reading or going to the beach. The second thing had to be something that made them feel very good about themselves but is maybe effortful, so they put things like making a nice meal or going jogging.

They picked these things and they scheduled them into a diary, a seven-day diary when they wanted to do it so we knew how many times they actually planned to do it. That's what their goal is and they also rated how much they had been putting these things off in the past because these are rewarding experiences that they wanted more of so there has been putting offness.

Then after the lab session, they went home and they had to fill out a survey every night, whether they actually did the activity or not. But, before they left the lab, they were randomly assigned to one of three groups.



The first group is what we call a control group. After they scheduled the activities they didn't think any more about these activities, they just did a totally unrelated [inaudible 34:38] just to match the time that was spent in the lab compared to the other two groups.

The second group and we are going to call them the "motivational reasoning group." This group thought about the two activities they picked, really in a very logical way. They thought about and had to write down all of the reasons why they should be doing this thing and all the benefits that they might get from doing this thing and they were asked to convince themselves that they should really stick to the plan.

The final group is what we call the "motivational imagery group" and this is the group that we care about the most and this group instead of going through all the reasons and things, they imagined what it was like to do each activity, just concretely, experientially, what does the location look like? What are you doing? What are you feeling and what emotions are you experiencing? Both the motivational reasoning and the imagery group, they focus on the benefits, they focus on the positives and they focus on the reasons that this is a rewarding experience and so, what do we find? We found that as expected, the imagery group had experienced the most positive emotion. They had the biggest boost in positive emotion from doing this exercise in the lab and behaviourally, looking at what they did over the seven days, the imagery group was significantly better, so they did a lot more than the control group, especially only for the tasks and the activities that were very high in putting off. It really worked for activities that had a really high barrier, but the reasoning conditions didn't differ from the control group, so it wasn't better. Imagery was best, reasoning was in the middle and control was in the bottom and this is for high putting off activities.

This is good and this replicates a previous study I was involved in back in Cambridge which was not in depressed people but in people in the unselected general population from the community. This is great. This replicates. But, we also found something interesting, that for the lower putting off activities, these are your easy entry, we just do them because they are probably very pleasurable and easy but the reasoning condition was actually worse than the control condition. They did less of the low barrier things and so it is possible that reasoning with yourself too much is kind of a kill-joy it actually backfires on yourself, so you are better off just to leave the low putting off activities be, and you just let yourself do your thing.

Now to the final part of the talk. Is it enough for us just to be imaging rainbows and unicorns? Is everything going to be just fantastic if we just imagine all the positive things? The answer is "NO!"

There is some really interesting social psychology research coming out of New York University by the lab lead by Professor Gabriele Oettingen. They looked at what they call "positive fantasies". These are positive imageries that you imagine the kind of success or the best outcome of the things that you plan for and they are fantasies, not in the sense that they are not realistic, they are fantasies because people imagine the pinnacle, the highlight of the experience and so that is what they focused on. It is the best possible scenario.



They looked at a group of extremely overweight women who were going on this one-year diet program and at the beginning of the program, they had to report what their expectations for the program were. Are they optimistic that it is going to work or are they pessimistic? And also, they had to imagine key moments. They were asked to imagine key moments in their experience through this program. They were not told what to imagine and what they found was that the people who were pessimistic did worse than the people who were optimistic. It was a reflection of you do better if you believe that the thing is going to work.

That's not that surprising, but the surprising thing that they found was that, when people visualise the key moments, the people who went straight to the highlights, like its Christmas time and you open the door and people are like, "Oh my God!!! You have lost so much weight!!!" They are the ones that did worse than people who actually imagined the failures, maybe they gave in to their desires and they ate what they shouldn't have. So, this is pretty interesting. The people who actually did the worst were the people who had pessimistic expectations and imagined the best-case outcome, so they were the worst off.

There might be two reasons why, at least two reasons, why your positive fantasies can backfire.

One is that when, in a real experience, when we are satisfied with something, we no longer want it in that moment, so why would you mobilise yourself if you have just been totally satisfied and happy and satiated. So, actually giving yourself a pre-taste of that success experience, using imagery saps your energy, usually in terms of blood pressure, so your body is not mobilised to be ready for how much effort you are going to have to put in to get it, so it literally saps your energy and decreases your motivation, if you just focus on winning and the best thing ever in the pinnacle.

The other reason is that if you focus on the pinnacle, you are probably less likely to be spending time focusing on the process of getting to that pinnacle and that process might reveal challenges along the way. It reveals plans, you can be using your imagery to plan how you are going to get there and what challenges you might face and how you might problem-solve those challenges.

If you just visualise the fantasies, you are going to be less willing and less prepared to put in the hard work that is required to actually reach that pinnacle.

Currently, we are looking into this in depression because it shows us how we should be using imagery, how we should be using the imagination and actually we would need to depend on what our goal is. If your goal is to evaluate the value of something of an experience or to just emotionally regulate, you want to just feel better at this moment. Maybe it is okay to imagine the pinnacle. That gives you the highest value and also makes you feel the best, but if your goal is to motivate yourself, it may be not so wise to imagine the best moment but maybe somewhere along the way where you get a little taste of the reward and you can see the high point of the reward that you are going to get, but it is a sweet spot for motivation because then, you are really motivated to get more of it because it is within reach. How do I get this thing? We are looking at that and how that might be disrupted or decoupled in depression.



I am going to end but I want to end with a quote.

Albert Einstein said:

“Your imagination is your preview of life's coming attractions”

But I would say, yes but:

“You shouldn't just preview the highlights because you might find that the attraction never arrives”

Thank you. [clapping]

Professor Robyn Owens

Thank you, Julie, a fantastic talk, lots of ideas there. We have a little bit of time for questions now, so while you are thinking of your question, just pop your hand up once you have got one. Fantastic.

Audience

Thanks for the talk.

With depression, do you find that people with depression find it hard to imagine a positive state?

Dr Julie Li

Yes. That was a great question.

The question was, “Do people experiencing depression also experience difficulty imagining or to be simulating positive events?”

And the answer is “YES” in two ways. One is when you deliberately ask them to imagine or simulate future events, they have difficulty with the positive events but not the negative events and this has been shown to be a very robust effect and in my own PhD work, I looked at, not the deliberate generator version but the spontaneous generator version.

I did a lot of studies where I made people very bored with a computer task and they had “mind-wander” because they were so bored and I looked at where their mind wandered to and specifically it is to do with the future, so when they tend to want to mind-wander to the future they are less likely to mind-wander to positive aspects of the future and this is exclusively found for imagery-based future thinking so it is not for future thinking that are just words, verbal in a speech and it looks like for the past there is also some disruption, but it is different, it is more of an elevated negative rather than any attenuated loss of the positive.

I hope that answers your question.

Professor Robyn Owens



Stick your hands up if you have got one. Here we go.

Audience

Have you looked at any of this research in regard to particularly psychological traits, like narcissism or other things? Some of what you were saying, I have to say, “It fitted Boris Johnson to a tee!” [laughing] Unicorns dreaming and then not actually delivering.

Dr Julie Li

Yes, I mean, maybe has a very strong ... sorry, the question was, “does the ability to imagine correlate with personality traits, like narcissism?”

Yes, maybe Boris Johnson has a very strong ability to believe in the hypothetical and the unlikely, but I don't know if any research looking at narcissism because that probably impacts what they imagine. So they may be imagining their own success all the time. But in terms of the overall tendency to imagine, there is some evidence suggesting that women tend to imagine more or more vividly a list in terms of self-reported imagery use in daily life more than men but men may ... there is evidence showing that they are better at spatial rotation, so spatial abilities where you rotate a 3D shape in your head and you can answer questions about. Which phase of the thing are you seeing now? [inaudible 47.21]

Yes, who is a little bit better or who is more likely to do it?

Yes, there are definitely lots of individual differences and as we saw tonight, people differ a lot in how much they are able to imagine and what sensory modalities they experience but I think, once we are aware of this invisible thing that maybe we were not aware of, what can actually do to influence our judgement and decisions, we may want to pay more attention to it and maybe even train it.

Dr Lies Notebaert

That links to my questions.

When you told me that you pick recipes that somehow you imagine what it would taste like. It was baffling to me. But it sounds like quite a lot of fun. Is imagery something that can be trained? Could I develop that capacity? [laughing]

Dr Julie Li

I don't know. I am not sure. You can remember things visually, right. So, if you see my face, you can close your eyes and you can keep my face in your memory. You can't at all. As soon as you close your eyes, it's gone, so I think maybe you can't. [laughing]

It seems like it is going to be quite difficult for you, but that doesn't mean that it's a bad thing. I think there are a lot of benefits to not having a visual memory or the visual imagination.



Professor Robyn Owens

That was actually going to be my question, that it is neither good nor bad to have a lot or actually have none. The issues come from when your internal capacity mismatches the environment that you are in. Maybe Boris Johnson would be better off being a movie director than the Prime Minister of the United Kingdom or maybe somebody with not much imagination might be better off in a certain profession, not movie directing. So, I just wondered whether we might spend a little bit of time thinking about how to moderate our external environment to actually match our capacities and that means the things that we do and the people we meet, rather than worrying about whether we should be moderating ourselves.

Dr Julie Li

That is a really great point and I think Lies would agree that she is extremely logical, she is very emotionally stable, she's very good at thinking through logical problems

Professor Robyn Owens

Maybe she could be a computer programmer ... [laughing]

Dr Julie Li

She is good at programming and there is probably a reason why there are high percentages of people with low imagery in my lab because they primarily focus on reaction time-based tests and measures and I am studying imagery because I just have it in my head all the time and I just experience it all the time. I think it is correct to ... there are probably lots of profession-based differences in how much people use imagery or how much they able to use imagery.

I would find it hard to imagine that a movie director or a writer would have ... if someone had no imagery, what kind of novel they would be writing? It would just be like a computer code, logical steps. I think if you are aware of whether you have a low or high imagery ability, or high and low extreme logical brain, then you can potentially select your environment so it is best suited to your cognitive strengths.

Audience

I was wondering whether impaired working memory has anything to do with the inability to imagine while reading a story, not being able to follow and remember what you have just read and add that onto the new information.



Dr Julie Li

I think that might have something to do with it, but the difference between visual ... so working memory is the part of memory that keeps things in your current mind frame. We maintain things up to a certain point for a few seconds before we forget them.

That is actually quite different to we can keep things in our mind and maybe that helps with remembering those things but if you don't have imagery in the first place then you are going to be remembering the sentences and also it is different.

Janice can maybe see a picture of a candle and keep that in her mind while the picture is there but she is not able to make that candle move, make it a different shape, she is not able to make it flicker, she cannot manipulate it at all.

I would say that it doesn't really matter what your working capacity is if you cannot update that image, while you are reading something, you cannot really create a scene that is moving and matching the narrative.

I think I am not extremely sure how working memory has to do with it but I think if you don't have any imagery, to begin with, there is nothing to keep in working memory.

Audience

Is there any knowledge about whether our mental imagery is related to empathy?

Dr Julie Li

I think ... I know that there is a whole developmental literature on how we develop or when we develop different parts of the ability to simulate and that is not just to visualise things, picturing things. When we first developed the awareness of ourselves as being separate to other things and then we slowly develop the ability to infer what other people are thinking across situations that might be different from ours so this theory of mind is essential for empathising with someone else. But I think ... I am actually not too sure about the scientific research on this and maybe ... but I would say, just purely based on speculation that if you are able to really vividly, picture or simulate someone's situation. So, what happened, what they were feeling? That really helps with conjuring up what they might be feeling because you probably feel the same thing.

So, if you can literally put yourself in their shoes, then you can literally know what they are feeling. But if you have a low ability to do that, you can know that they probably, they should be sad or they should be happy but unlikely something that you can experience just by imagining what they went through literally, their experience.



Audience

Are there any links between mental imagery capacity and vulnerability to developing PTS after trauma?

Dr Julie Li

Another very good question.

I am not sure. I am sure there is big literature on this. I know from what I have read about “aphantasia” people. People with aphantasia. One story that I read was this woman had PTSD from childhood abuse and when her flashbacks ... flashbacks are when you relive the whole experience and typically its visual and sensory and bodily and everything and that is why it is so distressing because you literally relive that horrible experience again.

But for her, she didn’t have any visual imagery, she didn’t have any sensory information, she just was triggered and her body just responded in exactly the same way, with fear, with shaking, with crying with uncontrollable fear, but she just had the feeling of being back there but she didn’t have any visual experience.

I think it is probably a little bit complex that not being able to imagine anything protects you from bad memories, so for example again, people with aphantasia would say that they do not really have bad memories. They know bad things happened, sad things happened but they don’t just suddenly remember or they can’t remember what happened, exactly, so they can’t really fully relive that experience, they just know that it happened.

It might protect you from very, very bad events that happened in terms of memory but they also dialled down the positive events as well. So, you also can’t remember that really exciting event that you went to and retrieve that to re-experience that.

Professor Robyn Owens

Any last burning questions that you might be able to imagine or think about or write down and put in the post and send to Julie later on.

Okay, if not, Ladies and Gentlemen can I get you to join with me in thanking Julie for a fascinating talk.

[clapping]

So, that’s the end of this evenings event. I hope you have really enjoyed the talks.

Please stay around and talk to people, explore all these fascinating ideas, check out the podcasts, maybe there were nine other, or at least eighteen other talks that you could have gone to which would have been fantastic and I hope we see you again next year.



Thank you very much.

[clapping]