

Senses and Story – Remember When?

Admittedly, sensing movement in your body or the songs in your subconscious sounds a bit vague; they are not the most obvious experiences that grab your mind's attention. What about the Big Five – seeing, hearing, smelling, tasting and touching? Most of what we notice every day is covered by these so-called 'special senses.' They are an integral part of our mind's work, but they play a few tricks as well.

Their effects are so powerful we are lured into thinking, firstly, that they are the only sensations we experience with our mind and, secondly, that they give us a complete description of the world around us. Neither of those mistaken thoughts is helpful for understanding what our mind is doing. Firstly, our mind certainly needs more than five senses and, secondly, we actually **bring forth our own version** of everything we encounter. We see and hear what we are predisposed to see and hear, which is not exactly the same as another person sees and hears.

Five senses aren't enough. We couldn't do without the subtle sensations that we hardly notice unless they go awry. Christopher Eccleston describes these in his book *Embodied - The Psychology of Physical Sensation*. Perhaps the most important one is balance – the slightest aberration alarms us. Then there is breathing – sometimes you take a long, deep breath or sigh or catch your breath. We are aware of the lightness or heaviness of our body and, of course, fatigue, which is only partly due the depletion of physical resources. Hunger and thirst, too, are senses that can be misinterpreted. This is not a complete list, but a few more are pain, itch, heat or cold and they are all sensed quite often. We say they are 'felt.'

So is there any difference between **feeling** and **sensing**? This question shows how tricky it can be to explain what our minds are doing. If you define the mind (as I do) as our **connection** with our world (and other people) then our senses are very obviously involved. Without them we couldn't survive and when we lose one (say sight or hearing) we find that other senses can partly fill the gap.

Feelings include what we sense, but they are also more than that because they are part of our **perception**. To perceive is to organise what we have sensed in such a way that we **know** about it. Knowing consists of bodily **affects** – mostly subconscious – and mental images that we can put into language for our **story**. We carry with us in our mind a history of our lives that consists of what we remember about what has happened. If you come across a book that says it's 'based on a true story' you know that some of the details have been 'made up.' It's the same with your story and mine. Retrieving our memories is a reconstruction process that takes place in our mind in the present moment so it is shaped by who we are and where we are now as well as by what happened then. Fortunately, our story doesn't have to be entirely true. It just has to make sense, which is a kind of **meaning** that we give it.

Without previous experience (both subconscious and conscious) we could not **perceive** much at all. To recognise things we need some **memory** of them. The brain takes in only a very small amount of information from the senses, just enough to compare with a previously formed image and story. A chap called Rodrigo Quiroga describes this process in his recent book, *The Forgetting Machine*. So our senses wouldn't be much use to us without our memory.

An interesting new book I've enjoyed reading this week is called *Diving for Seahorses - The Science and Secrets of Memory*. It's by two Norwegian sisters, Hilde and Ylva Østby. Hilde is an acclaimed novelist and she certainly enriches the writing; Ylva is a research neuroscientist who studies the **hippocampus**, the part of our brain most involved in maintaining memories from the past. Early anatomists gave it this name, which means sea-horse monster, because it is a roughly S-shaped, longish structure located deep inside the brain, one on each side.

In the book there is a diving expedition to the bottom of a fjord where the tiny sea horses dance amongst the slender grasses – you have to be lucky to see them – but that is an experiment to show that memories are **much easier to recall** when the environment, or **context**, is the same as it was when you first tried to remember them. Details learned under water were harder to recall on dry land and vice versa. Humans are probably much better than other species at remembering anything entirely out of context because our brains give us a more complex (mainly social) connectedness with our world **and** we are using our memory to envision our future.

The most famous 'guinea pig' in memory research is always referred to as H.M. After both his hippocampi were removed he still had a working memory for a few seconds, but could not **retain** any memory of that experience in the way that is normal for us; clearly we are using our hippocampus to do this. Our long-term memories are most likely to come from the 'formative years' – usually teens and early twenties. There is an 'infantile amnesia' for the first few years of our lives, perhaps because the hippocampus is not fully developed. Of the special senses, **smell** is clearly the strongest trigger for retrieving memories and **tunes and songs** are also powerful reminders through our hearing. A powerful emotional experience often establishes memories that are strong and robust. Many Norwegians have a 'flashback memory' of July 22nd, 2011, the day that 77 people were massacred at a youth camp.

Long-term memory is only part of the story, of course. The way we use our working memory is a crucial part of our experience of mind, so this book is not just about the hippocampus. It includes the well-known stories (like 'the invisible gorilla') about all the things we don't remember because we didn't even see them or hear them. We kid ourselves that we noticed a lot more than we did. We can only work with a few items of thought at a time (perhaps seven at the most) and we can only do this for a minute or two at best so **most of what our mind picks up from our senses during our experience will be forgotten**. No wonder our **story** that we use to know who we are and where we are is not entirely true!

Forgetting is absolutely essential. There are certain techniques used by the 'memory athletes' who win big competitions. The Østby sisters describe an experiment in which Ylva used some of these to remember a significant happening from each of 100 consecutive days of her life. She says it was an enormous relief to forget them when the experiment ended!

It isn't surprising that emotion and memory are closely related. If you are worried you won't remember things as well. Clinical depression invariably means a less capable memory. Even being nervous in a social situation will weaken your ability to remember. And so many of us actually **worry about not being able to remember things** when this is actually making our task even harder.

Confidence is a state of mind that I find especially interesting (especially in relation to the primary, instinctual emotions that Jaak Panksepp calls SEEKING and FEAR). I think a core element of it is the way we use our memory to envisage our future. The Østby sisters provide much food for thought about that; I hope to continue the theme in the blogs that follow.

They conclude the book by saying (not quite in these words) that mindfulness might be good in its way, but there's a lot to be said for just letting your mind wander!