

## Mental Representations, 'Peak' (extract) – Ericsson and Pool, (p50 – 85)

*"The more effective the mental representation is, the better the performance will be." (p76)*

**Summary** – the more *sophisticated, detailed and accurate* a picture of 'what good looks like' that we can create in our minds, the better our performance will be. It gives us something clear and specific to aim for, it enables us to operate from 'unconscious competence' for fast 'on-the-pitch' decision-making, and equips us to 'course-correct' quickly if the results we're generating are not in-line with our effective '**mental representations**'.

The same sorts of highly developed mental processes are seen in expert performers in every field and hold the key to understanding their extraordinary abilities... (p54)

A **mental representation** is a mental structure that corresponds to an object, an idea, a collection of information, or anything else, concrete or abstract, that the brain is thinking about. A simple example is a visual image. Mention the *Mona Lisa*, for instance, and many people will immediately "see" an image of the painting in their minds; that image is their mental representation of the *Mona Lisa*. Some people's representations are more detailed and accurate than others, and they can report, for example, details about the background, about where *Mona Lisa* is sitting, and about her hairstyle and her eyebrows. (p 59)

Much of **deliberate practice** involves developing ever more efficient mental representations that you can use in whatever activity you are practicing.

Even when the skill being practiced is primarily physical, a major factor is the development of the proper **mental representations**. Consider a competitive diver working on a new dive. Much of the **practice** is devoted to **forming a clear mental picture** of what the diver should look like at every moment and, more importantly, what it should feel like in terms of body positioning and momentum. Of course, the **deliberate practice** will also lead to physical changes in the body itself... but without the **mental representations** necessary to produce and control the body's movements correctly, the physical changes would be of no use. (p60)

The thing all **mental representations** have in common is that they make it possible to process large amounts of information quickly, despite the limitations of short-term memory. Indeed, one could define a **mental representation** as a conceptual structure designed to sidestep the usual restrictions that short-term memory places on mental processing. (p61)

What sets **expert performers** apart from everyone else is the quality and quantity of their **mental representations**. Through years of practice, they develop highly complex and

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sophisticated representations of the various situations they are likely to encounter... These representations allow them to make **faster, more accurate decisions** and respond more quickly and effectively in a given situation. This, more than anything else, explains the difference in performance between novices and experts. (p62)

The main thing that sets experts apart from the rest of us is that their years of practice have **changed the neural circuitry in their brains** to produce highly specialized mental representations, which in turn make possible the incredible memory, pattern recognition, problem solving, and other sorts of advanced abilities needed to excel in their particular specialties. (p63)

Mental representations allow experts to hold unconscious competence in long-term memory, enabling them to automatically notice patterns and apply relevant learning without having to do the slower, conscious mental work of pattern recognition.

The key **change** that occurs in our **adaptable brains** in response to **deliberate practice** is the development of better **mental representations**, which in turn open up new possibilities for improved performance. (p75)

The relationship between skill and mental representations is a virtuous circle: the more skilled you become, the better your mental representations are, and the better your mental representations are, the more effectively you can practice to hone your skill. (p80)