The role of experience is well recognized in all professional fields. Beginning with the acknowledgment of the basic academic formation of individuals within a particular field, what distinguishes those with extraordinary decision-making capabilities, strategic vision and independence of thought versus those that do not possess these traits? Using the word ‘experience’ is the simple answer and, although ostensibly correct, this article will elaborate on the neurobiology of experience and its role in the decision-making process within the management field.

The human brain is unique in the animal kingdom in that it has the largest neocortex respective to average body size. In fact, reptilian species do not possess a neocortex at all. This six-layered neocortex sits upon more ancient regions of the brain that moved through reptilian and mammalian evolutionary processes. The brain operates through a memory-prediction system that calls upon and utilizes vast amounts of stored memory to make predictions about the future (Hawkins & Blakeslee, 2004). These memories are generated over a lifetime of experience and repetitive exposure. Gregory (1970) postulated that 90% of sensory information is lost by the time it reaches the brain. Repetition helps diminish this problem. This information comes into the brain as low-level sensory inputs that move through progressive layers of neocortex until they reach the higher auto-associative regions of the brain that form invariant representations. These invariant representations are best understood as abstract concepts. As such, human beings have an ‘abstract concept of apple’, ‘abstract concept of dog’, ‘abstract concept of tree’. Thus, lower level sensory patterns make their way up the neocortical hierarchy and are associated until these abstract concepts develop. Auto-association is a basic function of the brain that is a standard operating algorithm for all people. However, this auto-associative function is only part of what makes good decision-making possible.

What makes certain people good managers is their capability to predict future events based on previous experiences and well-developed auto-associative capabilities; with the keen ability to see large quantities of abstractions. These abstractions can be viewed as ‘bigger picture’ concepts that may be seen clearly by some managers or completely missed by others. For example, basic information inputs may coagulate to form an abstraction that is recognized as an opportunity to one person, while being seen as useless information noise by another. So how does one develop the capability to develop predictive capabilities and exceptional abstraction recognition?

The simple answer is repetition. This is grounded in the often-heard concept of ‘neurons that fire together, wire together’. Scientists discovered that human cells are programmed to generate predictions about what will happen and then measure the difference between their expectations and the actual results. The dopamine neurons within the brain increase the accuracy of the measurement (Lehrer, 2010), and the more dopamine the more accurate the result. The neuronal clusters, once fired, will have a tendency to fire more easily in the future and store implicit memories that do not have to be consciously recalled (Siegel, 2010).

Through repetition and the exposure to a high volume of thought exercises, in combination with established patterns of cognitive learning, a manager will develop the ability to increase their repertoire of abstractions that can be called upon, and extended, to solve novel and complex problems. This repertoire allows managers to avoid the interpretation of sensory inputs from first principles every time a new problem is encountered and they need only focus on a few salient features of the problem. Whether this repertoire is established in the educational process (i.e. MBA training) or workplace experience (i.e. leading marketing teams), the key element is repetition to develop and strengthen the neural pathways.

It is the amygdala in our brain that has the difficult task of streamlining the communications inside our brain. The amygdala sends impulses to the hypothalamus for activation of the sympathetic nervous system. Managers need to allow their own amygdala to surface at the conscious level in order to distinguish an abstract perception from the more cogent one. Since the brain is an anticipation machine, it predicts future events based on its vast memory stores. To demonstrate this, as a
thought exercise, picture hearing a motorcycle in the distance, coming around the corner down your street. You don't see it yet, but you can clearly hear its familiar sound. Looking down towards the corner, you expect to see this motorcycle and yet what comes around the corner is a person on a unicycle!

Your memory system predicted seeing a motorcycle, and when you saw a unicycle, you were surprised and taken aback; your mind trying to reconcile the error between the audio abstraction of a motorcycle and the visual abstraction of a unicycle. Hence, your mind predicted the future, yet was incorrect. An effective manager has the capability to make accurate predictions of the future by auto-associating multiple streams of sensory information based on a wealth of experience stored in memory. This effective manager will encounter less error between prediction and outcome.

Effective managers can make these predictions based on past experiences and exceptional recognition of abstract concepts and sensory subtleties that others miss. The ability to recognize subtle patterns within situations while holding a larger, more abstract pattern in the mindsight of the prefrontal cortex can help form more suitable solutions to complex problems. Working individually on issues without seeing the whole problem will lead to an ineffective solution. Exposing oneself to a holistic variety of sensory inputs through a lifetime diversity of repetitive educational and experiential pursuits allows the formation of a substantial volume of working memory that allows the brain to form a wealth of abstractions and develop a keen auto-associative algorithm, hence experience.

The desire for prediction-outcome consistency is a central motivator of our behaviour and through repetition we are looking for consistent paths of information. We move from perception to cognition, and finally to action. The neurons we use to record what happens around us are called mirror neurons and they discharge selectively during specific motor acts (Rizzolatti & Sinigaglia 2008). Mirror neurons respond not only to hand movements and transitive acts but they respond to ‘mime’. We learn without knowing we are learning and without doing. From a managerial perspective we transfer knowledge to others simply by acting and others learn simply by watching. From a neurobiological perspective, a rigorous and well-rounded background, versus a more specialist orientation, may be the most appropriate philosophical perspective for managers to undertake when moving through their career.

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REFERENCES

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