

How perception shapes our cognitive frameworks: Understanding perception-dependent cognition.

Nasehi Nami*

Cognitive and Neuroscience Research Center (CNRC), Islamic Azad University, Iran

Introduction

Perception is a fundamental aspect of human experience, as it influences how we interpret the world around us. Through our sensory inputs, we continuously construct mental representations of reality. However, perception is not a passive process; it is active, selective, and shaped by various factors, such as prior knowledge, expectations, and cultural influences. This dynamic interaction between perception and cognition leads to the development of cognitive frameworks—mental structures that help individuals make sense of the world. Understanding how perception shapes these frameworks offers insights into the underlying mechanisms of human thought and behavior [1].

Perception is the process through which we acquire, organize, and interpret sensory information to form an understanding of our environment. This process is inherently subjective, as different individuals may perceive the same stimuli in distinct ways. The cognitive frameworks that emerge from perception are shaped by an interplay between sensory input, prior knowledge, and context. These frameworks serve as mental models or schemata that guide our understanding of new information and experiences [2].

Cognitive frameworks are not static; they evolve over time as individuals accumulate experiences, learn new concepts, and encounter novel perspectives. These frameworks act as cognitive filters, enabling us to make sense of the world more efficiently by simplifying complex information. However, they also have the potential to limit our understanding by constraining the way we interpret new stimuli. When perception and cognition align harmoniously, they enable individuals to navigate their surroundings with ease. When misaligned, however, they may lead to cognitive biases or errors in judgment [3].

One of the key aspects of perception-dependent cognition is the role of context and expectations in shaping our cognitive frameworks. When we perceive information, we are not merely receiving raw data but actively interpreting it through the lens of our existing knowledge, past experiences, and cultural background. This phenomenon is known as *top-down processing*, where our expectations influence the way we perceive and interpret stimuli [4].

For example, research has shown that individuals from different cultures may perceive the same image differently

based on their cultural norms and values. A study by Nisbett and colleagues demonstrated that Western individuals tend to focus on individual objects in an image, while East Asians are more likely to focus on the relationships between objects. This suggests that cognitive frameworks shaped by culture influence how individuals organize and interpret visual information. In this case, the perception of the image is not determined by the stimuli alone but by the viewer's prior experiences and cultural lens [5].

Similarly, expectations can shape our cognitive frameworks in ways that affect how we perceive events or situations. When we expect a certain outcome, we may selectively attend to information that confirms our expectations and overlook information that contradicts them [6].

Cognitive biases are systematic patterns of deviation from rational judgment that arise from the interaction between perception and cognition. These biases are often influenced by the limitations of human perception, such as the tendency to rely on heuristics or mental shortcuts to process information efficiently. While heuristics are useful in many situations, they can also lead to errors in judgment and decision-making [7].

One well-known cognitive bias influenced by perception is the *halo effect*, where our overall impression of a person or situation influences how we perceive specific traits or characteristics. For example, if we perceive someone as friendly, we are more likely to attribute positive qualities to them in other areas, even if there is no evidence to support this. This bias highlights how our cognitive frameworks, shaped by perception, can lead to an oversimplified or skewed understanding of reality [8].

Other biases, such as *anchoring bias* and *framing effect*, also demonstrate the influence of perception on cognition. The anchoring bias occurs when individuals rely too heavily on an initial piece of information (the “anchor”) when making judgments, even if that information is irrelevant [9].

The framing effect shows how the way information is presented—whether framed positively or negatively—can influence perceptions and decision-making. Both biases underscore how perception-dependent cognition can lead to suboptimal decisions and reinforce existing mental frameworks, even when they are flawed [10].

*Correspondence to : Nasehi Nami, Cognitive and Neuroscience Research Center (CNRC), Islamic Azad University, Iran. E-mail: nsh@nmi.org

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Conclusion

Perception plays a central role in shaping our cognitive frameworks, which in turn guide how we interpret and respond to the world. These frameworks are not fixed but evolve through ongoing interactions between perception, prior knowledge, and expectations. While perception enables us to navigate the world efficiently, it also has the potential to limit or distort our understanding, especially when cognitive biases come into play. By understanding how perception shapes cognition, we can better recognize the role of context, expectations, and biases in our mental models. This awareness offers opportunities for refining our cognitive frameworks and improving our ability to perceive and interpret the world more accurately and objectively.

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