Chapter 5
Mastering Cognitive Neuroscience and Social Neuroscience Perspectives in the Information Age

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ABSTRACT

This chapter explains the overviews of cognitive neuroscience, neuroimaging techniques, Social Cognitive Neuroscience (SCN), social neuroscience, and social cognition. Cognitive neuroscience is the important neuroscience area to understand human cognition since results can clarify the functional brain organization, such as the operations performed by the specific brain area and the system of distributed neural areas, toward supporting both specific cognitive representation and effective decision-making process. Social neuroscience is an interdisciplinary field devoted to understanding how biological systems implement the social processes and behavior, and to utilizing biological methods to inform the theories of social processes and behavior. The chapter argues that mastering cognitive neuroscience and social neuroscience perspectives has the potential to make effective business decisions and reach strategic goals in the information age.

INTRODUCTION

In the information age, the remarkable confluence of three fields (i.e., psychology, computer science, and neuroscience) has yielded a growing framework that begins to explain how humans effectively learn to make sound decision making in real time, and can be applied to various business perspectives (Ludvig, Bellemare, & Pearson, 2011). Understanding human decision-making process is approached in economics and neuroscience (Lahmiri, 2016). Neuroscience research that explains how the brain learns is a dynamic field (Cercone, 2008). The aim of cognitive neuroscience is to study the neuronal substrates of mental processes to address the questions of how cognitive functions are produced by the brain (Lipina & Roder, 2013). The theoretical approach in the area of cognitive neuroscience holds that the object-processing pathway has a modular organization, in which visual perception and visual memory are independently executed (Cowell, Bussey, & Saksida, 2011).

Cognitive neuroscience field approach focuses in the aspect of the way that cognitive functions are generated by neural circuits in the brain (Plerou & Vlamos, 2016). Cognitive theory has decomposed human mental abilities into cognitive systems, and cognitive neuroscience succeeded in discovering a host of relationships between cognitive systems and specific structures of the human brain (Pulvermuller, Garagnani, & Wennekers, 2014). Cognitive neuroscience approach to self-cognition was initially driven by the assumption that the self is the unitary construct (Sugiura, 2013). Cognition is a conceptual term related to the nervous system to develop the mental models of behavior (Cromwell & Panksepp, 2011) and is closely tied to action regarding business activities (Shepherd, 2012). Theoretical model of cognition can explain the inner workings of the human brain (Cervantes, Rodríguez, López, Ramos, & Robles, 2013). In addition, the progress in understanding cognition requires the quantitative and theoretical frameworks grounded in other natural sciences (Fitch, 2014).

Recent advances in neuroscience suggest that the human brain is well-suited to design things (Zuanon, 2017). Interpreting the world through a social perspective is an important characteristic of human cognition (Schreiber, 2012). Humans and many species of animals are social by nature, acquiring social skills in the early development and remain a major part of the social world throughout life (Lipina & Roder, 2013). As an emerging field related to the study of intergroup relations (Kang, Inzlicht, & Derks, 2010), social neuroscience is the study of brain mechanisms supporting interpersonal interaction (McPartland & Pelphrey, 2012) and is a theoretical framework connecting social psychology with the cognitive neuroscience research (Steinberg, 2008). The advent of neuroimaging has boosted research and given rise to a new domain known as cognitive neuroscience, combining behavioral

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