

Cognitive Sociology: A Theoretical Overview

Caterina Galluccio

Department of Law and Social Science
University "G. d'Annunzio" of Chieti-Pescara
Via dei Vestini 31, Chieti, Italy

Abstract

In the ongoing quest to understand human thinking and social interactions in the social world, sociologists have developed methodological tools to draw their conclusions better. In this paper, the author explores the foundational theory of cultural sociology, the relationship between cultural sociology and cognitive science, the methodological challenges of cognitive culture, embodied cognition, and dual-process model of cognition. The research findings indicate that scholars are motivated by the need to comprehend cognition processes and social interaction to explore different aspects of cognitive sociology. The research further reveals that foundational theories played a significant role in governing future research since the information they provided is still relevant. Moreover, the methodological challenges faced in cognitive sociology drive the establishment of new methodological tools. Lastly, the most recent methodological tool applied in the study of cognitive processes is the dual-process model of cognition.

Keywords: cognitive sociology; cultural sociology; methodology; embodied cognition

1. Theoretical Foundations of Cognitive Sociology

One of the theorists that have been considered as a precursor of cognitive sociology is Max Weber. Based on Weber's theory, cognitions impact large-scale processes, which are influenced by social products like religion and ideas (Forgas, 1983). Forgas (1983) states that Weber argues that the theory of individual behavior affects cultural sociology. Indeed, Weber adds that meaningful action is distinct from simple behavior as it is social due to the subjective meaning assigned to it by the actor (Weber, 1968). Individual behaviors are, therefore, regarded as the essential components of social relations.

George Herbert Mead is another theorist who developed a social psychological theory, which is known as Mead's social behaviorism or symbolic interactionism. According to Forgas (1983), Mead argues that a distinction between individual and social phenomena cannot exist due to the fact that human beings are social. Mead, therefore, concluded that society is a result of the interactions among individuals. Mead's theory further depicts the use of gestures and symbols as the building blocks of social interaction and its outcomes (Forgas, 1983; Mead, 1922). In particular, Mead developed an account of symbols using psychology and Darwinian (Lizardo et al., 2019). Additionally, Cerulo (2016) discusses Mead's theory and notes that Mead recognizes the role of neurons, the nervous system, and traces in understanding the thought process. However, these components are not sufficient to comprehend cognition due to the lack of dynamic social interactions. Additionally, Strandell (2017) states that Charles Cooley was another theorist who contributed to the study of the mind and the social. Cooley (1909) argued that the mind should be studied socially to draw attention to relations that go beyond psychology. They both argued that the mind is not separable from the social as one cannot understand the mind solely without the social processes.

Mead's system provided insight for other scholars to discuss cognition. For example, Cerulo (2016) notes that Mannheim studied the relationship between the collective mind and shared knowledge. Mannheim argued that members of a group's locations, context, and actions form the group's thoughts and understandings (Cerulo, 2016). Thus, thinking is perceived as a product of different viewpoints, which makes it a relational phenomenon. Later, through Alfred Schutz's influence, Peter Berger and Thomas Luckmann argued that the collective mind is a product of the knowledge gathered by a group based on their beliefs, logic, symbols, and regular performances (Cerulo, 2016). Therefore, a community's knowledge act as a diary of their culture. Additionally, other scholars have explored the relationship between social and cultural elements and cognition. For example, Goffman (1974) argued that frames, which are conceptual cultural tools, are used to define the awareness of social experiences.

Another theorist who has contributed to cognitive sociology is Zerubavel, and he focused on mental categories. In particular, he identifies procedures like lumping and tools as cognitive lenses used by community members for thought organization and to give meaning to situations. According to Ignatow (2007), Zerubavel argues that individuals use thought styles and traditions to carve their continuous realities. In other words, thoughts are not products of nature. Zerubavel (1996) further states that reality is ongoing; thus, when individuals perceive gaps, it is due to socialization.

Therefore, Ignatow (2007) argues that this theory tasks sociologists to study how communities construct meaning from thoughts and categorize knowledge. In this theory, commonalities among communities are ignored. Contrary, DiMaggio's theory of cognitive sociology differs from Zerubavel's. Ignatow (2007) states that DiMaggio focuses on how social and cognitive processes influence each other through social, psychological, and cultural mechanisms, while Zerubavel focuses on cultural differences in categorical knowledge. DiMaggio argues that sociologists should perceive memory as storage for knowledge in the form of bits of information stored haphazardly (Ignatow, 2007). Based on this rationale, the interactions between the social and cultural environments structure culture. Ignatow (2007), therefore, concludes that sociologists should be interested in these interactions.

Lastly, Zerubavel's and DiMaggio's theories on knowledge are similar. Based on DiMaggio's approach, people navigate through social situations using long-term memory (Ignatow, 2007). Additionally, they react to social situations that prompt cognition modes and information retrieval without using emotions and the body, which makes nature's role minor. DiMaggio (1997), therefore, argues that sociologists pay the most attention to those memory schemas that seem independent of individual experiences. It is worth noting that the theorists acknowledge that knowledge is detachable from the body and emotions.

2. Cultural Sociology and Cognitive Science

It is worth noting that cognitive science is distinct from cultural sociology. According to Zerubavel (2007), cognitive science deals with neural and cognitive processes, while cultural sociology focuses on cognition and social interactions. Additionally, Strandell (2017) and Durkheim (1953) argue that cognitive scientists are mainly concerned with how human beings learn and adapt. It is worth noting that various complexities are associated with neurocognitive science (Pitts- Taylor, 2014; Fuller et al., 2013; Von, 2011). Despite the contradiction, through this interest, cognitive scientists have studied how the human brain adapts to experiences through activity-dependent neuroplasticity in neuroscience and how it enables humans to operate in any environment (Ganguly & Poo, 2013; Doidge, 2007). Thus, the impact of activity-dependent neuroplasticity implies that environments and experiences are significant. Strandell (2017) suggests that this realization gives significance to social and cultural factors as cultural sociologists argue that socio-cultural factors shape experiences. He, therefore, concludes that cognition cannot solely explain why people act the way they do, and culture cannot solely explain action mechanisms as experiences shape the brain for humans to operate in cultural environments (Strandell, 2017). Thus, understanding the cognition and cultural sociology interaction is essential.

However, despite the significance of the interaction between cultural sociology and cognitive science, incompatibilities of culture and cognitive science research exist. Scholars like Danna (2014) have noted that a model that details how culture and cognition affect each other does not exist. Moreover, the researchers of the two fields do not share a similar language, which makes theories and methods significantly different. These findings have played a significant role in separating the two disciplines. This mismatch led to the development of modal intellectual styles by DiMaggio (1997), which details how the most basic concepts of the two fields are used differently, making it easy for scholars to dismiss research from the different disciplines as irrelevant. After the publication of DiMaggio's paper, there has been a significant growth of the study of how the two disciplines overlap. Overall, scholars began to understand that cognitive science provides a mechanism to comprehend social interaction better.

Therefore, despite the differences, cognitive science is an essential aspect of cultural sociology. In turn, cognitive scientists have supported sociological arguments such as the identification of the body as an integral aspect of cultural and social action (Ignatow, 2007; Krátký, 2011; Raphael, 2017). For example, Barsalou (2005) and Niedenthal et al. (2005) argued that cognition shares systems with perception at the cognitive and neural levels. Another example is the research divergence in cognitive science and perception that illustrates the empirical dependence of perception on cognitive science (Goldstone & Barsalou, 1998). Ignatow (2007), therefore, adds that the divergence reflects an assumption that the cognitive representations are not associated with modality systems such as those associated with other bodily systems like smell and touch. Moreover, this assumption led to the emergence of the amodal knowledge theories of the 1950s.

Cultural sociology and cognitive science are connected through the transduction principle, which underlies the amodal knowledge theories. According to Ignatow (2007), the principle posits that mental representations are produced by the sensory systems when a situation such as vision or movement occurs. Afterward, these representations that are categorized as amodal symbols undergo a transduction process to represent the situations experienced (Barsalou, 1998). After the process, the symbolic description is stored in memory. It is this system that is used to establish knowledge of a specific type of situation. Lastly, Ignatow (2007) notes that these amodal theories have and are still being used in cognitive science and cultural sociology for the conceptualization of knowledge.

To further illustrate the interaction between culture and cognition, Cerulo's study of cognitive structure can be used. According to Ignatow (2007), Cerulo conducted a study involving newspaper headlines as a valuable sociological test case for amodal knowledge and embodied knowledge views. Cerulo (1998) argues that headlines concerning violence have moral implications due to their content and semantic meaning. For example, headlines that begin with the performer, then action and the victim are known as performer sequences. Ignatow (2007) additionally notes that these sequences create empathy for the perpetrator, which implies that violence is routine. For instance, the police officer shot the armed robber. On the other hand, the headlines that begin with the victim, then the action and the perpetrator are known as the victim sequences (Cerulo, 1998). These sequences create empathy for the victim and imply that the violence is not routine. For example, a woman was attacked by an armed robber. This study is instrumental as it shows how cognitive structures can influence social interpretation.

3. Methodological Problems of Cognitive Sociology

One of the methodological challenges facing cognitive sociology is the failure to have a sociological identification due to the failure to take a stand in the debates about the philosophy of social science. Ignatow (2014) notes that the challenge has made it easier to gloss over the differences between cognitive science and other disciplines. For example, the American Sociological Association (ASA) culture segment has adopted interpretive epistemic mode while cognitive sociologists conducting collaborative research have adopted the realist mode (Ignatow, 2014). The author further argues that having an identity would eliminate the isolation of sociology from other sciences like cognitive science that resulted from the association of sociology and extreme social constructionism (Ignatow, 2014). Lastly, understanding sociology's ontology when conducting research makes it easier to identify the assumptions shared by sociology and other fields regarding evaluating validity and data.

Another methodological problem faced by cognitive sociology is the lack of sufficient epistemological reflection from the present phase of sociological knowledge development. Based on research conducted by Trufanov (2004), this reflection's implementation can be positively impacted by an approach to cognitive prospects from the standpoint of postnonclassical theory of rationality. Trufanov (2004) observed that cognitive prospects were mainly classified based on their theoretical positions. On the other hand, the theoretical positions are characterized by various methodological aspects that create differences that separate theories.

As a result, different theoretical positions that are not correlated exist. Trufanov (2004) proposed solution was the use of cognitive prospects as a social rationality representation where the various rationality would reveal types of social reality. In turn, the classification will entail not only theoretical positions but cognitive and precognitive prospects as well. Additionally, the lack of better methods to learn beliefs, attitudes, and behaviors is a methodological problem. For instance, Ignatow (2014) argues that scholars are unaware of how the insights derived from cognitive neuroscience can contribute to the development of research methods. For example, the use of dual-process theories from neuroscience and psychology led to the adoption of forced-choice survey items in the sociological, cultural analysis (Vaisey, 2009). Additionally, an innovative study was conducted using forced-choice survey items and a laboratory experiment to investigate cognition and social networks interplay (Srivastava and Banaji, 2011). Therefore, sociologists should reveal how fields like cognitive science can improve social science research methods.

The other methodological problem that affects cognitive sociology is evident in how sociologists engage other disciplines. One of the ways sociologists engage with other disciplines is by regarding sociology as a meta-field that incorporates other social science fields (Licardo, 2014). For example, in sociology, economic sociology represents the sociology of economics. Zuckerman (2004) further notes that the sub-disciplinaries (such as cultural sociology) are created for sociological consumption, which hinders any real interactions with other social science disciplines. Moreover, various scholars suggest that social sciences will embrace cognition in the future, which will require sociology to really engage with other disciplines (Turner, 2001; Turner, 2007). For example, in Anthropology, cognitive anthropology was a discipline that had anticognitive traditions, but it successfully overcame this challenge (d'Andrade, 1995). Therefore, sociologists need to learn how to collaborate with other scientists.

Lastly, cognitive sociology should be adept at dealing with naturalism to effectively explore Critical theory's explanatory critique for the advancement of learning by pushing the limits nature imposes on the sociocultural world. Strydom (2019) argues that Critical theory applies reconstruction's methodological procedure to explore the relevant cognitive order principles based on human capacities, competences, and understanding. The author further notes that in Critical theory, weak naturalism is asserted, but it has not been substantiated and its cognitive significance recognized (Strydom, 2019). Arguably, weak naturalism ought to be taken seriously by acknowledging the link between society and nature for the establishment of integral cognitive sociology. The author recognizes the relationship by stating that an ontological and cognitive continuity exists between nature and the sociological world.

For the cognitive continuity, evolution reveals the process of brain enlargement from 500cc to approximately 1600cc (Van Gelder 2005; Wilson, 2012).

Ontologically, continuity is expressed in natural, historical processes that have shaped human evolution (Strydom, 2019). Generally, the changes in nature have provided the conditions necessary for the shaping of the sociocultural form of life.

4. Embodied Cognition and Social Interaction

In recent years, theories have emerged to explain how thinking occurs. According to Cerulo(n.d.), embodied cognition theories provide a new approach to thinking where the body is the integral bridging aspect between the brain and the mind, and thought is inseparable from our environment. In addition, the author notes that the theories garnered attention in the 1980s (Cerulo, n.d.). However, elements of these theories were developed before the 1980s. For instance, in the 1960s, scholars like Merleau-Ponty (1968) rejected the notion of mind-body dualism. Merleau-Ponty (1962) argued that the mind and body are an integrated system, and perception was an outcome of the body's location and experiences. Therefore, thinking is a product of an individual's enactment with the world, and information is not innate. It is further worth noting that embodied approaches to cognition characterize the nature, purpose, and structure of cognition. Firstly, based on embodied approaches, external cultural symbols are symbolic in a different sense as mental experience (Kolers&Symthe, 1984). Therefore, mental experience does not share the structure of cultural symbols which derive meaning from external vehicles. In support, Barsalou (1999) and Johnson (1987) argue that the conceptualization of mental experience is based on perception and action. In other words, phenomenologically, the mental experience is meaningful (Shore, 1996). Secondly, perceptual states have structure and are not incoherent due to the lack of linguistic or cultural categories (Lizardo, 2015). In support, Bloch (1991) argues that embodied approaches reveal that perception and action provide image-schematic conceptualizations for cultural categories. Therefore, perceptual states have structure and meaning.

Additionally, scholars have studied different types of embodiment. According to Wilson (2002), an online embodiment is referenced when cognitive activity operates in the environment directly. For example, when meeting someone new, an individual produces a somatic response of looking up. On the other hand, offline embodiment occurs when the cognitive activity is decoupled from the environment, like perceiving an object that is not present. Ignatow(2007) notes that the online embodiment is stored in long-term memory, and it is used as the basis of knowledge. To illustrate the impact of this type of knowledge, studies have been conducted. For example, a study entailed blocking embodiment to impair access to long-term memory (Rauscher, Krauss, & Chen, 1996). In the study, participants were watching a cartoon, and after a break, they were asked to describe the cartoon. When they were instructed not to use gestures, they were significantly slower due to the impaired access to conceptual representation. Therefore, embodiment cognition research can facilitate the study of conceptual elements of representation.

5. The Dual Process Model in the Sociological Analysis

Over the years, the interest in dual-process models has grown exponentially as cultural and cognitive sociologists engage with the models' fundamentals. Various scholars have noted that dual-process models have challenged how culture is shared, internalized, and how it shapes action (Lizardo, 2017; Brekhus, 2015). In the dual-process model, the first type of cognitive process occurs when automatic cognition is used to access internalized knowledge stored in schemas to explain the action, and the second type occurs when the first is ineffective (Vaisey, 2009). It is worth noting that the dual-process models developed in the 1980s constituted research in cognitive and social psychology, and scholars disagreed on the central principles and processing types (Chaiké& Trope, 1999; Evans & Stanovich, 2013). However, the dual-process model cited by sociologists has little to do with these dual-process models of the decision-making (Evans, 2008). The dual-process models discussed are concerned with the cognitive evolution of the mind.

It is worth noting that social cognitive neuroscience has provided support for the dual-model of cognition. According to Lieberman (2003) and Lieberman et al. (2004), reflexive and reflective processes are associated with two neurological systems, namely X and C systems, respectively. For the X system, the brain areas associated with associative learning are constituted, and the C system deals with brain areas related to explicit learning. Theoretically, the dual-process model's fundamentals had been formulated by the mid-twentieth century. According to Smith and DeCoster (2000), the second type of cognition stated earlier is applied when the social world influences the mind, and the first type is impacted afterward. Thus, the shared ideas in the social world turn into associative knowledge over time, which means a learned idea can acquire phenomenological quality similar to that of a gut reaction. Lastly, Leschziner(2019) notes that it took time, but the dual-process model eventually influenced sociological scholarship.

Lastly, scholars have used dual-process models to support their arguments concerning the influence of cognitive processes.

Therefore, a study was conducted to illustrate that values motivate action using both primary and secondary data (Miles, 2015). Miles (2015) designed an online experiment where participants were asked to perform cognitively demanding tasks like memorizing long numbers to test the first type of cognitive process. In turn, the online experiment inhibited the second type of cognitive process. The study revealed that the first type of cognitive process is used when values influence behavior (Miles, 2015). Another investigation was conducted by Vaisey and Lizardo (2010) using dual-process model principles to examine the relationship between cultural worldviews and network composition. Contrary to Emirbayer and Goodwin's (1994) research on the causal role of social networks on culture, this research revealed that network composition does not influence culture. Thus, the model improves the findings on how culture influences action.

Conclusion

Foundational theories of cognitive sociology reveal that theorists were mainly interested in how culture influences behavior and thought. One of the conclusions drawn from the theories is that social relations are influenced by individual behaviors, and social processes are inseparable from the mind. Additionally, other theorists note that differences exist in categorical knowledge based on cultural differences. Lastly, cognitive sociology entails the investigation of cognitive processes.

It is this interest in understanding human behavior and thought processes concerning culture that led to the development of a relationship between cultural sociology and cognitive science. The research indicates that cultural sociology cannot solely explain human behavior and interactions, and cognitive science cannot exclusively explain the thought process. Therefore, cognitive science and cultural sociology have had to overlap. However, some challenges, such as lack of a similar language, have adversely affected the interaction between the disciplines.

Despite the challenges, the two disciplines have profoundly contributed to the development of cognitive sociology. Based on the research conducted in the field, the disciplines are contributing to the understanding of how social interpretation influences the mind. However, cognitive sociology has various methodological problems that have significantly impacted its engagement with other disciplines.

Arguably, due to the methodological challenges, scholars have researched other methods to understand how humans think. For example, embodied cognition is used in the investigation of how the mind, body, and environment interact. Additionally, the dual-process model is used to understand the cognitive process in the social world. Conclusively, the field of sociology has evolved in order to understand the thinking process and social interactions in the sociocultural environment better.

References

- Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22(4), 577-660.
- Barsalou, L. W. (2005). Abstraction as dynamic interpretation in perceptual symbol systems. *Building Object Categories*, 30322, 389-431.
- Bloch, M. (1991). Language, anthropology and cognitive science. *Man*, 183-198.
- Brekhus, W. H. (2015). *Culture and cognition: Patterns in the social construction of reality*. NJ: John Wiley & Sons.
- Cerulo, K. A. (1998). *Deciphering violence: The cognitive structure of right and wrong*. Hove: Psychology Press.
- Cerulo, K. A. (2016). Cognition and cultural sociology: The inside and outside of thought. *The SAGE Handbook of Cultural Sociology*, 116.
- Cerulo, K. A. (2018). Embodied cognition: Sociology's role in bridging mind, brain and body. *The Oxford Handbook of Cognitive Sociology*, DOI: 10.1093/oxfordhb/9780190273385.013.5
- Chaiken, S., & Trope, Y. (Eds.). (1999). *Dual-process theories in social psychology*. NY: Guilford Press.
- Cooley, C. H. (1909). *Social organization: A study of the larger mind*. New York: Charles Scribner's Sons.
- d'Andrade, R. G. (1995). *The development of cognitive anthropology*. Cambridge University Press.
- Danna, K. (2014, December). The study of culture and cognition. *In Sociological Forum*, 29(4), pp. 1001-1006.
- DiMaggio, P. (1997). Culture and cognition. *Annual Review Of Sociology*, 23(1), 263-287.
- Doidge, N. (2007). *The brain that changes itself: Stories of personal triumph from the frontiers of brain science*. NY: Penguin.
- Durkheim, E. (2009). *Sociology and philosophy (Routledge Revivals)*. NJ: Routledge.
- Emirbayer, M., & Goodwin, J. (1994). Network analysis, culture, and the problem of agency. *American Journal Of Sociology*, 99(6), 1411-1454.
- Evans, J. S. B. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annu. Rev. Psychol.*, 59, 255-278.

- Evans, J. S. B., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives On Psychological Science*, 8(3), 223-241.
- Forgas, J. P. (1983). What is social about social cognition? *British Journal of Social Psychology*, 22(2), 129-144.
- Fuller, S., De Mey, M., Shinn, T., & Woolgar, S. (Eds.). (2013). *The cognitive turn: Sociological and psychological perspectives on science* (Vol. 13). NY: Springer Science & Business Media.
- Ganguly, K., & Poo, M. M. (2013). Activity-dependent neural plasticity from bench to bedside. *Neuron*, 80(3), 729-741.
- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Massachusetts: Harvard University Press.
- Goldstone, R. L., & Barsalou, L. W. (1998). Reuniting perception and conception. *Cognition*, 65(2-3), 231-262.
- Ignatow, G. (2007). Theories of embodied knowledge: New directions for cultural and cognitive sociology? *Journal for the Theory of Social Behaviour*, 37(2), 115-135.
- Ignatow, G. (2014, December). Ontology and method in cognitive sociology. In *Sociological Forum* (Vol. 29, No. 4, pp. 990-994).
- Johnson, M. (1987). *The body in the mind: The bodily basis of meaning, imagination, and reason*. 1987. Chicago: U of Chicago P.
- Kolers, P. A., & Smythe, W. E. (1984). Symbol manipulation: Alternatives to the computational view of mind. *Journal of Verbal Learning and Verbal Behavior*, 23(3), 289-314.
- Krátký, J. (2011). Cognitive sociology and the study of human cognition: a critical point. *Sacra*, 9(2), pp. 40-57
- Leschziner, V. (2019). *Dual-Process Models in Sociology*. *The Oxford Handbook of Cognitive Sociology*, 169.
- Lieberman, M. D. (2003). Reflective and reflexive judgment processes: A social cognitive neuroscience approach. W: JP Forgas, KR Williams, W. von Hippel (red.), *Social judgments: Implicit and explicit processes* (s. 44-67).
- Lieberman, M. D., Jarcho, J. M., & Satpute, A. B. (2004). Evidence-based and intuition-based self-knowledge: an fMRI study. *Journal of Personality And Social Psychology*, 87(4), 421.
- Lizardo, O. (2014, December). Beyond the Comtean schema: The sociology of culture and cognition versus cognitive social science. In *Sociological Forum* (Vol. 29, No. 4, pp. 983-989).
- Lizardo, O. (2015). *Culture, cognition and embodiment*. University of Notre Dame, Notre Dame, USA.
- Lizardo, O. (2017). Improving cultural analysis: Considering personal culture in its declarative and nondeclarative modes. *American Sociological Review*, 82(1), 88-115.
- Lizardo, O., Sepulvado, B., Stoltz, D. S., & Taylor, M. A. (2019). What can cognitive neuroscience do for cultural sociology? *American Journal of Cultural Sociology*, 1-26.
- Mead, G. H. (1922). A behavioristic account of the significant symbol. *The Journal of Philosophy*, 19(6), 157-163.
- Merleau-Ponty, M. (1962). *Phenomenology of Perception*. (C. Smith, Trans.) New York. NY: Routledge (Original work published 1945).
- Merleau-Ponty, M. (1968). *The visible and the invisible: Followed by working notes*. Evanston: Northwestern University Press.
- Miles, A. (2015). The (re) genesis of values: Examining the importance of values for action. *American Sociological Review*, 80(4), 680-704.
- Niedenthal, P. M., Barsalou, L. W., Winkielman, P., Krauth-Gruber, S., & Ric, F. (2005). Embodiment in attitudes, social perception, and emotion. *Personality And Social Psychology Review*, 9(3), 184-211.
- Pitts-Taylor, V. (2014, December). Cautionary notes on navigating the neurocognitive turn. In *Sociological Forum* (Vol. 29, No. 4, pp. 995-1000).
- Raphael, M. W. (2017). *Cognitive Sociology*. In *Oxford Bibliographies Online in Sociology*. Vol. 187. New York: Oxford University Press. doi: 10.1093/obo/9780199756384-0187
- Rauscher, F. H., Krauss, R. M., & Chen, Y. (1996). Gesture, speech, and lexical access: The role of lexical movements in speech production. *Psychological Science*, 7(4), 226-231.
- Shore, B. (1998). *Culture in mind: Cognition, culture, and the problem of meaning*. London: Oxford University Press.
- Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review*, 4(2), 108-131.
- Srivastava, S. B., & Banaji, M. R. (2011). Culture, cognition, and collaborative networks in organizations. *American Sociological Review*, 76(2), 207-233.
- Strandell, J. (2017). *Culture-cognition interaction: Bridging cognitive science and cultural sociology*. Doctoral dissertation, University of Copenhagen.
- Strydom, P. (2019). Critical theory and cognitive sociology. *The Oxford Handbook of Cognitive Sociology*, 42.
- Trufanov, D. O. (2015). Cognitive Prospects in Sociology as a Representation of Social Rationality. *Journal of Siberian Federal University. Humanities & Social Sciences* 11(8), pp. 2692-2702

- Turner, M. (2001). *Cognitive dimensions of social science*. London: Oxford University Press on Demand.
- Turner, S. (2007). Social theory as a cognitive neuroscience. *European Journal of Social Theory*, 10(3), 357-374.
- Vaisey, S. (2009). Motivation and justification: A dual-process model of culture in action. *American Journal Of Sociology*, 114(6), 1675-1715.
- Vaisey, S., & Lizardo, O. (2010). Can cultural worldviews influence network composition? *Social Forces*, 88(4), 1595-1618.
- Van Gelder, N. M. (2005). The integration of body and mind. *Current Sociology*, 53(2), 323-354.
- Von Scheve, C. (2011). Sociology of neuroscience or neurosociology? In *Sociological reflections on the neurosciences* (pp. 255-278). NY: Emerald Group Publishing Limited.
- Weber, M. (1968). *Economy and society* (g. Roth & c. Wittich, eds.). New York: Bedminster.
- Wilson, E. O. (2012). *The social conquest of earth*. NY: WW Norton & Company.
- Wilson, M. (2002). Six views of embodied cognition. *Psychonomic Bulletin & Review*, 9(4), 625-636.
- Zerubavel, E. (1996, September). Lumping and splitting: Notes on social classification. In *Sociological Forum* (Vol. 11, No. 3, pp. 421-433). Kluwer Academic Publishers-Plenum Publishers.
- Zerubavel, E. (2007, June). Generally speaking: the logic and mechanics of social pattern analysis 1. In *Sociological Forum*, 22(2), pp. 131-145). Oxford, UK: Blackwell Publishing Ltd.
- Zuckerman, E. W. (2004). Towards the social reconstruction of an interdisciplinary turf war. *American Sociological Review*, 69(3), 458-465.