Book Review: Unthought: The Power of the Cognitive Unconscious

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Unthought: The Power of the Cognitive Unconscious,

by N. Katherine Hayles. Chicago, IL: University of Chicago Press. 2017. 272 pages.

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Especially since her 1999 book, ***How We Became Posthuman***, N. Katherine Hayles has been an influential voice in the exploration of the interrelations of humans and technological systems, and in particular, how we can understand these developments through literature. Reading her latest book, ***Unthought*** (2017), against the backdrop of continuing environmental breakdown, fracturing social inequalities, and the pervasive spread of computational media, illuminates key insights for management students and scholars. In particular, the contention that most cognitive activity occurs beyond the realms of human consciousness has significant implications for contemporary understandings of management learning and education, in which human consciousness is typically afforded analytical primacy.

Part 1 of ***Unthought*** is divided into four chapters elaborating what Hayles calls "non-conscious cognition," by linking this concept to contemporary understandings of consciousness and materialism. Chapter One sets out a theoretical framework that integrates consciousness, nonconscious cognition, and material processes into a perspective that enables us to think about biological and technical cognition together. The most significant contribution of this chapter is an expanded definition of cognition as "a process that interprets information within contexts that connect it with meaning" (p. 22). This expanded definition

enables a reconsideration of cognition that is distinct from anthropocentric notions of "thinking." By rearticulating cognition as a process connecting information with meaning in context, Hayles attempts to sever the entrenched link between human consciousness and cognition, by moving toward an understanding of cognition as a capricious activity that extends beyond the boundaries of human consciousness. Echoing Andy Clark's notion of "distributed mind" and Bateson's ecological notion of "mind," Hayles' view of cognition extends beyond the human body into the environment, which now becomes an active part of distributed cognitive loops. Specifically, Hayles emphasizes "nonconscious cognition," as a fundamental mode of cognitive activity upon which higher level cognition, typically implicated in human consciousness, is grounded. This fundamental nonconscious cognitive activity, Hayles argues, is not just the preserve of humans, but is also undertaken by simple biological life forms (e.g., plants) and complex technical systems. This includes networked infrastructure that can compute, send, and receive information at the speed of light; so fast in fact, that when, for instance, we look at our smart devices to navigate a city, we are incapable of noticing or following the myriad sensor data, database requests, and algorithmic processes involved in "getting us home." Such is our embeddedness in distributed cognitive systems that it is only when interruptions in cognition within the system occur (e.g., glitches, buffering, failures) that our embeddedness becomes visible to us at all. In formulating boundaries of agency in terms of cognition, Hayles circumvents the frequent exaltation of humans and human consciousness that remains pervasive in organizational inquiry over non-human agents.. This active role of nonconscious cognition furnishes Hayles with an alternative notion of agency, drawing a line between agents capable of choice, interpretation, and meaning (*cognizers* - both human and technical), and those that are not (*noncognizers* - typically material processes).

Chapter Two narrows the scope of analysis to human consciousness and cognition, elaborating the functions and costs of consciousness as well as the neurological processes of nonconscious cognition. Hayles goes on to describe the relationship between nonconscious cognition and consciousness, elucidating the means by which the cognitive nonconscious communicates with and supports consciousness. Most pertinently, in light of the current concern regarding the status of rationality in management learning and education, the chapter also provides an overview of the McDowell-Dreyfus debate (Dreyfus, 2013). This famous discussion between Dreyfus and McDowell was concerned with the pervasiveness of rationality in human experience. McDowell contends that intelligible human experience is pervaded by conceptual capacities: Dreyfus argues that human experience proceeds through "absorbed coping," which is fundamentally non-conceptual. In considering the debate, she points out that neither philosopher makes the distinction between conscious and nonconscious thought, nor do they highlight the relative limitations of conscious processing in terms of speed and range. However, a parallel is drawn between Dreyfus' (Heideggerian) notion of absorbed coping and the types of preconscious processing that she outlines in the first part of Chapter Two.

In presenting this debate, Hayles laments this lack of consideration of cognition by both participants, suggesting that the notion of nonconscious cognition (along with supporting empirical material) would have posed significant challenges to McDowell's core premise. Similarly, it is contended that, while Dreyfus' notion of "absorbed coping" bears some resemblance to nonconscious cognition, his argument could have been more powerful if he could have shown (as cognitive scientists do) that most human information processing is not conscious at all. Upon reflection, it is argued that the debate misfires because of the lack of consideration for differences in conscious and non-conscious information processing.

Here Hayles' work signals important implications for debates concerning rationality in management learning and education. If we accept that the majority of human information processing occurs outside of consciousness, then the question is not so much whether humans have the capacity for reason, but rather concerns the broader value of reason itself. Following Hayles, questions concerning rationality would focus on how reason interrelates with those (cognitive) processes that occur in distributed networks, servers, and algorithms. Most importantly, the question of rationality moves from a *quantitative* concern about the pervasiveness of rationality in human activity toward a *qualitative* concern for its value in human life. In consideration of learning, if most cognition is nonconscious, then most learning does not arise out of conscious reflection on critically justifiable concepts, as is common in management education pedagogies. Instead, most learning occurs below consciousness, where this nonconscious learning develops as sensitivities to ever more subtle perceptual patterns of similarity and difference are cultivated through experience, leading not to "changes in *mind* but changes in *world*" (p. 57). Hayles concludes this section by emphasising that the centrality of nonconscious cognition to human functioning is not a refutation of the utility of reason, but reflects the ground from which consciousness, and thereby reason, become possible.

Chapter Three positions nonconscious cognition in relation to "new materialisms," in particular, the Deleuzian- inflected work of Barad, Parisi, Parikka, Grosz, Braidotta, and Bennett. Hayles acknowledges the contributions of new materialisms, but she also points to the neglect of cognition in many material discourses. Hayles suggests this neglect gives rise to a performative contradiction whereby only beings with higher consciousness can read and understand materialist arguments, while the particular features enabled by cognition remain

unacknowledged. It also leads to a partial—and potentially coarse-grained accounts—of material agency, something she suggests her own version of the cognitive nonconscious would avoid. The final chapter in Part 1 demonstrates the costs of consciousness and the extent to which assumptions about the relationships between consciousness and rationality, meaning, authenticity, and the superiority of humankind break down when the primacy of consciousness is called into question. In providing this demonstration, Hayles presents a literary analysis of Tom McCarthy's "*Remainder"* and Peter Watts' "*Blindsight*."

Part Two of *Unthought* builds on the expanded notions of cognition in Part One, elaborating how distributed cognitive systems function to transform *cognizers* and their contexts, forming "cognitive assemblages" such as the aforementioned network and server infrastructures through which information flows in interaction with the brain and body. Chapter Five offers a distinction from actor network theory, which does acknowledge the role of non-human actors, but sees these as merely symmetrical, that is, as equal participants next to humans. Hayles retains a distinction between cognizers and noncognizers, which means that here all participants of the cognitive assemblage are not on the same plane. Hayles provides a number of examples of cognitive assemblages including city traffic infrastructure (ATSAC in LA), digital personal assistants, and somatic surveillance devices, technical devices that reflect externalized non-conscious cognition (e.g., Pentland's Sociometer and van der Helm's MeMachine). The latter part of the chapter reflects on the implications for ethical issues of technical autonomy and distributed agency.

Chapter Six elaborates further the notion of cognitive assemblages by focusing on a particular set of practices that enmesh human and technical cognition, namely, high-frequency derivates trading (HFT). A focus on this cognitive assemblage addresses issues of

information flows, choices, and interpretations, and also introduces the issue of temporality. Briefly, Hayles outlines how the complex temporalities inherent in derivates, combined with the novel temporalities of high-frequency trading (whereby trades are executed by algorithms in milliseconds), increase market instabilities and open up markets to feedback loops and self-amplifying dynamics that drive the system toward failure (exemplified by the "Flash Crash" of 2010). The issue of temporality is important here, because it outlines that the divergent temporal regimes of technical and human cognition open up a gap that precludes human participation in aspects of derivative trading. Drawing on the work of Donald McKenzie and colleagues, Hayles argues that the ascension of HFT has produced a machine–machine ecology, creating unregulated and inaccessible realms of technical agency. It is concluded that the cognitive assemblage framework provides a means of analysis that can help us understand the complex interpenetrations of human and technical cognition, providing us a base from which it is possible to develop constructive interventions and systemic transformations.

Whereas Chapters Five and Six focus on the human–technical interfaces, information flows, interpretations, and infused practices in the contexts of city infrastructure and finance capital, Chapter Seven turns to literary analysis to explore cognitive assemblages further. It presents an analysis of Colson Whitehead's *The Intuitionist*, showing how cognitive assemblages connect actors, phenomena, and sites; how they regulate information flows; and how they make choices at different levels of (human and technical) cognition. Hayles' interpretation connects the foundations of mathematics and computer science (Turing, Chaitin, & Gödel) with contemporary Whiteheadian scholars (Parisi, Fazi, & Hansen) and political theorists (Mark Fisher) to advance arguments about the limitations of nonconscious cognition for inducing systemic transformation. The chapter concludes by establishing the

case for the novelistic form as site of inquiry into the functioning and capacities of cognitive assemblages. Concluding in Chapter Eight, Hayles reflects on the misguided cybernetic assumption that feedback mechanisms provide the key to controlling the future. She argues that control of cognitive assemblages is a fantasy: "[C]ognition is too distributed, agency is exercised through too many actors and interactions are too recursive and complex for simple notions of control to obtain" (p. 203). Hayles finds comfort in the liberatory potential offered by the obsolesce of control, urging the development of deeper understandings of cognitive systems that may guide us in our search for *inflection points*, at which system dynamics may be pushed in new directions, guided by visions of justice, sustainability, and equality.

One could argue that the systemic instability illuminated by the COIVD-19 pandemic presents such an inflection point. Acknowledgement of the wider cognitive circuits in which human rationality is a constituent reveals the relative limitations of rational calculative action. With this in mind, we might proceed with a spirit of humility in educating the managers that will participate in the complex cognitive assemblages through which contemporary crises, such as the COIVD 19 pandemic, will be confronted. Management education in this mode would cultivate an awareness of the relative (in)significance of reason within distributed cognitive systems. At the same time, it would acknowledge that managers' uniquely human capacity for consciousness presents them with a distinctive ability to intervene in cognitive assemblages. In this regard, management education would be well advised to attend to the most fundamental humanistic concerns of social and economic responsibility: fairness and justice. The function of management learning would move away from the refinement of capabilities for rational calculation, and instead, look to cultivate a situational awareness of how and when reason should be brought to bear.

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