Book Review

Grasping the Moment by Christopher Baber & Richard McMaster. Boca Raton FL: Taylor & Francis, 2016. ISBN: 978-1-4724-7080-5. 263 pp.

Christopher Baber's and Richard McMaster's book, "Grasping the Moment" represents a comprehensive account of introducing distributed cognition as a novel theory of explaining the nature of sensemaking. Reviewed through the prism of decision-making by geographically distributed teams and through the application of artifacts, their work assumes amplified importance in the light of increased globalization and proliferation of information technologies. Through the use of real-life examples, derived from the observations of the contemporary military and civil emergency services, and the application of theories of naturalistic decision-making, the authors successfully argue that cognitive artifacts and technology are only effective when they are designed to support sensemaking of people who intend to use them. As a result, common ground, shared situational awareness, and inter-agency collaboration become critical in crafting the most effective response to a situation.

This book is of most value to the individuals who seek to make sense of sensemaking as a social activity which transpires differently in varying contexts. The authors take the reader on the journey from individual sensemaking to a multi-agency, multi-level sensemaking; from routine and simplistic situations to high-risk, high-volatility, and high-uncertainty events. In conclusion, the reader will learn about possible solutions to enhance the performance of diverse teams, even in most stressful situations.

Both authors possess excellent expertise in the fields of cognition and sensemaking, grounded in years of theoretical and field research. Dr. McMaster has accumulated deep knowledge of the management of routine and major incidents while studying U.K. military command and control and emergency services. Dr. Baber's research focus on human-computer interactions and sensemaking in uncertain and complex domains provides a solid foundation for the book's central proposition of bridging the gap among individual cognition, sensemaking with and through artifacts, and collaborative sensemaking.

Such a wealth of direct observations, gathered by the authors in the course of over 10 years, has resulted in an authentic link between the authors' theoretical propositions and real-life phenomena. Moreover, the study of multiple agencies contributes to a multidimensional view of sensemaking, transcending the individual and organizational cognition spaces.

The authors propose that the sensemaking activity is a holistic process of "technologically mediated and socially distributed cognitive activities" that seek to recognize the importance of information and share the outcomes within a network. Sensemaking as a process occurs in the three distinct phases, as postulated by the authors: (a) individual, (b) artifact-driven (e.g., police officers' hand-written notes, logs in the Incident Management System), and (c) collaborative.

The first stage, individual sensemaking, is grounded in the concepts of naturalistic decision-making and recognition-primed decision-making. The authors systematically review and analyze several existing theories on individual cognition to establish a detailed picture of what happens during this first phase. Deriving from the rich work of Klein and Crandall (1996) and their later works, the authors aptly define individual sensemaking as a rapid process of finding the most appropriate frame for a given situation with an ultimate goal of generating the most appropriate under the circumstances action. The authors argue that experts and novices overcome this challenge differently, a phenomenon that is explained by the difference between the frame-driven and frame-defined approaches to sensemaking. As a result, it is important to consider the role of environmental cues, e.g., artifacts and technology, as they execute a certain influence over the representation of a problem.

This consideration is thoroughly analyzed in the next phase of sensemaking, the artifact-driven stage, in which an individual's perception of the situation is complemented by external artifacts. The question that the authors seek to answer in this section of the book is concerned with the role of an artifact in sensemaking. The importance of the role has several implications, centered particularly on the limitations artifacts could impose on sensemaking. The requirement for artifacts to become enablers and supporters augments the authors' claim of the need to establish collaboration, commonly understood formal reporting, and adaptability during the collaborative stage of sensemaking.

According to the authors, the third phase of sensemaking, collaboration through distributed cognition, is the bridge between artifact-driven and social sensemaking, grounded in collaborative search after meaning. The authors argue that productive search is possible only under certain circumstances, i.e., when sense makers with common frames also share overlapping knowledge structures. Such a phenomenon, coupled with interactions among different agents of a network, would result in shared situational awareness, a necessary prerequisite of successful sensemaking. Furthermore, the authors argue that the absence of shared situational awareness, marked by a lack of collaboration and cohesion, could jeopardize the effectiveness of multi-agency activities, particularly in the case of a spontaneous task. Beyond that, diverse cognitive artifacts, adopted by one team but alien to another, could deepen the issue by introducing a sense of confusion.

Having established the need to define a collaborative sensemaking model for diverse teams, the authors transition to real-life examples which are derived from the command and control (C2) structures of the U.K. emergency

services. The choice of the examples is not accidental; the U. K. emergency services operate under autonomous C2 and, therefore, maintain very independent standard operating procedures (SOPs). Consequently, the sensemaking processes occurring in each organization tend to vary significantly, imposing challenges for resource coordination and allocation.

Throughout the book the authors aptly build a cohesive story of sensemaking in the context of routine and emergency situations. Particularly valuable is the structure of the analysis of distributed cognition through the application of diverse schools of thought. The systematic review of existing cognition theories and their application to the authors' novel proposition helps the reader to orient in the wealth of existing knowledge and make sense of the new theory. Indeed, the authors appear to chart the course toward the conclusion through a highly logical and coherent path of introducing the reader to both the theoretical and empirical foundations of their research.

The real-life examples, chosen by the authors, are also very effective in illustrating the central argument of the book; in the absence of common ground and shared situational awareness even the most well-intended actions by highly-trained agents are at risk for confusion, decision inertia, and even competition. These findings have several important implications which the reader may choose to consider.

One of the book's applications can be linked to the modern day threats of international terrorism, pandemics, and cyber-attacks and the need for international agencies to establish common procedures for unplanned responses to emergency situations. As the authors vividly demonstrate in their evaluation of the U.K. emergency services' C2, multi-agency responses are abundant in tensions, confusion, and competition. The additional complexity, introduced by different languages and cultures, will only intensify this division, something that no agency can afford in the face of a catastrophe. In consequence, the authors' argument for socio-technical alignment through intensive collaboration deserves further exploration.

Another application for distributed cognition can be found in the need for team-based training. As logical as it may appear, cross-functional team training is an emerging phenomenon in the U.S. In many cases, e.g., a response to a code in a hospital, respondents from multi-disciplinary departments have not had an opportunity to practice together as a team. The principles of distributed cognition dictate that individuals from different teams achieve collaboration through participation in routine tasks and thus be prepared to execute a more efficient response in the case of an emergency.

And lastly, with the emergence of the fourth industrial revolution and proliferation of artificial intelligence, distributed cognition can be applied to make sense of how cognitive artifacts, in this case "smart" cognitive artifacts, will shape the process of sensemaking in many aspects of our lives. The authors suggest that a necessary attribute of sensemaking is the assignment of relevant importance to new information. Smart cognitive artifacts, such as deep machine

learning and its output, will introduce yet another variable in the intricate process of sensemaking, particularly in the artifact-driven stage.

In conclusion, it is my opinion that the authors have successfully reached their goal of introducing distributed cognition as a valid and intriguing member of the family of sensemaking theories. The principles of the theory promise to initiate further research into the phases of sensemaking, especially in the context of our rapidly changing world.

REFERENCE

Klein G., & Crandall, B. (1996). *Recognition-primed decision strategies.* ARI Research Note 96-36, US Army Research Institute for the Behavioral and Social Sciences, Alexandria, VA. Fairborn, OH: Klein Associates.

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