Biological and Information Systems Approaches

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INTRODUCTION

Knowledge of past activities, discoveries, and events is applied by businesses to support everyday operations in much the same manner that human beings use their personal memories. But the true nature of organizational memory (OM) remains obscure, and information-systems practitioners have no clear definitional model of what they are working toward and have been unable to build a convincing organizational memory system (Olfman, 1998).

Having apparently reached a dead end, OM studies have been subsumed into knowledge management (KM) research as a subsidiary field. OM research is currently focused on the faculties of an organization that are capable of storing knowledge perceived or experienced beyond the duration of the actual event. Researchers and practitioners in the field use a definitional frameworks and models of organizational memory derived from flawed models of aggregate human behavior used in earlier sociological studies (Frost, 1942; Wilson, 1998). Models derived from earlier sociological studies rarely consider the exact nature and sources of commonplace thinking and memory use, and focus on highly visible and significant behavior and activities. Rapid theoretical and technological advances made in psychology research, brought about by the advent of sophisticated technological aids, have disparaged and largely disproved many of the naive systemic models of human cognition developed by earlier social scientists (Dominowski & Bourne, 1994; Sternberg, 1994) and were incorporated into information-systems sciences in the early years.

Before we consign the hope of deeper knowledge of business memory to the "too hard basket," it might be fruitful to examine an alternative path to understanding the nature of organizational memory and its application: The impersonal and generalized models of business activity (and cognitive operations) inherited from social sciences have not proved fertile, but the individual and personal models of memory and cognition found in biological and related sciences offer some promise in light of recent advances.

BACKGROUND

The human mind has always been, and always will be, an area of great interest to the layperson and scientist alike (Luria, 1973). The sheer volume, and constancy, of research attention it receives has inevitably resulted in a plethora of knowledge that enlightens us about various aspects of the human mind, but, on the other hand, it has tended to add a complexity to our view of human cognitive functioning. The modeling theory and conceptual analysis techniques, however, offer a means whereby the complexity and controversies of a topic can be isolated or marginalized in the interest of building a clear overall picture of a concept or phenomenon (Dubin, 1969). This can be particularly valuable in a field of study like human cognition where scholarly research has branched into many unreconciled and introverted schools of thought.

While many gaps still exist in our knowledge of exactly how humans think and remember (Baddeley, 1998), and the mind is shrouded in scientific (and nonscientific) controversy and beliefs, many incontrovertible aspects and fundamental elements of biological memory offer a path to a less controversial understanding of what organizational memory might be.

Biological studies offer some clues as to the purpose memory has been put to and the structure of memory elements (Carlson, 1994). Anthropology offers an indication of how simple behaviors dependent on memory have evolved over time into sophisticated activities of modern man (Hallpike, 1979). Studies of the psychology of memory provide an increasingly vivid breakdown of what happens when people remember (Carter, 1998). Specialist research into cognitive subelements such as consciousness (Dennett, 1991),

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emotion (Dimasio, 2000), language (Jackendoff, 1992), and perception (Sowa, 1984) offer insight into the essential nature of human ideas and at the same time provide a means for isolating many of the complexities involved in understanding the relationship between thinking and memory. Some of the more interesting ideas that can be gleaned from these research fields in respect to memory phenomena, and which could stabilize and enrich our current model of organization-centered memory, are presented here.

A BIOLOGICAL MODEL OF MEMORY

Organizational Self

Deutsch's (1966) central idea in his influential model of organizational cognition is an "organizational self," which, like a personal human self, has a central role in focusing and directing all organizational behavior. This idea was studiously avoided in subsequent OM research (Stein, 1995) probably because such a concept is problematic in the context of the shifting (and often private) constitutional and motivational elements that focus and direct modern collective business behavior: Deutsch's example was a formally constituted government authority whose purpose and goals were published and generally unchanging.

KM and OM researchers have recognized the efficacy of personalizing organizational knowledge (e.g., Spender, 1995; Tuomi, 1999), but not the power of one integral element—a person—as an organizing device. Dimasio's (2000) work describes how an individual biological body informs all that organism's cognitive function and provides a single point of reference for all its cognitive artifacts.

The critical nature of an executive intervention in the component processes of memory might be a fruitful area for further organizational memory systems studies in view of Dimasio's (2000) work. An executive that guides organizational behavior is not a new concept (see Corbett, 1997; Middleton, 2002), but its potential as a unifying element in organizational cognitive behavior is not fully appreciated.

Ubiquity of Memory Application in Everyday Operations

Memory function is a faculty inherited by humans from organisms of a much lower order of complexity (Monod, 1971/1997), and the advanced nature of human cognitive achievement owes much more to an ability to consciously hold more than one idea at a time (which lower organisms seem unable to do) than it does to any sophistication in the fundamental cognitive equipment used to perceive and remember (Dennett, 1991).

Human memory supports seemingly simple operations as well as complex ones, and in order for an organism to operate independently from moment to moment and across space, such services must somehow be ever present. What we pursue in organizational memory studies is not necessarily a complex and mysterious set of functions and artifacts, but rather a collection of well-tested and refined things that interact seamlessly with one another to deliberately preserve past experiences and make them available to support subsequent and increasingly sophisticated actions. Pilot studies carried out by the authors to test a biological model of memory in an organizational setting suggest that memory of past organizational events may be applied to many seemingly minor, but possibly essential, organizational activities given little attention in the current OM and KM research literature.

OM practitioners recognize the need to support access to organizational memory via e-mail and the Internet (Schwartz, Divitini, & Brasethvik, 2000), but neither the support nor the process is recognized as worthy of attention at an organizational policy level. Often we identify the office culture, traditional business practices, conscientious employees, and common sense as coordinators and directors of a relationship between organizational behavior and the organization's best interests without investigating organizational memory, which underpins them. Many seemingly inconsequential business behaviors are the foundational support for ensuring the best interests of the organization in critical day-to-day operations.

Biological memory offers constant and continual support for its owners' endeavors; similar support might be offered to a wider variety of organizational memory applications if they were recognized as such.

Memory Ownership

The unifying element in organic memory systems is the self: a personal prototype that provides an impetus and steers the various component operations, giving them a fundamental associative fulcrum (Dimasio, 2000)—a fulcrum that might provide the key to the efficiency and power we admire in memory systems.

With this in mind, it is easier to appreciate the significance of the personal nature of memory. Each memory system is inextricably bound to an individual owner with its own individual history, individual interests, individual desires, and individual goals, preserving

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