



PERSPECTIVE

Neo-Carnegie: The Carnegie School's Past, Present, and Reconstructing for the Future

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Cyert and March's (1963) *A Behavioral Theory of the Firm* and the broader Carnegie School form critical theoretical underpinnings for modern organization studies. Despite its impact, however, we suggest that researchers who rely on the Carnegie School have progressively lost touch with its defining commitment to a decision-centered view of organizations. Decision making has given way to learning, routines, and an increased focus on change and adaptation; the organizational level of analysis, although frequently invoked, has been largely supplanted by either a more micro or a more macro focus. In this paper, we argue for restoring the School's original mission and perspective. Our proposal for how this overarching goal can be achieved encompasses three central points. First, we believe the School needs to resurrect a few select ideas that, despite their fundamental importance, have been neglected over time. Second, we believe there is a need for greater paradigmatic closure amongst the School's central theoretical pillars. Loose coupling among such pillars might keep key insights on organizational decision making from emerging. Finally, there is the need to incorporate major developments that have been generated post-Carnegie School, both within organization theory and in the behavioral and social sciences more broadly. In particular, we point to the shift to more open systems perspectives on organizations, the conceptions of organizations being embedded in larger social contexts, and recent developments in the study of individual cognition.

Key words: Carnegie School; decision making; bounded rationality; loose coupling

A Behavioral Theory of the Firm (Cyert and March 1963), the subject of celebration in this special issue, together with March and Simon's (1958) *Organizations* and Simon's (1947) *Administrative Behavior* provide a distinctive perspective on organization studies and the intellectual foundations for what has come to be termed the "Carnegie School." The School's defining mission and identity were strongly committed to three premises: organizations as the ultimate object of study, decision making as the privileged channel for studying organizations, and behavioral plausibility as a core principle underlying theory building. Although these defining premises are simple, and perhaps because they are so, the School as a whole was not dogmatic in its theoretical manifestations. The three foundational works (Simon

1947, March and Simon 1958, Cyert and March 1963) form more of an intellectual collage than they do a tightly integrated theoretical edifice.

The theory and research developed from the Carnegie School has been even more pluralistic, yielding a wealth of insight.¹ Cyert and March (1963) and the Carnegie School more generally have been tremendously influential, with the three foundational volumes receiving approximately 10,000 separate journal citations from 1955 to the present (Table 1). As can be seen in Table 2, which lists the most heavily cited work that in turn cites the Carnegie volumes, insights from the Carnegie School have been incorporated into a variety of theoretical approaches to organizations not traditionally associated with the Carnegie School, including agency

Table 1 Citations to Carnegie School Classics, Web of Science, 1955–May 16, 2006

<i>Administrative Behavior</i> , Simon (All Editions)	2,998
<i>Organizations</i> , March and Simon (All Editions)	4,796
<i>A Behavioral Theory of the Firm</i> , Cyert and March (All Editions)	3,939
Citations to any of the three books	9,671
Citations to <i>Administrative Behavior</i> and <i>Organizations</i>	665
Citations to <i>Administrative Behavior</i> and <i>A Behavioral Theory of the Firm</i>	546
Citation to <i>Organizations</i> and <i>A Behavioral Theory of the Firm</i>	1,138
Citations to all three books	287

theory, economic sociology, institutional theory, population ecology, strategic choice, and contingency theory. The School's creation of a constellation of closely related ideas rather than a narrow paradigm with strong closure properties has certainly helped it to flower and spread. This lack of closure has enhanced the adaptability of the Schools' ideas, thus enabling some of its basic premises to become embodied as foundational principles in several research programs in organizational studies, sociology, economics, and strategy. The flip side of this same phenomenon is that the Carnegie School's influence and its constellation of ideas have been, however, broad rather than deep. Of the citations to the core Carnegie School books, only 3% cite all three volumes (Table 1), suggesting that scholars selectively attend to some Carnegie School tenets, while ignoring other aspects.

The School's individual principles are still very much alive today, albeit in a selective and highly fragmented form. A striking feature in the subsequent research that has built on, or at least drawn from, these foundational works is that the centrality of both organizations and decision making has been, to a great extent, lost. As can be seen from Table 2, in the late 1970s and early 1980s, work that cited the Carnegie School focused increasingly on the environment and less on organizations. During the late 1980s and 1990s, organizational learning, change, and adaptation became more central topics. Although

Table 2 Mostly Highly Cited Articles that Cite Any of the Carnegie School Volumes, Web of Science, 1955–May 13, 2006

No.		Times cited
1	Jensen and Meckling (1976)	3,400
2	Granovetter (1985)	2,098
3	DiMaggio and Powell (1983)	2,021
4	Meyer and Rowan (1977)	1,818
5	Cohen and Levinthal (1990)	1,369
6	Lindblom (1959)	1,138
7	Hannan and Freeman (1977)	1,043
8	Fama (1980)	956
9	Mowday, Steers, and Porter (1979)	954
10	Vernon (1966)	951

this latter research retains a core interest in the organizational level of analysis, it is considerably less focused on linking individuals' interests and cognitions to organizations' actions and decisions. Indeed, in recent years the organizations field as a whole has become decidedly less organizational in its focus. Arguably, the most important developments in organizational theory in the last two decades have corresponded to the increasing understanding of and theorizing about the environment and broader social context in which organizations operate. In this respect, "macro" organizational theory has begun to parallel, in some fashion, the neoclassical theory of the firm in which the "firm" is a relatively vacuous structure that serves as the elementary unit in a theory of markets.²

Even work on organizational learning, despite having clear roots in the Carnegie School, has shifted away from issues of decision making and, even more pronouncedly, an organizational level of analysis. The learning literature has focused attention on a subset of the basic pillars of the Carnegie School—in particular, the role of search and aspiration levels, and the importance of routine-based behavior. Much of this work, building on the work of Nelson and Winter (1982), takes the routine to be the basic unit of analysis, thereby encapsulating the notion of bounded rationality and standard operating procedures, which serve as conceptual building blocks of the Carnegie School. While Nelson and Winter's (1982) use of the routine as a basic unit of analysis was effective in establishing an evolutionary economic perspective of industry dynamics, it moved the focus of attention away from decision making in organizations.

In response to this lack of focus on organizations and decision making, we propose a neo-Carnegie perspective. We have three basic objectives in mind. First, we wish to refocus attention on the full theoretical apparatus of the Carnegie School, as some of its elements have been largely lost. Decision making has progressively given way to learning and routines, as the focus has turned away from internal organizational structures and processes that influence choices and outcomes. The organizational level of analysis, although frequently invoked, has generally been supplanted by either a more micro or a more macro focus. Hierarchy, communication structures, and conflict, all critical elements of the Carnegie School's view of organizations, need to be reintegrated into the foundations.

Second, we wish to recognize select developments both within and outside of the School in the decades following these three works. Within the School, we believe the view of organizations as loosely coupled systems, introduced in later writings in this tradition (Cohen et al. 1972, March and Olsen 1976), needs to be examined further. Outside of the School's traditional boundaries, open systems and a socially embedded view of action have become increasingly prominent

in organizational sociology; in addition, there have been substantial changes in conceptions of individual behavior in psychological research. The Carnegie School was founded on the belief that to explain organizations, it was necessary to have an integrative understanding of how psychology, economics, sociology, and political science all shape organizational decisions and outcomes. The School promised a truly interdisciplinary science of organizations, founded on disciplinary foundations, yet transcending disciplinary boundaries. We seek to restore this promise.

Finally, we wish to explore, and challenge the field to explore, the linkages among the fundamental elements in this theoretical structure, and among these elements and the subsequent developments whose incorporation we are proposing. The challenge of integration is only partially addressed in the original work, and it has gradually been forgotten as the Carnegie School has spawned and been assimilated by a diverse set of literatures, which selectively adopt some its core features while ignoring others. We believe weak links among the School's original pillars and later developments might keep key insights from emerging; furthermore, the virtues of integrating the School's insights into a fuller paradigmatic form become more marked as we incorporate subsequent research germane to understanding decision making in organizations.

In sum, we propose that scholars who are interested in the reality of organizations and who believe in the core principles of the Carnegie School should work both to enrich the School's theoretical foundations, by rediscovering neglected elements of the School and incorporating more contemporary understandings, and to give the School a stronger paradigmatic form. Our claim is simple: by resurrecting some of the Carnegie School's forgotten, but once central, ideas and integrating them with more recent developments, it is possible to lay the foundations for a renewed *behaviorally plausible, decision-centered perspective on organizations* that can address some questions central to contemporary organization studies and strategy research.

This essay is organized as follows. First, we revisit the Carnegie School to identify what constitutes its central tenets. With that goal in mind, we identify four pillars of the Carnegie School: bounded rationality, the role of specialized decision-making structures, the role of conflicts of interest and cooperation among organizational members, and routine-based behavior and learning. We discuss contradictions within the original Carnegie School as we develop the pillars, consider how these pillars have been used or forgotten in contemporary research, and argue why we need tighter integration among them. Further, we explore how it is possible to sustain the basic conception of organizations as characterized by the Carnegie School, while incorporating contemporary understandings of how organizations are embedded in

broader social contexts, how individual action is situated, and the nature of individual cognition. We conclude by speculating about how some important organizational phenomena, specifically organizational change and adaptation, the sources of heterogeneity in firm performance, and the challenges of individual agency and organizational control, might be viewed differently through the lens of a neo-Carnegie School.

The Carnegie School: Assumptions and Theoretical Pillars

As mentioned above, we view the School's defining mission and identity as being manifested in three foundational premises. First, Simon (1947), March and Simon (1958), and Cyert and March (1963) all view organizations as the ultimate object of study. In *Administrative Behavior* (Simon 1947), the organizational influences on individuals are paramount, manifested through the role of organizational authority, communication, identification, and inducements. In *Organizations* (March and Simon 1958), the significance of organizations as a social institution is highlighted. And as Cyert and March (1963, p. 1) stated:

Our articles of faith are simple. We believe that, in order to understand contemporary economic decision making, we need to supplement the study of market factors with an examination of the internal operation of the firm—to study the effects of organizational structure and conventional practice on the development of goals, the formation of expectations and the execution of choices.

For the Carnegie School, organizations are social institutions *sui generis*, shaped by, but not reducible to, human behavior, social relations, or market and nonmarket environments. As characterized by March and Simon (1993, p. 2) in their introduction to the second edition of *Organizations*:

Organizations are systems of coordinated action among individuals and groups whose preferences, information, interests, or knowledge differ. Organization theories describe the delicate conversion of conflict into cooperation, the mobilization of resources, and the coordination of effort that facilitate the joint survival of an organization and its members.

The focus on the coordination of individual and group action, and the cross-level linkages among individuals, groups, organizations, and the environments that shape their joint survival distinguish organizations from other social systems and institutions.

Second, decision making is the focal point of the School's perspective on organizations, given its centrality to organizational actions and outcomes. Indeed, the opening sentences of Simon's (1943) dissertation (later *Administrative Behavior*) outline reads:

Deciding is a fundamental element in any purposive activity. Making decisions about both substantive and

procedural matters is one of the most important tasks of the administrator. This dissertation will examine the role of decision-making in the administrative process.

This focus on decision making remains throughout the Carnegie School's development, as suggested by Cyert and March's (1963, p. 1) preface: "This book is about the business firm and the way it makes decisions." For the Carnegie School, to explain organizations means to explain how organizations make decisions.

Third, a faith in the virtues of behavioral realism in theory-building is perhaps the School's most primitive, if least transparent, trait, and this faith has remained salient throughout the School's history. *Administrative Behavior* built upon the descriptive and normative analysis of real-world organizations provided by Barnard (1938), and adds a theoretical layer of psychological and sociological foundations to explain organizational decisions, actions, and outcomes. Contrary to Friedman's (1953) characterization of positive economics, where behavioral plausibility is eschewed for predictive validity, the Carnegie School selects its theoretical assumptions for both their validity and explanatory power. Indeed, the School incorporates important insights from then-current theories of psychology into individual behavior and from political science and sociology for understanding of problems of collective action, particularly in the face of competing interests. At the individual level, psychological constraints, especially cognitive ones, are paramount. At the organizational level, a key concern of the Carnegie School is the relationship between individual and organizational goals, and one of the School's key assumptions is that organizations generate a set of economic, political, and social mechanisms to reconcile individual and organizational goals, however imperfectly.

These premises became embodied in a constellation of foundational ideas or pillars that form the basis for the School's conceptions of organizational decision making. Each pillar, which we flesh out below, sheds light on particular aspects of the complex reality of organizational decision making.

Bounded Rationality

The School achieved a fundamental breakthrough in studying the reality of organizational decision making by both setting aside presumptions of perfect rationality inherent in economic theory and incorporating more realistic behavioral and psychological assumptions into a new theory of choice (cf. Augier 2001).³ An important impulse of these commitments, which are particularly visible in Simon's early work (1955, 1956), was the School's opposition to the model of man and firm behavior that was emerging in contemporary economics.⁴ As March (1978, p. 859) noted,

Simon added the idea that the list of constraints on choice should include not only external factors in the environment but also some properties of human beings

as processors of information and problem solvers. He called attention to human limits on memory and computing power, viewing them as obvious restrictions on full rationality.

From the limits of human rationality, one of the Carnegie School's foundational pillars—bounded rationality—was derived.

In the early formulation of bounded rationality (Simon 1947), the limits to rationality were derived from limited individual knowledge, selective attention as guided by the environment of decision making, and incomplete preferences. Over time, this more general formulation of bounded rationality became encapsulated in the more simplified, but more powerful model of *satisficing*. Seeking to directly challenge economic theory, Simon (1955, 1956) adopted the same conceptual categories as did the models of rational choice that were becoming dominant in economics. Simon argued that choice behavior could not accurately be characterized as the optimization of a well specified choice set. He proposed that alternatives need not be prespecified, but are typically discovered through a process of search. Decision makers, in turn, do not optimize over this latent choice set, but rather stop searching when they identify an alternative that satisfies their various performance criteria. Hence, decision makers were viewed as satisficing. Search for alternatives and minimal aspiration levels in turn became the foundational assumptions for this alternative conception of individual and organizational behavior.

Satisficing served as the foundation for the last two chapters of March and Simon (1958), and of Cyert and March (1963). While the School's initial work treated minimal performance criteria as fixed and exogenous, its subsequent works, particularly Cyert and March (1963), explored the dynamics of these aspiration levels. The study of these dynamics continues to be a fertile area of organizations studies (cf. Greve 2003). Yet the broader model of bounded rationality contained in Simon (1947), with its links to knowledge, memory, attention, and motivation, is less present in contemporary research.

Standardized Operating Procedures. The notion of bounded rationality has also spawned a radically different image of choice and behavior. Indeed, the idea most commonly evoked today when the Carnegie School is cited is that organizations are driven by routine-based behavior. However, the concept of routine, as separable from decision making, was not part of the original Carnegie School foundation, but an outgrowth of Nelson and Winter's (1982) influential reinterpretation.

Although initial traces of the argument for routine-based behavior within the Carnegie School can be found in Simon's discussion of individual habit (1997 [1947], pp. 99–100) and of the function of standardized practices and expectations within organizations (1997 [1947], pp. 110–117), the focus of the Carnegie School is not

on routines per se, but on the standardized practices, programs, and operating procedures that serve to economize on bounded rationality. These notions are further developed in March and Simon (1958, p. 141), who observe that “an environmental stimulus may evoke immediately from the organization a highly complex and organized set of responses. Such a set of responses we call a performance program, simply a program.” They go on to suggest that much of the behavior we observe in organizations can be explained by the activation of such programs. A standard program has emerged when an organization no longer searches when confronted with a problem or some other stimulus, but rather activates a fixed response to the stimulus.⁵ Similarly, Cyert and March (1963) rely on standard operating procedures and decision rules as central elements in a theory of organizational choice and search. For the Carnegie School, standard practices, programs, and procedures serve to stabilize expectations, perceptions of the environment, the range of alternatives considered, and decision rules and premises.

Specialized Decision-Making Structures

A third foundational pillar of the Carnegie School recognizes that organizations are collective entities with some form of internal decision making and communication structure. Arguably, the most fundamental element of structure is the presence of hierarchical authority (Barnard 1938, Weber 1947). Simon presents an image of organizational hierarchy as an instrument of organizational intelligence—because of organizational hierarchy, problems that exceed individual limitations can be decomposed, thereby facilitating their solution. In this context, the decision premises of higher-level actors help guide and inform the actions of lower-level decision makers. Simon (1947, p. 11) is sensitive to the issue of cooperation and suggests, building on Barnard’s (1938) earlier work, that authority entails others’ willingness to accept an actor’s decision without questioning its premises. For Simon (1947), hierarchy of authority results in the vertical specialization of decision making, with the outputs of decisions higher in the hierarchy constituting the decision premises of decision-making units lower in the organization.

A central theme of the Carnegie School is the role of information processing at both the individual level and the collective organizational level. Although decision premises are viewed by Simon (1947) as largely flowing downward in an organizational hierarchy, information also flows in the opposite direction. As Cyert and March note (1963, p. 85), decision makers generally “base their actions on estimates formulated at other points in the organization and transmitted to them in the form of communications.” Subunits within the organization generally specialize in a particular domain and take primary responsibility for information flows germane to

their area of focus. This specialization of information processing and subunit decision making is a common foundation to all three Carnegie School volumes. Each volume differs, however, in how much it emphasizes hierarchy and authority in structuring decision making: Simon (1947) and, to a lesser extent, March and Simon (1958) highlight a hierarchical chain of decision making, whereas Cyert and March (1963) mostly ignore it.

Yet, the presence of a specialized decision-making structure need not correspond to a stylized image of an organizational pyramid with a central authority residing at the peak and responsibility cascading downward from that point. A more subtle element of structure involves the structure of attention amongst actors (March and Olsen 1976). How is the time and energy of both individuals and the broader organization allocated across the broad range of possible issues that may be germane to the organization at any given time? As Simon (1947, pp. 100–101) notes, “organizations and institutions provide the general stimuli and attention-directors that channelize the behaviors of the members of the group, and that provide those members with the intermediate objectives that stimulate action.” As argued by Cyert and March (1963), the allocation of attention can attenuate conflict amongst competing goals. To the extent that divergent goals are a consequence of a decentralized organizational structure, one element of structure, how tasks and responsibilities are allocated, complements another element of structure, that of attention. Communication flows among organizational subunits also link decentralized attention among organizational components (Simon 1947, March and Simon 1958).

Conflicting Interests and Cooperation

A fourth basic pillar for the Carnegie School is the view that organizations bring together a set of participants with conflicting interests, goals, and knowledge to cooperate in collective action. According to the Carnegie perspective, cooperation among conflicting parties is a key achievement of organizations, rather than an underlying assumption of individual or collective behavior. A basic model for achieving cooperation is the inducement-contribution model of participation that derives from Barnard (1938) and runs through Simon (1947), March and Simon (1958), and Cyert and March (1963). This model anticipates subsequent contract models of organization by viewing organizational members as agreeing to participate so long as the perceived value of the inducements they receive from the organization exceeds the perceived opportunity costs of their contributions. Inducements are seen here as both material and nonmaterial, including intrinsic motivation as well as other psychological and social benefits accrued from organizational membership.

Given uncertainty and bounded rationality, however, the implicit contract between the organization and its

members is incomplete. In *Administrative Behavior* (Simon 1947), the assignment of individuals to organizational roles, the prevalence of authority relationships, and organizational identification and the associated notion of docility serve as additional mechanisms for ameliorating conflict and for attaining cooperation among organizational members. For Simon (1947) and March and Simon (1958), however, identification may itself generate subgoal conflict and differentiation, as different organizational subunits generate subunit identification, and individuals in organizations come to identify with the values of their respective subunits rather than with the organization as a whole. Consequently, with the specialization of decision making and information processing inherent in organization, as per the previous pillar, conflicts within organizations are never fully resolved.

With March's contribution to the Carnegie School, the roles of organizational conflict, bargaining, and coalitional behavior take increased importance. The problem of multiple interests and goals is not resolved by a set of side payments to various actors in that divergent interests do not become fully aligned, but rather, at least temporarily, a viable coalition is established (Cyert and March 1963). Furthermore, formal models of bargaining games are notoriously indeterminate; one typically identifies the core or a set of possible solutions. March and Simon (1958) suggest that coalition formation may reflect a degree of path dependence, because the coalitions that emerge may result from the incremental adaptation of individual membership from the prior set of coalitions. Further, the indeterminacy of solutions in bargaining games may be resolved by the saliency of alternative solutions, such as those attributed by a sense of fairness or some natural division (Schelling 1960). In Cyert and March (1963), conflicts between the goals of organizational members are endemic and organizations are viewed as political coalitions (March 1962), with a quasi-resolution of conflict between organizational participants and organizational leaders brokering between competing interest groups.

Why Neo-Carnegie?

Above, we argue that the central motivation behind the call for the neo-Carnegie is to lay the foundations for a renewed *behaviorally plausible, decision-centered* perspective on organizations. We do that both by bringing back into saliency elements of this tradition that have been relatively ignored by subsequent researchers, and by embracing some of the important theoretical developments that have occurred both within and outside of the Carnegie School.

Forgotten Pillars

The four foundational pillars together provide the Carnegie School, with its unique, distinctive perspective on organizations. Although bounded rationality and

standardized operating procedures (and, more recently, learning) are arguably the more distinctive contributions of the School, the other two pillars are necessary to accomplish its goals of behavioral plausibility and focus on organizational decision making. These last two foundational constructs—the role and importance of specialized decision-making structures and conflicting interests and cooperation inherent in organizational activity—have been significantly lost. Although attention to specialized decision-making structures was incorporated into contingency theory perspectives on organizations (cf. Lawrence and Lorsch 1967), contingency theory has become a less active field of research. The role of conflicting interests and cooperation was partially incorporated into agency theory (Jensen and Meckling 1976), resource dependence theory (Pfeffer and Salancik 1978), and to a lesser extent, upper echelons perspectives (Hambrick and Mason 1984). Yet, although these theories remain active areas of research, their treatments of conflicting interests and cooperation depart in fundamental ways from the Carnegie School view. Further, although traces of the Carnegie School's insights remain in contemporary research in these areas, perspectives from contract theory in economics and sociological research on networks have become more dominant.

It is risky for organizational studies to lose touch with these foundational constructs. Any conception of an organization that omits a notion of individuals who are situated in distinct places in some structural arrangement will be hard pressed to engage much of what we commonly experience in organizational life. While any ensuing theoretical conceptions will quite appropriately be low-dimensional representations of the complexities of the underlying phenomena, some variant of the law of requisite variety must apply. If we think individual choice is relevant and that these individuals play distinct roles in an organizational structure, then we need to incorporate some shadows of this belief in our theories and formal models. The original conception of organizations in the Carnegie School did in fact provide such a theoretical apparatus.

Theoretical Developments

Another basis for “neo” is the revisiting of some of these foundational elements to possibly recast individual elements or to supplement these foundations. This form of “neo” may strike some disciples of the Carnegie School as heretical. We propose a “reconstructionist” sensibility, which shares with orthodoxy a reverence and respect for the original source texts but attempts to understand these original source materials in a contemporary light. One simple operationalization of this notion is to imagine what the original authors would have written if they were writing in the contemporary period.

In this spirit, it is worth considering what developments have ensued in organizational studies and related

social science domains in recent decades that might usefully be internalized in a neo-Carnegie School. We highlight four basic classes of considerations: the focus on routines and learning in recent work that builds on the Carnegie School's premises; the focus on loose coupling in work on organizations and decision making that followed the initial pioneering efforts; the micro-foundations around our characterization of individual behavior; and the open systems perspectives that have pervaded much of contemporary organizational theory, especially the embedding of organizations in their broader environment.

Routines and Learning. As we noted above, much of the work that builds on the Carnegie School has taken the routine as the basic unit of analysis. This point is perhaps most clearly articulated by Nelson and Winter (1982) in their development of evolutionary economics, but is implicit in an even larger body of research. In this respect, the notion of organizational routine has "encapsulated" the idea of bounded rationality. In much of this work, there is no role of individual choice or cognition. Even when individual agency is absent, however, routines are viewed as adapting in response to performance feedback and subsequent search processes. Actions that result in outcomes that are viewed as successful (i.e., above the organization's aspiration level) are positively reinforced, whereas actions that led to performance outcomes that are viewed as unsuccessful (i.e., below the organization's aspiration level) trigger search for modifications in the existing routine. Thus, following the basic notion of bounded rationality, the full set of latent alternatives is not considered. The status quo has a particular claim on action, and movements away from the status quo will be triggered by a perception of performance failure. This basic conception underlies a large and active body of research on organizational learning. The basic dynamics of such a system have been laid out (Levitt and March 1988), together with some of its pathologies (March 1991, Levinthal and March 1993), the dynamics of aspirations (Greve 2002), and the implications for heterogeneity in organizational populations (Levinthal 1997), among other sets of findings.

The saliency of routines and learning in contemporary research that builds on the Carnegie School has represented a major shift of attention away from decision making. We believe this shift incorporates important advances not fully developed in the original Carnegie School formulations. First, much decision making does not follow the logic that underlies the School's traditional model of intendedly rational behavior. Decision making is frequently rule based (Cyert and March 1963, March 1991), and its underlying psychology has much in common with the habit-based psychology that is typical of routinized behavior. An important objective of a neo-Carnegie agenda is a fuller characterization of the psychology of decision making, one that encompasses and

integrates both thought-driven and habit-driven images of decision making. March (2006) describes the pursuit of organizational intelligence in terms of the coexistence of a model-based rational logic of anticipation, and a feedback-based, habit-centered logic of learning. Despite the importance of both logics, efforts aimed to reconcile them are still ongoing (Gavetti and Levinthal 2000). Second, given their status-quo bias, routines represent a fundamental constraint on choice (Winter 1987), and this source of organizational inertia needs to be more properly represented in our models of decision making. The Carnegie School, particularly in its early manifestations, suggests a plasticity of organizations (March 1981) that is not fully consistent with either a routine-based view of organizational action or parallel developments on structural inertia (Hannan and Freeman 1977). Reconciling model-based logics of anticipation and feedback-based logics of learning will help obtain more realistic images of organizational inertia (Gavetti and Rivkin 2007).

Loose Coupling. A key development in organizational theory post-Carnegie has been the emphasis on loose coupling in theories of organizational decision making (March and Olsen 1976, Weick 1976). After the publication of the work of Cyert and March (1963), the Carnegie School, as a collection of close collaborators in organization theory, lost its center of gravity. Simon's interests gravitated toward cognitive psychology and artificial intelligence, Cyert became Dean of the business school, and March departed for the new school of Social Sciences at University of California, Irvine, also to become a Dean. Influenced by March's experience as Dean at Irvine, an important post-Carnegie School development emerged, with the development of the garbage-can model of decision making (Cohen et al. 1972), perhaps the most significant departure from the original Carnegie School formulations. Radically expanding on Cyert and March's (1963) notion that organizations do not have fully consistent goals, the garbage-can model developed the notion of loose coupling between organizational problems, participants, solutions, and decisions. Actions in organization become decoupled from the goals of intention or any particular actor or set of actors, and are better understood, as reflecting timing and context, as shaped by the organization's structures of attention (March and Olsen 1976).

Although March and collaborators developed the construct of loose coupling in the context of decision-making process, the notion of loose coupling has been influential in other theories of organization, including neoinstitutional theory (Meyer and Rowan 1977), and theories of organizational and managerial cognition (cf. Weick 1979) in which decision making and its consequences are argued to be loosely coupled to broader organizational processes. Given the loose coupling between intentions and decisions, and between decisions and subsequent organizational actions, arguments

regarding the importance of loose coupling in organizations (cf. Weick 1995) have tended to deemphasize the importance of decision making for organizations, a central tenet of the Carnegie School. Loose coupling rather than being viewed as a central component of organizational decision making is taken instead as a rationale to ignore both the importance of goals and intended rationality in organizations, as well as the consequences of organizational decision making itself.

A neo-Carnegie perspective on organizations seeks to redress this unfortunate (to us) development. Loose coupling can be a source of variation, experimentation, and change in organization and, as part of the “technology of foolishness,” a source of organizational intelligence (March 1976). Unlike the work of Simon (1947), which assumed tight coupling among organizational subunits with a well developed hierarchy of decisions, a neo-Carnegie perspective views the degree of coupling among organizational decisions as a critical variable in organizations. In a neo-Carnegie view, loose coupling implies a situated rationality in organizational decision making, accounting for both the intended rationality of organizational actors in a particular situation or context, yet with selective retention of the individual decisions made at any time within organizations (Ocasio and Joseph 2005).

Core Developments in Psychology. The Carnegie School tradition in organization theory, combining a concern with cognitive limits on human decision making and behavioral perspectives on learning, was built on then-contemporary understandings of human behavior. Simon himself was a major contributor to the cognitive revolution in psychology, which began in the 1950s. The behavioral sciences have not retreated from Simon’s basic assault on the neoclassical economic characterization of economic agents. Indeed, that initial assault has been amplified with the extensive research findings of behavioral decision theory, with increased and continuing influence on management theory and, more recently, on economics and finance.

We propose that the Carnegie School’s core principle of behavioral plausibility can be further enhanced if it incorporates developments in psychology and behavioral sciences into a neo-Carnegie perspective on organizations. Although much critical progress has been made in many areas, including recent developments in neuroscience, here we highlight three areas of potential importance to understanding organizational decisions, actions, and outcomes: (1) mental representations, (2) situated action and cognition, and (3) emotional behavior.

Although acknowledging the importance of classifications schemes in decision making (March and Simon 1958) and that environments are negotiated to reduce uncertainty (Cyert and March 1963), the Carnegie School and its successors have paid short shrift to the

role of mental representations in explaining individual and organizational behavior. The model of satisficing behavior has been operationalized to be largely noncognitive. Alternatives are sampled, either randomly from the full set of possibilities or drawn from a subpopulation of local alternatives. These alternatives are then evaluated relative to some fixed performance criterion. This structure is a-cognitive in two important respects: actors have no mental model of this space of latent alternatives and what might constitute a more or less promising option, and, conversely, the evaluation of a given focal alternative is viewed as nonproblematic. As Gavetti and Levinthal (2000) suggest, a standard treatment of this issue from the perspective of cognitive psychology would suggest that actors’ representations or mental models of their problem environments significantly influence both their sampling and evaluation of alternatives. More generally, researchers in organizational and managerial cognition have argued for the centrality of mental representation and knowledge structures in organizations (cf. Weick 1979, Walsh 1995), and this important research has not been fully integrated into Carnegie School views.

Although social psychology influenced the Carnegie School’s views on motivation and conflict in organization, primarily through March and Simon (1958), social psychology’s theoretical and empirical research suggest a more radical departure from bounded rationality than the school has emphasized. A key tenet of social psychology is the Lewinian principle of situationism (Ross and Nisbett 1991), which posits that individual (and social) behavior is a product of the immediate social environment, explaining key findings on social influence and conformity of particular import to organizations. This view suggests that individual and organizational decisions are inconsistent across situations in ways that are well accounted for by standard models of bounded rationality. It is consistent, however, with models of loose coupling (Cohen et al. 1972, Feldman and March 1981) in which inconsistencies in organizational decisions are viewed as endemic to organizations.

During the last decade, psychologists have again concentrated on the role of emotions as critical antecedents of human cognition and action (LeDoux 2000).⁶ In particular, there is strong empirical evidence that emotional states precede rather than follow any process of deductive reasoning (Thagard 2007). For example, within organizational behavior and theory, emotions had been posited as a primary determinant behind the threat-rigidity effect (Staw et al. 1981), yielding predictions on organizational responses to performance failures directly at variance with the Carnegie School predictions (Ocasio 1995). More recently, behavioral decision theorists have highlighted the role of emotions in risk-taking behavior. For example, Loewenstein et al. (2001) explain a wide range of phenomena that have resisted interpretation in

cognitive-consequentialist terms by proposing the risk-as-feelings hypothesis, which indicates that emotional reactions to risks diverge from their cognitive assessments. Positive emotions have also been shown to have widespread effects for individuals and organizations (e.g., Staw and Barsade 1993, Frederickson 2001).

Embeddedness. Like individuals, organizations are not “islands” unto themselves. They operate in populations of other organizations and in institutional environments, which provide norms of appropriateness that lie apart from any individual organization. Some of the most important movements within organization sociology (population ecology, institutional theory, network theory) in recent decades have revolved around the development of these ideas. While the focus of the Carnegie School is organizational behavior, these developments strongly indicate that the behavior of organizations cannot be well understood unless the question of how this behavior is embedded in its environment is considered.

Here, we use the term embeddedness to refer to macro-to-micro influences—social, political, cultural, and institutional—on organizational decisions and actions (Granovetter 1985, Zukin and DiMaggio 1990). Decision premises do not merely flow through the organizational hierarchy, as Simon (1948) argued, but instead emanate, in part, as contemporary institutional theorists suggest, from sources external to the organization (DiMaggio and Powell 1983). The repertoire of decision alternatives faced by organizations, the problems and opportunities that constitute organizational agendas, and the criteria by which decisions are evaluated are all influenced by an organization’s environments. Network theorists have expanded our notion of “local search” to include the set of relationships among organizations (cf. Podolny and Stuart 1995). As Barnett and Hansen (1996) suggest, the dynamics of aspiration-driven search need to be understood by examining the ecology of adaptive organizations. And institutional theorists have shown how organizational attention is structured by the institutional logics prevailing in the environment (Thornton 2004, Thornton and Ocasio 1999). Linking a Carnegie School conception of organizational processes with an open-system perspective of organizations embedded in their larger social context offers enormously promising research opportunities. Such a linkage, in its ideal form, will yield both an organization sociology with real organizations rather than black boxes, and a Carnegie image of organizational processes that is less organization-centric.

Integration

Apart from the question of whether components of the Carnegie School’s theoretical structure should be revisited or supplemented, there is the issue of the degree of

coupling among the elements of the theory itself. March and Simon’s *Organizations* is consciously an inventory of the fundamental properties of organizations. Thus, it does not aspire to be a tightly integrated theoretical statement. Cyert and March’s *Behavioral Theory of the Firm* is the most tightly structured of the three books in the basic Carnegie School canon, and perhaps, as a consequence, deemphasizes some of what we term the key pillars of the broader “School,” particularly the role of hierarchy and communications in the organizational decision-making structure. Should it suffice that a work adheres to one or more of these underlying principles, or should we aspire to explicitly address the interrelationships among these elements?

Arguably, theorizing becomes most fertile when we examine these interrelationships. Consider, for example, the relationship between the proposition that individuals, due to the constraints of bounded rationality, attend to only some small fraction of their decision environment and structural mechanisms that allocate attention within the organization (cf. Ocasio 1997). Both the constraints of rationality and the “pipes and prisms” of organizational structures offer more theoretical and empirical bite when considered jointly. There remain considerable untapped opportunities to mine the richness inherent in the implications of more tightly linked considerations of the Carnegie School’s core theoretical structure.

A Neo-Carnegie Perspective: A Research Agenda

The prior section begins to articulate what we view as foundations for a renewed *behaviorally plausible, decision-centered* perspective on organizations. As such, it implicitly embeds a research agenda whose ambition and expansiveness requires a collective effort. The promise is a more comprehensive and tightly integrated theoretical structure for understanding organizations. This structure would identify more precisely both the multiple influences on organizations, including market structures, interorganizational networks, and field-level institutions, together with the psychology of decision making and action, and the structure of coupling and decoupling of organizational decisions. A neo-Carnegie project aims to provide a stronger foundation for organization theory and strategy that offers an alternative both to individualistic, rational choice theories and to structural deterministic views on the influence on the environment on organizations, actions, and outcomes.

We do not propose here the specifics of a neo-Carnegie integration. Rather, we briefly outline a few select foci for the broader research agenda that is called for in our prior discussion. We identify five foci. The first two are immediately implied by our discussion of the foundations for a neo-Carnegie School. The next two

can be viewed more as applications of a neo-Carnegie view to questions that are central to organizations and strategy research. The final one returns to the issue of organizational intelligence.

Reconceptualizing Bounded Rationality. We view the development of a unified model of rationality that accounts for most of the considerations fleshed out above as a key priority. Although conventional models of bounded rationality parsimoniously characterize major research findings on organizational and strategic decision making (Eisenhardt and Zbaracki 1992), they do not fully account for the social, political, and cultural influences on organizational decisions, the loose coupling of decision making from implementation, the impact of emotions, or the automaticity with which many implicit decisions are made in organizations. A neo-Carnegie perspective seeks to address these limits in several ways. First, it would elaborate further the impact of situational context on decision making to account for a number of variables, including decision framing (Tversky and Kahneman 1981, Levin et al. 1998), fluid participation (March and Olsen 1976), and emotional energy and engagement (Bandura 1991, Collins et al. 1993). Second, it would incorporate advances in cognitive and social psychology that indicate the multiple processes, including automaticity, emotional intelligence, intuition, analogy, and experience, that are involved in decision making, and suggest how such processes are affected by cross-level linkages. Third, organizational environments influence decision opportunities, attention to organizational problems and opportunities, decision premises and valuations, and how multiple factors influence the repertoires of available solutions in ways not sufficiently captured by traditional models of bounded rationality. Scholars need to consider more fully the contexts in which organizations are embedded and these contexts' implications for action and thinking.

Rediscovering Decision-Making Structures. Simon's (1947, 1962) insights on the hierarchical structure of organizational decision making provides a starting point for renewed attention to the consequences of structure on organizational actions and outcomes. Padgett's (1980a, b, 1981) work on the effects of hierarchy, ecological control, and serial judgment on federal budgetary decision-making processes is an early example of this research agenda. More recent simulation research on the effects of alternative decision structures is also relevant to this effort (e.g., Ethiraj and Levinthal 2004, Rivkin and Siggelkow 2003).

A neo-Carnegie perspective suggests first the need to integrate Simon's (1962) views on decomposability with March's perspective on sequential attention and loose coupling, and organizational sociology's concerns with multiple forms of embeddedness. Both theoretically and empirically, the relationships between the three

constructs of decomposability (a structural property of systems), decoupling (an attentional property of units and subsystems), and embeddedness (a relational property of units) require greater elaboration and elucidation. Second, the agenda includes increased attention to the determinants and consequences of multiunit, multibusiness, and networked decision-making structures, organizational forms not explicitly considered in the original Carnegie School formulation. Third, how organizational rules and routines interact with formal and informal decision-making structures is an important unanswered question that must be answered to develop a more integrated theory of organizations.

Reformulating the Role of Agency and Control in Organizations. Research on corporate governance has been dominated by agency theory perspectives, with only limited influence from Carnegie School. We suggest, however, that Cyert and March's (1963) view of the firm as a composition of political coalitions provides a promising starting point for a neo-Carnegie perspective on agency and control. Different interest groups within the firm usually hold different goals. What objectives might induce participation by these distinct groups? As Cyert and March (1963) observe, there is some arbitrariness as to what we view as the firm's "objective function" and what factors we view as constraints. From the perspective of cooperative game theory, the firm is viable when the core of the "game" among the different interest groups is nonempty. This is a different conception from the usual agency view (a noncooperative game structure), in which there is a well defined objective of maximizing payoff to a residual claimant (i.e., the principal) subject to a participation constraint on the part of agent(s). Although the management literature discusses stakeholders, it has generally not attached that discussion to an explicit model of organizational politics.

A neo-Carnegie perspective on agency and control combines Cyert and March's focus on conflicting interests and organizational politics with Simon's focus on organizational and subunit identification. Interests, identifications, and relationships are all key determinants of individual behavior in organizations (Kelman 2006), and these three factors are themselves endogenous to organizational processes. From a neo-Carnegie view, the social, organizational, and institutional determinants of agency must be combined within the view of the firm as a shifting political coalition, in which cooperation and conflict are themselves consequences of dynamic organizational processes.

Revisiting the Sources of Heterogeneity in Organizational Performance. Understanding the source and persistence of performance variation among firms is a central question for the strategy field (Rumelt et al. 1994). Since the 1980s, the consideration of firm's resources, knowledge, and capabilities has become

important to such accounts, but these explanations have often treated the existence of rare, valuable, and difficult-to-imitate resources as exogenous, and largely ignored the question of how distinctive capabilities and resources emerge. In recent years, considerable discourse has emerged on so-called dynamic capabilities—higher-order capabilities that influence a firm's capacity to move in the space of lower-level capabilities (Teece et al. 1997). Although such capabilities may well exist, we are still left with a problem of logical recursion—are there meta-capabilities that influence the creation and operation of dynamic capabilities? This question, we believe, can fruitfully be framed and approached in terms of how organizations pursue intelligence (March 2006). Imagine that, instead of trying to identify a particular atom of the firm (dynamic or otherwise), we consider the firm as a complex system that adapts over time, embedded in a particular organizational and institutional context. This perspective suggests a conceptualization of capability development that builds directly on the integrated theoretical structure we advocate above. First, it calls for microfoundations of capability development to be reconceived (Gavetti 2005). If we better understand how actors who operate in a complex organizational context cope with their bounded rationality, then we can better comprehend the intelligence that underlies capability development. Second, it calls for a serious consideration of how various types of decision-making structures affect the intelligence of search and decision making, and thereby influence capability development (Ethiraj and Levinthal 2004, Rivkin and Siggelkow 2003). In other words, this perspective leverages the conceptual apparatus of the Carnegie School and poses challenges that are fully aligned with the neo-Carnegie agenda to address a major issue in the strategy field.

A Focus on Organizational Intelligence. Because of its foundational premise of individual bounded rationality, rather than despite this premise, the Carnegie School has had a deep concern, from its onset, with the nature and possibilities of organizational intelligence. Agency models presume that actors in organizations optimize “second-best” organizational outcomes. In contrast, the Carnegie School assumes that actors are boundedly rational and asks, “How, given this constraint, organizational processes induce better or worse outcomes?” Hierarchy, problem decomposition, and sequential allocation of attention are all mechanisms to enhance the possibilities of collective, organizational intelligence. Again, in contrast to economic analyses, organizations are viewed not as a barrier to the full expression of individual rationality, but rather as a context in which cognitively limited actors (through coordinated action, institutionalized learning, and so on) may achieve some degree of collective intelligence beyond that of any one individual.

At the same time, the Carnegie School does not take a Panglossian view of organizational phenomena. It highlights the pathologies of organizational behavior. But as a consequence of its commitment to behavioral realism and a focus on a process perspective on organizations, the boundary between seemingly pathological behavior and some normative notion of organizational intelligence is not always clear. For instance, technologies of foolishness (March 1976) are manifestly nonrational behaviors at the individual level, but they are at the same time processes that facilitate broader organizational adaptation and learning over time. The school does not claim that organizations identify some idealized amount of “foolishness,” but is instead sensitive to how organizational slack and other apparent nonoptimizing behavior may serve a constructive purpose.

In this spirit, for a theory to offer the potential for some normative insight, its conceptual levers must be rooted in the actual processes of interest. Although behaviorally anchored theorizing about organizations has generally relied on its claim for descriptive realism as a basis for its legitimacy and, by implication, acceded to economic analyses a claim for normative value, we question this taken-for-granted belief. The latent normative value of the Carnegie School, a mission that certainly strongly animated Simon's early work, has been unrecognized—both by proponents of the Carnegie School as well as by those who operate within other paradigms.

Conclusion

We offer our arguments with excitement, enthusiasm, and unease. The Carnegie School is an important intellectual beacon for us, and each of us has tried to contribute to its tradition. Yet, we feel that most modern embodiments of the Carnegie School have rested on a much narrower intellectual platform than the original set of arguments provide. Even if we do no more than refocus attention on these other facets of the Carnegie tradition that are currently less salient in the literature, we will encode this endeavor as a success.

We are not uneasy about suggesting refinements and extensions to the original set of ideas provided by the Carnegie School, although some may think it is sacrilegious that we do so. The School's original pioneers were an irreverent lot, and we suspect that they would be unhappy with an intellectual tradition that was overly constrained by their initial articulation. A strength and challenge of their work, particularly March's ongoing contributions, is their multivocal quality. They developed a tradition that has some deep underlying intellectual commitments, such as the three ideas we discussed above, but is fairly heterodox in how it expresses these ideas. It lacks, for instance, a statement of what does or does not conform to the Carnegie School.

Our unease instead relates to what we call for. Theories simplify and abstract from the world's full complexity.

As Holland (1998) notes, a map of the world that is as detailed as the actual setting has no value. A theoretical construction structures attention by suggesting what factors are central, and what sets of interrelationships merit our attention. Merely to note that a theory could benefit from additional features that would enhance its accuracy is not, in and of itself, a compelling argument. Rather, two more demanding criteria must be met (Kuhn 1962): Is it feasible to construct such a theoretical structure, and does it offer distinctive insights and predictions about the world? We offered some speculations regarding the latter criterion in the prior section, but we have skipped over or presumed the former question.

Can a community of scholars build a theoretical apparatus that is premised on a behaviorally plausible, but stylized characterization of actors who have limited rationality and who are situated in an organizational context, when that context contains central features of the organization's structure, which in turn is embedded in a broader social context? There are some reasons for hope. Analytical treatments, such as the garbage-can model or Hutchins's (1995) work on distributed cognition and action, capture many of the desired attributes we set forth.

Thus, despite our "unease," we believe the task we call for is possible, although difficult. This task involves more than a purely theoretical elaboration. Indeed, perhaps the most important way a neo-Carnegie effort could contribute is by more explicitly linking the Carnegie School's existing pillars. As we suggested earlier, the research opportunities to develop the linkages among the central elements in this theoretical structure are enormous. Furthermore, the opportunity costs of failing either to fully engage the open-systems perspective that has permeated the organization-sociology literature or to incorporate important new psychological insights regarding individual behavior are very high. We suggest that the best way to celebrate the Carnegie School's past contributions is to fully engage the broad set of ideas that this collection of work put forth, and the best way to honor its future is to continue to try to embody its underlying ideas.

Endnotes

¹The authors cannot help but note in this context Jim March's fond invocation of T. S. Eliot's comments upon hearing a critic's interpretation of his "The Love Song of J. Alfred Prufrock," (1917) in which Eliot remarks that he is grateful to the critic for commenting on his work despite the lack of correspondence between the critic's interpretation and Eliot's intent.

²There is some additional irony in this observation when one notes the active line of work in economics in the last two decades, starting with early efforts at agency theoretic models (cf. Holmstrom 1979) to recent efforts at defining a sub-field of personnel economics (Lazear and Rosen 1981) and organizational economics (Gibbons 2002). Thus, soon after

organizational theory was beginning to "black box" the organization, economists were beginning to open up their own "black box," although with the traditional assumptions of full rationality and equilibrium of microeconomics.

³Ironically, Samuelson's (1947) *Foundations of Economic Analysis* was published the same year as was *Administrative Behavior* (Simon 1947), and both were developed from their author's respective dissertations. At a time when economics was more pluralistic in its orientation, Samuelson's tome helped establish neoclassical economics as the dominant paradigm within economic theory, and optimization under constraints as its foundational pillar.

⁴At the same time, the Graduate School of Industrial Administration at the Carnegie Institute of Technology as an actual institution, as opposed to a metaphorical school, was home to Robert Lucas and Edward Prescott, developers of rational expectations theory, one of the strongest expressions of rationality within neoclassical theory.

⁵However, March and Simon (1958, p. 142) are careful to avoid the image of a routine as being quite rigid in specifying a course of action. They note that the "content of the program may be adaptive to a large number of characteristics of the stimulus that initiates it. ... It is then more properly called a performance strategy."

⁶It should be noted that Simon (1981) was not oblivious to the role of emotion and highlighted some of these issues in his later writings.

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