

Collective Thinking Practices: Inferences from Case Studies of Decision-making Behavior

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Abstract

This paper presents a thinking-practices approach to studying organizational culture. To illustrate the idea, it reports on decision-making case studies in a United States manufacturing firm. The method is designed to systematically describe and compare decision-making patterns across organizational levels and within and between organizational work units. These patterns serve as a basis for inferences about the collective cognitive processes involved.

Introduction

Despite the so-called *cognitive revolution* of Noam Chomsky (1957), Herbert Simon (1957), and others in the mid-1950s, decision-making research has tended to remain focused on the mechanics of choice rather than on actors' judgmental formulations and evaluations of the conditions of choice. Weick (1979) uses the term *thinking practices* to refer to the cognitive processes that underscore this interpretive process. Thinking practices are the distinctive thought to action steps that individual people use in formulating, evaluating, and ultimately acting out alternative courses of action. Like other individual characteristics, thinking practices are variable both intra- and inter-individually; but, since they develop experientially in a social context, they also can be expected, with time, to exhibit regularities, again both intra- and inter-individually. The nature, extent, and sources of such regularities in the thinking practices of individuals, their patterns or *styles*, are among the important matters for the empirical analysis of decisions.

In this paper, we consider linkages of individual decision-making behavior with organizational culture. We focus on organizational decision making in order to illuminate individual thinking practices and their normative groundings. We propose simply that cognitive processes encompass implicit expectations or operating norms that are expressed in observable patterns of organizational decision-making behavior. To the extent the groundings of this behavior are shared, we assume they may be deemed *cultural*. We begin, therefore, with a critical discussion of organizational culture, and then sketch a view of decision making that emphasizes linkages of psychological

and social / environmental variables. Finally, we report case studies of decisions in a large manufacturing organization in order to illuminate our argument that commonality of decision-making behavior across individuals in organizations is indicative of shared beliefs and values, which is tantamount to a common culture.

The Concept of Culture

It is understood that we anthropologists are not widely agreed upon the meaning of *culture*. Nevertheless, a strong consensus very much exists to the effect that culture is an important concept. Its ancient and prominent position in social thought suggests as much, implying, as it does, first, that there is *something* general (call it culture) that distinguishes social collectivities and guides their actions; and, second, that we obviously need to understand what this something, this culture, is. Unhappily, just what the something is remains a matter of argument, and because of that, scholarship on the subject is perpetually inchoate.

Smircich (1983) lays out the ontological options in the simple form of three perspectives on culture:

- an *external* one according to which culture is something in the milieu of individual people that causes them to behave in particular ways;
- an *internal* one that considers culture to be an outcome, a product of the interactions of individuals in some setting; and, finally,
- a *root metaphor* idea suggesting that, as small societies, virtually by definition, organizations *are* cultures, not products of cultures nor even separable from them.

In a related paper, Thompson and Luthans (1990) seek to integrate Smircich's perspectives by sketching a cognitive interpretation of culture as a "socially constructed reality" (Thompson and Luthans 1990:324). In essence, they argue that, through associational learning, "culture is transmitted via behavior-consequences transactions" (Thompson and Luthans 1990:326). Sooner or later accumulations of contextually related learning episodes result in people acquiring a sense of pattern, or wholeness, Gestalt, or something of the sort, anyway, a culture, or, rather, *the* culture. Thanks to the various mechanisms specified in social learning theory such as copying and vicarious learning, Thompson and Luthans suggest, people work-up *cognitive maps* of their social settings, meaning models of them, in their minds. These maps tell them where they are in the world, so to speak, and also serve as reference points for self-managing their travels. So culture is in people's heads, but is *manifest* in what they do.

There are certain difficulties with Thompson and Luthans' formulation. Most importantly, its pieces do not always lie comfortably together. In their discussion of culture being learned, for instance, they seem to imply an external agency in the form of what B. F. Skinner, who lived from 1904 to 1990, might have called the *reinforcing practices of a community* (Skinner 2001, originally 1961). This situation seems to imply that the socially constructed "reality" of Thompson and Luthans, rather than being a construct, is literally "real." Hence, they speak of culture being *transmitted* by social interaction, when, from a constructionist standpoint, they might more appropriately speak of culture being *defined* in social interaction.

Such cavils aside, however, the useful view that emerges from Thompson and Luthans (1990) is one of *culture* as a personal generalization about observable social *patterns* of distinctive character, essentially intra-individual in Miller, Galanter, and Pribram's sense of social worlds (1960). It is, then, altogether reasonable to expect the models extant in particular social aggregates, or communities, to exhibit commonalities, but also to show considerable inter-individual variation. Indeed, Thompson and Luthans aptly speak of there being many cul-

tures in an organization. Reasoning such as this inevitably makes of *culture* a descriptive and individual psychological construct, that is, the concepts, beliefs, and values according to which individual people organize their actions. How these actions eventuate in social exchanges and collective structures is not, therefore, explicable via culture except tautologically. Accordingly, an individual's commitments to shared beliefs and values are direct reflections of their repetitive, often habitual patterns of behavior. Drawing from these intra-individual tendencies, we can describe characterizations of macro-level organizational phenomena.

Culture, Thompson and Luthans (1990) suggest, is learned, and it is learned via apprehensions of action-consequences. It is learned, however, in the sense of being *developed* or, as Thompson and Luthans say, constructed, and not in the sense of being taken in from outside, or of being *taught*, although some learning episodes, maybe some very important ones, certainly involve instruction. For its possessor, then, *culture* ontologically is an epistemic achievement. It consists, first and most basically, in an individual's conception of the world; and, second, in the ways these conceptions are distributed among differently situated people. As we shall illustrate, *culture* has much the same epistemic function for organizational analysts.

Analyzing Organizational Cultures

Given the just-described resolution of the so-called ontological problem of culture, the epistemic problem, or problems, confronting students of it resolve themselves into a range of familiar but still basic issues. They have to do with the acquisition, diffusion, and institutionalization of beliefs, values, and other ingredients of the mental equipment of individuals for dealing with their worlds. Methodologically, of course, the problem is an old one of observing "traces" of things, cultures in this case, which, by definition, are implicitly cognitive at micro-levels and mysterious at macro-levels.

Instead of endlessly arguing the ontology of culture, scholars might more usefully seek simple clarification of the particular conditions which the term "culture" may be used to denote. Whatever its confusions and inadequacies, the

word "culture" is not going away. We might, therefore, at least clear away some of the descriptive underbrush that impedes communication when the term is used. We mentioned earlier, for example, that if culture is cognitive its manifestations are nevertheless observable. That being true, it obviously is possible to study individuals' actions (or reports of them), evaluate them, compare them with observations of others, make inferences about their similarities and differences, and try to associate any discernable patterns with conditions of their observation. The question, then, is when to speak of such intellectual activity as referring to "culture."

A reasonable place to look for help with usage questions, albeit not one popular in social scientific discourse, is a dictionary. The *Second College Edition of the American Heritage Dictionary* (1991), for example, offers several definitions of *culture*. The first one is "the totality of socially transmitted behavior patterns, arts, beliefs, institutions, and all other products of human work and thought characteristic of a community or population" (1991:348). Clearly this is too inclusive. It either describes a field of study or is simply a so-called catchall lay term qualified only for casual use.

American Heritage's second definition, however, is worthy of use for scholarly purposes. It describes culture as "a style of social...expression peculiar to a society or class" (1991:348). This seems more like it, more consonant with the kinds of ideas social scientists probably hope to conjure up when they use the word culture. Its essence is the notion of "style," an idea that fits the Benedictine anthropological model of human social "patterns" differentiated by context, and one regularly encountered in scholarly conversations about culture. Moreover, "style" has a general parametric or paradigmatic quality suitable to use as a definition. In what follows, then, culture will be equated to style, specifically, for present purposes, *decision-making style*.

Culture and Decision-making

If culture itself is subjective (cognitive), but is manifest in behavior, then there obviously will be many kinds of behavior that imply it (culture, that is) and many ways of observing it. Our

interest fastens on decision making because it is a main field of our scholarly interest, but also because it is readily recognizable as what Schein (1990) would call a cultural *artifact*. Moreover, it is a subject particularly relevant to the special case of organizations, expressing as it does the processes of choice via which they are formed and operated.

In the present case, using observations of decision-making *artifacts* via indirect *policy-capturing* informant interviews, it is possible to do the following:

- search for descriptive commonalities among some or all of their producers;
- identify artifactual discontinuities and their conditions; and
- take inferences about the other two of Schein's (1990) descriptive categories of culture, which are *values* and *assumptions*, and about their linkages with behavior. See below.

Then, on the unexceptional assumption that artifacts are expressions of the cognitions of individuals as their thinking practices, this exercise in description and inference can be understood as a mapping of an organization's culture containing the continuities and discontinuities of some particular population's socially constructed realities. It should be noted, however, that this *culture* is itself a social construction, an observer's way of trying to make sense of organizational life.

The Issue of Organization Level Inference

The jump from micro- to macro-levels, from individual actors to cultural systems, requires a multi-level perspective of decision-making behavior. The answer to the question of whether or not a micro-analytic observation and interpretation of decisions can provide a basis for drawing inferences about macro-level patterns, that is, cultures, and vice versa, depends, in part at least, on how these *levels of analysis* are understood. Allaire and Firsirotu's (1984) notion of *partial replication*, for instance, implies that a simple communality of personal meanings evolves among the several actors in a social system, which works to homogenize their world-views and facilitate their interactions. Hence, as

noted earlier, observations of inter-individual consistency of decision practices, such as decision-making *styles*, may be taken as indicative of shared cognitive structures like beliefs, concepts, values at a collective level of aggregation. Inter-individual / intra-organizational consistency of decision-making style is thus expressive, and, in fact, descriptive, of organizational culture. Specification of such styles, one posits, provides an analyst with conceptual means for comparing organizational *cultures*, and of generalizing about and predicting behavior without, however, requiring commitments to belief in the reality of those cultures.

In addressing the problem of aggregating individual-level data, other researchers have also taken a multi-level perspective to theorizing about cognitive style. In developing the concept of *group cognitive style*, Leonard, Beauvais and Scholl (2005) contend that over time, as group members interact, they develop patterns of decision-making behavior. They argue that such patterns are a natural outgrowth of the continual social interaction of individual group members. Just as individuals develop preferences for information processing it is reasonable to expect that groups similarly develop a preferred cognitive *style* or pattern of decision-making behavior.

An Empirical Demonstration

We move now to describe an application in organizational research of the ideas sketched above. No particular substantive issues are at stake in the study of decision-making we shall describe. Its message is mainly meta-theoretical and methodological. The focus is on decision-making styles, their organizational distribution in a particular setting, and the sorts of inferences about organizational culture their observation allows.

Describing Decision-making Styles

In a study by Hunt, Krzystofiak, Meindl, and Yousry (1989) consistent expressions of individuals' cognitive styles were shown across several phases of judgmental decision making. Many other studies have identified relations between various social factors and individual decision-making factors (Slovic Fischhoff, and Lichtenstein 1977; Killeen 1978; Standdon and Motheral

1978; Ravlin and Meglino 1987; Leonard and Beauvais 2005).

Several taxonomies for describing individual decision-making behavior exist (Heller and Yukl 1969; Likert 1967; Heller 1971; Tannenbaum and Schmidt 1958; Maier 1963; Lewin, Lippit and White 1939; Vroom 2003.). But, as Yukl (1989) notes there is little agreement on either the number or the specific nature of decision-making styles, or on the best ways to define them. However, generalizing from the literature, the various taxonomies all use at least four distinct categories for classifying individual decision-making behavior:

- making a decision unilaterally,
- making a decision with consultation,
- making a decision jointly, and
- making a decision by delegating it, that is, via delegation.

In the unilateral category, an individual makes decisions alone, without asking for input from others. This category may be divided into two varieties. The first is one where individuals have formal authority to make some decision alone such as in a *leader unilateral* style. The second is where individuals have discretionary latitude to make the decision alone as in a *subordinate unilateral* style. A consultative style suggests that an individual makes decisions alone, but only after giving consideration to the opinions and suggestions of others. In the joint category, an individual makes decisions together or *jointly* with other people. Finally, delegation describes a tendency for an individual to give other people the authority and responsibility for decisions. The unilateral, consultative, joint, and delegative typology covers most decision-making styles, although it may not be exhaustive. In any case, these four categories plainly represent patterns of decision-reaching activity that are likely to be manifested in most organizations and to be variously distributed either inter- or intra-organizationally.

Organizational Differentiation

Organizations are not monoliths. They are variously differentiated horizontally into such entities as work units, departments, and divisions as well as vertically. The result is that indi-

viduals in organizations are variously situated and bound by memberships in distinct groups or role sets that constitute different organizational environments, and their decision-making styles may be correspondingly differentiated. Like Henry Mintzberg (1978), we divide an organization vertically into four levels of people. From the top down, they are:

- the top managers;
- the intermediate managers;
- the direct supervisors; and
- the operators.

Operators are at the base carrying out the work of producing goods and services. Immediately above them are *administrative components*. The one first up comprises the *direct supervisors* who make up the direct-line production overseers. Up next, we find the level housing *intermediate managers* and consisting of the heads of functional divisions of the organization responsible for operations and particular products or activities. The highest level is, of course, that of the *top managers* comprised of those who oversee the entire organization. In the case we discuss below, horizontal differentiation defines itself by divisions responsible for different product lines.

Decision Styles and Organizational Roles

Merton (1957) notes the play of organizational roles in decision making. Superiors, subordinates, and peers, he suggests, exert pressure on decision makers to conform to their beliefs about the necessary and proper ways to make decisions. Organizations thus *socialize* their members toward shared and institutionalized norms of *appropriate patterns* of decision-making behavior that serve generally to regulate and standardize decision-making practices. A decision maker's position in an organizational hierarchy has been shown to influence decision-making; and decision behavior norms, diffused across organizations, may be widely institutionalized, thus defining more or less universal role requirements for incumbents of different organizational levels. Blankenship and Miles (1968), for example, found that upper-level managers in eight different organizations showed a stronger willingness to delegate, and to rely on their immediate sub-

ordinates in the decision-making process than did managers at lower levels. Lower-level managers, in turn, were more often at the receiving end of initiatives for decisions by their superiors and were more often expected to consult with their superiors before proceeding on most matters. Thus, generalized level-specific organizational practices and, by inference, role requirements appear to exist which work to differentiate managers' decision behavior, all of which suggests the operation of particular decision-making behavior norms ("styles") at different organizational levels. These styles constitute *cultural* patterns in *American Heritage's* second meaning of *culture*.

Illustrative Case Studies

Ten case studies were done to identify individual decision-making styles, and other aspects of decision-making, at different organizational levels in different work units of a large Northeastern chemical plant in the United States. Briefly, in addition to general information on informants' *typical*, conceptual, and operational approaches to decision making, each case involved detailed description of one specific decision of which the informant was the maker, tracing it retrospectively from its initial phase through its implementation.

Lengthy semi-structured individual interviews, done in the context of a broader management-initiated developmental evaluation of the plant, were organized around a general coding program, called a *task analysis* method (Hunt, Magenau and Fails 1981; Bahl and Hunt 1984; Hunt and Magenau 1984). Briefly, this scheme treats a decision as a task, and divides the overall decision-making process into periods of pre-decision, decision, and post-decision. It provides a set of descriptive categories for characterizing the participants and the structure and content of their activities during each decision period. This allows reduction of a number of descriptive observations to a discrete set of labelled categories (see the examples in the next paragraph) that are manipulable for comparative empirical analysis. Thus, the scheme served as both a template for planning a systematic interview that debriefed informants about their decision making, and as a means of coding their responses to the programmed interview queries.

We collected the following kinds of information for each case:

- Characteristics of the decision maker, including role/status position in the organization and personality.
- A definition of the situation in which the decision arose that includes the features of the decision itself such as its form, content, familiarity, time, importance, and degree of decision-maker discretion.
- The organization's internal and external control techniques, such as whether centralized or decentralized, close or loose, negotiatory or persuasive, and power or moral appeal.
- The process itself of choosing that includes specification of alternatives, evaluation criteria, mechanism of selection, dissemination, and preparation for implementation.

Only a small part of this information is used here in this article. Systematically tracking and coding particular individuals' decisions allowed the development of detailed and descriptively standardized cases of organizational decision making. We considered how the decisions were made, by whom, and on what criteria. We analyzed comparatively in order to identify specific ways in which decision processes vary, or do not vary, inter-individually and across particular work units or organization levels.

Informants' Levels

Decision making was evaluated at four different organizational levels:

- Top management, meaning a plant manager;
- Intermediate management, meaning a functional manager;
- Direct supervision, meaning a foreman/supervisor; and,
- Operations, meaning a production worker.

Three individuals were selected randomly from the second, third, and fourth of these four levels, one from each of the plant's three main operational divisions.

Procedure

We conducted individual interviews in one four-hour or two two-hour sessions, during regular working hours and privately in employee offices or conference rooms. We obtained permission from each informant to tape record sessions, which were later transcribed for coding. Interviews began with introductions, followed by a brief explanation of why and how the informant had been selected, and what to expect of the interview. After obtaining some general background information, informants were asked to describe the kinds of decisions they normally make in their work, how they typically go about making them, and how free they generally are to make and implement their decisions. This overview, in addition to its substantive value, served to initiate a discussion of *decisions* and to prime the informants for the ensuing parts of the interview. Next, informants were asked to think of one specific decision they had made "within the last few days." Having identified a decision, such as "a waste disposal problem," they then were asked about what events had occurred, who was involved, and a program of other questions specified by the interview schedule. Upon completion of each interview, the general purposes of the study were discussed with the informants at whatever length they wished and in whatever detail.

Observed Decision Styles

The key empirical question at issue here centers on whether individual manager's identifiable decision styles are altogether individual matters or exhibit collective patterns sufficient to justify calling them cultural. Individual's decision-making styles were identified by asking informants how they "*usually* went about solving problems." Accordingly, the following question was asked of each informant: "When you search for ways of solving problems or ways of taking advantage of opportunities, how much influence do you usually allow to other people when making a decision?" Based on the degree of influence or participation individuals allowed to other people, they were classified into one of four *primary* decision-making styles, ranging from no influence by others (a *Unilateral* style) to high influence (*Delegation*), with *Consultation* and

Joint styles as intermediate forms. Some informants implied that, in particular instances, they used styles different from their primary ones. Therefore, in addition to a primary style, *secondary* (or conditional) styles were also coded. Coding primary styles relied on such key words as *typically, normally, usually, generally, often, or almost always*. Expressions such as *sometimes, under some circumstances, occasionally, or at times* were taken as indicators of secondary decision styles.

Additional analysis provided a basis for increasing our confidence in the reliability of these decision style classifications. For example, recalling a recent strategic decision, informants were asked to describe their style as either solitary (individual selects in social isolation) or collectively influenced, in which others were included in the selection process, and to discuss whether this style was typical of them in their work. Furthermore, informant responses were probed to explore the relative emphasis of the collective aspects (consultation, joint, or delegation) of their decisions. This procedure, by indicating areas of uncertainty and suggesting directions for additional inquiry, served to test and enhance the interviewer's understanding of each informant's primary decision style.

Another way of testing whether or not these classifications are reliable is to look for what Schein (1985) calls *critical events*: events that appear to generate conflict between a decision maker and the expectations of others in the decision environment. To illustrate, in one case a supervisor reported strong subordinate resistance to his unilateral approach to a particular decision. The supervisor described himself as normally giving serious consideration to the opinions of his subordinates. In the particular case, however, he gave them no opportunity to participate. The upshot was subordinate acceptance of the decision, but only after a show of displeasure about how the decision had been made. Specific episodes such as this one suggest that, in the events, operating norms are violated, which supports inferences as to the normative status of particular decision-making styles in the setting.

Organizational Level

Individual decision-making styles were observed at each of four organizational levels: Top Management, Intermediate Management, Direct Supervision, and Operations. Five of the six informants at the intermediate and direct supervision levels described *consultation* as their *primary* decision style, while operations-level informants as *workers* emphasized a *subordinate unilateral style*. It thus appears that decision-making styles in the plant are hierarchically differentiated, generally calling for wider participation at higher levels and more unilateral decision making at the operator level.

The observation of such patterns provides a basis for inferring or hypothesizing about other cultural attributes such as Schein's values and assumptions (1985). For example, a tendency toward unilateral decision-making at the operations level may reflect values there about independence or assumptions about operator autonomy (or the absence of it) and/or skill at that level. Meanwhile, the more participatory styles of top management, intermediate management, and direct supervisory levels may suggest broad values about teamwork and/or assumptions about cooperation in co-worker relations as a condition for effective work performance. At any rate, whatever particular values and assumptions may be justifiably inferred from (or imputed to) them, core behavioral themes remain apparent in the organization: unilateral decision styles at the operations level and consultative styles at other levels.

Discussion

Decision making is an exercise in the cognitive construction of reality. The analysis of decision making is epistemologically identical. It is a matter of interpretation, a cognitive construction of reality, a theory. Naive or scientific, theory is a problem-solving tool that evolves by developing and extending patterns such that empirical themes and relations are *explained* by specifying their place in a pattern, as parts-to-whole. Implicitly or explicitly, a theory is a claim to knowledge. Sustaining such a claim comes down to persuasively "grounding" belief, warranting assertion, and reaching social consensus on the

utility of ideas. Hence, the essential test of any model or theory, personal or scientific, is its practicality in its usefulness for coping with events (see Hunt 1983).

Systematic descriptive analyses of decision making at micro-levels, we have suggested, affords a practicable framework for constructive theorizing about fundamental organizational processes. Specifically, it provides a behavioral basis for drawing comparative inferences about the thinking practices of individuals and their socially constructed realities that can be generalized to effect characterizations of macro-level group and organizational behavior patterns. We have further suggested that the process of describing and adducing inferences about behavioral styles and cognitive models in organizational contexts is epistemologically equivalent to describing, or, more precisely, defining the elusive idea of organizational cultures.

The analytic exercise outlined herein demonstrates application of this strategic idea. By focusing on the description of patterns or styles of decision-making behavior that typify managerial actions in a particular organization, we sought to illustrate both a means and the utility of thinking about and describing organizational culture via behavioral analyses, specifically of organizational decision-making practices. Understanding the empirical properties of organizational decision patterns and, by inference, the individual cognitive models on which they are based, provides a conceptual framework for drawing further inferences about their etiologies. Systematically describing the properties of decision makers, of decisions, and of the environments where they are observed facilitates comparative analyses of individual decision-making behavior and its organizational patterning which support inferences about the cognitive and social processes that ostensibly explain the behavior.

Future Research

Research to advance behavioral perspectives on decision-making and organizational culture might take several directions. First and most obviously, additional comparative studies of the kind we have sketched can be used to evaluate,

refine, and extend both theoretical models and analytic technologies such as the task-analysis method used here. Second, intensive and narrowly focused studies attentive to issues of data quality are needed to generate and evaluate inferences about "front-end" matters of decision-making modeling, about their expression in action, in "rear-end" matters of decision-making, and about their interrelations with organizational and environmental factors. Finally, applications of a task-analysis model or any other for comparative cross-site analyses of decision making and its circumstantial variation would be greatly facilitated by a more satisfactory taxonomy of decisions, that is, tasks, than any that now exists. ○

Notes

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