"The experience of time is communicatively negotiated through members' interaction patterns and reflected in their language."

COMMUNICATING AND ORGANIZING IN TIME

A Meso-Level Model of Organizational Temporality

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The authors propose a theoretical framework identifying how work group members' experience of time is created and sustained through task-related communication structures. The model addresses 10 dimensions of time—separation, scheduling, precision, pace, present time perspective, future time perspective, flexibility, linearity, scarcity, and urgency—and proposes how three communication structures central to organizational work—coordination methods, workplace technologies, and feedback cycles—contribute to members' temporal experience. The model incorporates the complex interplay among cultural, environmental, and individual factors as well. Testable propositions intended to guide future research are offered.

Keywords: *time, communication, organizations, interdependence, technology, feedback*

In his *Advice to a Young Tradesman* more than two centuries ago, Benjamin Franklin (1748) urged young entrepreneurs to consider that "time is money"—a truism in modern industrial culture (Lakoff & Johnson, 1980). Indeed, in the new millennium, time has been positioned as a commodity even more valuable than money (Imperato, 2000): Wealth is a renewable resource; time is not. And as a primary source of competitive advantage in today's marketplace (Breen, 2000; Kirsner, 2000; Lee & Liebenau, 2000; Mieszkowski, 2000), time has reached an organizational status unrivaled by the strictest Taylor and Fordist traditions of the 20th century. As organizations become increasingly time obsessed (King & Cushman, 1994) and their members learn to operate in nanoseconds (Gerson, 2000; Gleick, 1999), it is important that organizational scholars gain a commensurately complex understanding of this key organizational resource and structure (Ancona, Goodman, Lawrence, & Tushman, 2001; Ancona, Okhuysen, & Perlow, 2001). Moreover, as these trends continue to place increasing burdens on organizational members' coping mechanisms at work and home (Neustadter, 1992; Perlow, 1999), it is critical that we understand the processes involved in shaping members' experiences of time.

Communication lies at the nexus of the relationship between time and work (Ballard & Seibold, 2000). As a medium, communication conveys information and creates relationships concerning temporal matters that are central to members' performance of orga-

nizational work. Consider the example of an approaching deadline on a team project. The mere assignment of a task signals its importance given the expenditure of the valuable and finite resource (read time) it will require. Accordingly, members may feel compelled to forego working on other projects to make enough time available to meet the impending deadline. Communication also exists at the nexus of work and time as an outcome. The relationship between members' work patterns and their temporal constraints structures and guides their communication behaviors. For example, under pressing deadlines, group members often feel precluded from engaging in extended interpersonal interaction (Gersick, 1988; McGrath, 1991), and communication may become strained during these times (Perlow, 1999). Furthermore, communication mediates the recursive effects of work on time, as when occupational groups develop unique temporal cultures as a consequence of their distinctive task-related communication patterns, and in turn they develop distinctive communication patterns characteristic of their group (Glennie & Thrift, 1996; Zerubavel, 1981). Finally, and our focus in this article, the communication structures that order work in industrial organizations—feedback cycles, activity coordination methods, and workplace technologies—also order how time is constituted. Although each of these structures has been examined at some length in previous research (cf. Barley, 1988; Dubinskas, 1988b; J. D. Thompson, 1967), no work of which we are aware has considered all of them in the systematic and synthetic fashion we intend here.

Organizational members' temporal experience is negotiated at various levels of social analysis, and communication structures similarly enable that accomplishment in organizations. As such, the study of time is illuminated by a meso approach that integrates both micro and macro constructs in the development of organizational theory (Rousseau & House, 1994). Meso research centers around the routines and activities that link various organizational units and as such, lends itself to a multilevel analysis.

To demonstrate the processes through which time is constructed in organizations, we propose a cross-level theoretical framework that illustrates how 10 dimensions of time—separation, scheduling, precision, pace, present time perspective, future time perspec-

tive, flexibility, linearity, scarcity, and urgency—are recursively constituted in organizations through three task-related communication structures (feedback cycles, activity coordination methods, and workplace technologies) that represent important organizational routines and activities that enable and constrain members' communication behaviors on a daily basis. In addition, the model incorporates the complex interplay among cultural, environmental, and individual factors. We offer testable propositions intended to guide future research throughout.

Toward those ends, the article is organized as follows. To begin, two assumptions that undergird this project are established. First, the mutually constitutive relationship between time and communication is developed through a discussion of Bourdieu's (1977) account of the relationship between human interaction and the experience of time. Second, our concern with the communication structures that guide members' day-to-day practices is explored in light of practice theory[1] (Bourdieu, 1977). Ten dimensions of time, key foci in our model, are then explicated. Next, the role of cultural and environmental constraints in the construction of time is reviewed, and theoretically based propositions are posed, followed by examination of several mediating and moderating variables at system and individual levels, respectively, along with related propositions. Thereafter, three task-related communication structures that help shape members' experiences of time are described, and several propositions are offered. We conclude with implications for practice and future research.

PRACTICE THEORY AND THE COMMUNICATIVE CONSTRUCTION OF TIME

The assertion that time and communication are recursively constituted—an assumption underlying the theoretical framework advanced in this article—was addressed by French sociologist Pierre Bourdieu (1977) in *Outline of a Theory of Practice*. He observed that communication occurs within fundamental and per-

ceptible temporal constraints. For example, communication takes place with a particular frequency, at a given pace, at a specific point in time, for a certain duration; exists in relation to other communication episodes within a defined span of time; and can be characterized by a special periodicity (McGrath & Kelly, 1992). According to Bourdieu (1977), each of these perceived temporal constraints (frequency, pace, location, duration, sequence, and periodicity) merely reflects our having discerned a distinct social pattern. These patterns, which are carried out through our communication behaviors, are what give rise to social conceptions of time. In essence, human beings create social conceptions of time simply by (and as a consequence of) communicating. Correlatively, the meaning we attribute to communication behaviors is a function of their temporal execution, as other research has elaborated (Ballard & Seibold, 2000; Bruneau, 1996; Dubinskas, 1988a; Hall & Hall, 1990; Limaye & Victor, 1991; McKerrow, 1999). In Bourdieu's (1977) view, time and communication are mutually constitutive. Although the focus of our analysis is the communication structures used to organize work—and as such, our scope is not strictly limited to dyadic or group communication processes—these units of analysis entail a variety of organizational messages.

In addition, practice theorists contend that to understand the nature of any cultural system, including time, we must understand its link to the practical demands of the institution in which it operates (Mohr, 1998). Our goal in the present analysis is to illuminate temporal processes in organizations in precisely this way. Although constructions of time arise through an amalgam of cultural-, environmental-, occupational-, organizational-, departmental-, and individual-level constraints on behavior, we hold that in organizations, each of these constraints is best understood with regard to the practical demands of the organization. These demands are accomplished through at least three communication structures—coordination methods, feedback cycles, and workplace technologies. Coordination requirements guide our communication behaviors and by extension, order our temporal patterns. Feedback cycles direct our actions toward particular temporal signposts and in the process influence the manner of our interactions. Finally, workplace technologies structure—both in speed and form—members' interaction and impact how they receive and process relevant task-related

information. In the following we specify 10 dimensions of temporal experience that extant research and theory suggest are influenced by these communication structures.

DIMENSIONS OF TEMPORAL EXPERIENCE

The experience of time in Western industrialized organizations can be characterized along several continuous, bipolar dimensions. Based on an extensive review of the literature, we have identified 10 dimensions—separation, scheduling, precision, pace, present time perspective, future time perspective, flexibility, linearity, scarcity, and urgency—that are partially influenced through members' coordination methods, their feedback cycles, and the technologies they employ. This list is not intended to be exhaustive of all dimensions of temporal experience for organizational members. For example, past time perspective is an important dimension that often differentiates organizational groups (Gherardi & Strati, 1988). However, the purpose of the present model is to highlight the ways in which specific communication structures shape members' experiences of time, and certain dimensions of time (i.e., past time perspective) are not associated with these structures in the literature.

The 10 temporal dimensions can be grouped within two distinct categories: temporal enactments (includes flexibility, linearity, pace, precision, scheduling, and separation) and temporal construals (includes scarcity, urgency, and present and future time perspectives). *Enactments* refer to the way work group members "perform" time. How flexible a group is with regard to work plans and timing, the tendency of members to multitask or juggle several things at once, how fast or slow the group usually works, how punctual members are in beginning or carrying out their work, how tightly scheduled their time is, and whether they separate themselves or screen out distractions to do their work are all different dimensions of the way time gets enacted in work groups. Temporal *construals* refer to the way work group members interpret or orient to time. Whether members take time as fleeting or limited and whether they are more concerned with long-term plans or immedi-

ate concerns are characteristic dimensions of the way time gets construed by group members. Each dimension is theoretically and conceptually distinct—though not necessarily orthogonal. Although the dimensions may be related, each represents a unique temporal enactment or construal found in the literature and judged by us to figure differently in the larger sociotemporal order of organizations.

Both temporal enactments and construals are communicative in nature, and as such, their experience is mediated through the day-to-day interaction of work group members (Poole, 1998; Seibold, 1998). Therefore, in addition to being shaped by the communication structures that enable and constrain members' work, the experience of time is communicatively negotiated through members' interaction patterns and reflected in their language. Each of these dimensions and their roles in organizational members' work lives is elaborated in the following, first by examining enactments and then exploring members' construals of time.

ENACTMENTS OF TIME

Organizational units and their members create temporal norms for behavior through regularized patterns of interaction. These behaviors are reflected through their enactments of temporal flexibility, linearity, pace, punctuality, scheduling, and separation.

Flexibility pertains to the degree of rigidity members enact with regard to their plans (Ballard & Seibold, 2000). Members of units that employ a high degree of flexibility are able to rearrange or reschedule tasks, appointments, and meetings as needed. These units often face a great deal of unpredictability in their task environments and tend to exhibit higher levels of flexibility to meet unexpected challenges. An agreement between two colleagues to "pencil in" a meeting serves to communicate the need (of one or both parties) to be flexible with regard to timing plans. Conversely, a low level of flexibility suggests that members are more constrained in their ability to restructure key aspects of their task environment and may not be able to accommodate changes as easily.

Pace refers to tempo or rate of activity (Lauer, 1981; Levine, 1988; Moore, 1963). Organizational units and their members may

adopt an accelerated work pace to cope with numerous tasks or with the speed of inputs within a defined span of time. Similarly, groups are described as fast paced or slow paced depending on the rate of input of stable or new stimuli in their environment. The magazine *Fast Company* is discursively organized around the principle that modern organizations must be able to "keep up with the pace"—that is, learn to quickly adapt to changing environmental conditions.

Separation indexes the degree to which extraneous factors are eliminated or engaged in the completion of a work task (Ballard & Seibold, 2000; Hall, 1983). It is evidenced in the physical and psychological protection or availability of group members' time (and often space). Under high levels of separation, extraneous factors may be interpreted and semantically represented as unwelcome "interruptions." Screening behaviors, including closing the door or not answering the phone, are common in these situations. Low levels of separation are evident in such structures and discursive representations as "open-door" policies, used to communicate less restricted spatio-temporal norms.

Whereas separation refers to the environment created to complete a task, temporal linearity is associated with actual task execution. Members enact linearity via the number of activities or tasks they carry out in successive time frames, as in daily calendars demarcated by 15-minute intervals (a linear pattern), rather than the activities they engage in simultaneously (a nonlinear pattern, referred to as multitasking). Hassard (1996) described that in linear temporal enactments, "time is experienced not only as a sequence but also as a boundary condition" (p. 583). This can be contrasted with multitasking, which refers to "the concurrent execution of a number of different tasks or jobs" (Simpson & Weiner, 1989, Definition A).

Express mail carriers and stylists in a beauty salon illustrate the difference between linear and nonlinear modes of working, respectively. Although both groups regularly work under tight time pressures and complete many tasks within a given time frame, their task execution is markedly different. The work of mail carriers requires a great deal of speed and the ability to condense varied operations into a smoothly orchestrated performance. Many of the tasks cannot be intermeshed; mail carriers can only complete one transaction

at a time regardless of how efficiently they have queued their deliveries. In contrast, to maximize their time, hair stylists at smaller salons in particular may juggle several clients and activities at once—sending one to the shampoo bowl, doing hair color for one while another waits under the dryer, and taking phone calls and making appointments throughout the whole process. Thus, the process is enacted in an intermeshed fashion rather than following a linear task completion strategy. Each group may engage in a similar number of tasks per unit of time—but the manner of their execution characterizes whether they are employing a linear or nonlinear temporal strategy. Differences across organizational groups on this dimension have been supported in previous research (Ballard & Seibold, 2000).

The scheduling dimension of time concerns the extent to which plans, activities, and events are formalized. McGrath and Kelly (1986) asserted that "the essence of scheduling is to determine when some event will occur or some product will be available in relation to an external calendar or clock" (p. 109). As such, it includes formalizing the sequencing and duration of an event (Lauer, 1981), which is communicated through written or oral means. Group members' time can either be tightly scheduled, as in a day full of specific appointments (each with a finite beginning and ending), or loosely scheduled, as in a day's activities based on a "to do" list, with no specific boundaries regarding either when something must occur or how much time is allocated to complete it. Zerubavel (1981) elaborated: "Unlike many nonWestern civilizations, where events and activities are temporally located in a relatively spontaneous manner, we tend to 'schedule' them; that is, routinely fix them at particular prearranged, and often standard, points in time" (p. 7). The scheduling dimension of time is a measure of either how spontaneous or prearranged work life is for groups. The extent of scheduling may be represented through group members' negotiations regarding whether they can "fit" additional activities into their schedule.

Whereas scheduling refers to the degree of formalization of activity with regard to sequencing and duration, precision refers to the exacting nature of the timing. Timing demands can be quite precise, as in the case of a strict product launch deadline, or imprecise, as when telephone repairpersons are given 8-hour blocks of time to

service a defined number of homes. In addition to prescribed parameters, precision also characterizes constraints on work group members' actions. For example, punctuality is a measure of temporal precision. An event can be said to begin and end "precisely" on schedule, and persons who are punctual are said to be "precisely" on time. Group norms regarding when meetings begin often vary in terms of expectations about punctuality. In some groups, members informally expect that the meeting will begin about 10 minutes after the scheduled time; in other groups, meetings are expected to begin precisely on time. The difference between scheduling and precision also is evident. Two groups may be identical with regard to how scheduled their work lives are but have unique norms with regard to how precisely "on schedule" the activities are expected to be. Schriber and Gutek (1987) found precision to be important in their treatment of differences in organizational culture regarding punctuality and deadlines.

CONSTRUALS OF TIME

Above and beyond group members' enactments of the foregoing temporal dimensions, they construe time in certain ways. These construals are reflected in their temporal perspective (present and future) and their experience of time as scarce and urgent.

Temporal perspective concerns whether group members' thoughts are oriented toward the present or future (Lauer, 1981; Waller, Conte, Gibson, & Carpenter, 2001). Jones (1988) described the difference between a present and future orientation:

> We can distinguish between time as a structured, unitized measure of the sequence of unfolding events, compelled toward some distant outcome, and time as the backdrop for behaviors, thoughts, and feelings. The former is a conception of action that occurs within a time that flows linearly, inexorably, and necessarily forward. It is a perspective that is strongly guided by the future. The latter is a feeling of behavior that occurs *in-time*, where time consciousness is suspended and action occurs in the infinite present. (p. 26)

Present and future time perspectives are considered to be independent but related dimensions of time. They exist on separate

scales and as continuous variables. Hay and Usunier (1993) captured this through their discussion of at least four levels of future time perspective: distant future, future, intermediate future, and near future. The need to engage in long-term planning tends to engender a strong future orientation in work units (Jaques, 1982), and the need to develop strategies designed to address a range of emergent problems tends to bring about a present-centered focus (Schein, 1992). Members' perspective may be reflected in their tendency to discuss issues in terms of the here and now (present) and in their relation to future plans. Members may construe time within both high present and future time perspectives, as in the case of an executive team that must plan for growth while addressing emergent problems on a daily basis.

Scarcity can be defined as the belief that time is a limited and exhaustible resource. Temporal scarcity is emphasized in work situations characterized either by too many inputs within a given unit of time or by not enough time to complete a given task, as reflected in the construct "role overload" (McGrath & Kelly, 1986). Alternatively, groups may have more time than they need to complete a task and find themselves experiencing "underload." Members may talk about the need to "buy some time" or "save time" when the perception of time as scarce increases and the need to "use up" some time or "pass the time" when this feeling dramatically decreases. Construals of time at work as scarce may vary during busy or slow times of the day or year. In turn, these construals may be reflected communicatively in organizational members' information overload (Farace, Monge, & Russell, 1977), interpersonal conflict (Nicotera, 1994), and resistance (Mumby, 1996).

Construals of temporal urgency have been equated with a condition called "hurry sickness," which describes persons' preoccupation with deadlines and task completion (Gastorf, 1980; Mueser, Yarnold, & Bryant, 1987; Waller et al., 2001). Although these studies have focused on personality traits related to temporal urgency, each offers a useful starting point for describing this temporal dimension. Construals of time as urgent may be represented in discourse about "running out" of time to complete a given task. Units characterized by constant stimulus-response interactions are likely

to construe time as urgent, or urgency may reflect a temporary valuation of time based on an impending deadline. Perceptions of time as urgent and scarce often coincide. However, urgency is focused on the task, whereas scarcity is focused on the (temporal) resources available to complete it. For example, a group may be in a situation of underload and have more than a sufficient amount of time to complete a task but still take its completion as urgent due to its perceived importance.

In the remainder of the article, our focus shifts to the various factors that play a role in shaping members' experience of time. To this end, we introduce a multilevel model (Figure 1) that depicts a number of social, organizational, and individual factors identified as important influences in extant literature, and it centers around three communication structures that mediate this process in organizations. The central goal and contribution of this model is the rapprochement of several disparate literatures and the development of a communicative basis for understanding sociotemporal processes in organizations. Rather than depicting a deterministic process, this model is intended to illustrate the complexity involved in negotiating the sociotemporal order of organizational life while highlighting the often overlooked role of communication in this process.

These various goals are carried out in the following via discussion of the cultural and environmental characteristics that contribute to members' experience of time and followed by examination of several mediating structures at the system level (occupational norms, organizational culture, and work group norms) and individual-level moderating factors (personal influences, work-home conflicts, personality, and social identity). We then shift our attention to concentrate on the three communication structures central to our model. Our discussion is topically organized around levels of analysis (generally in a descending fashion). This ordering is not intended to suggest that factors at higher levels necessarily outweigh those at lower levels. Instead, our goal is to identify a range of potential influences in shaping members' experience of time. Figure 1 lists each temporal dimension and identifies associated causal structures as well as mediating and moderating variables that are treated in our analysis of the communicative construction of time.

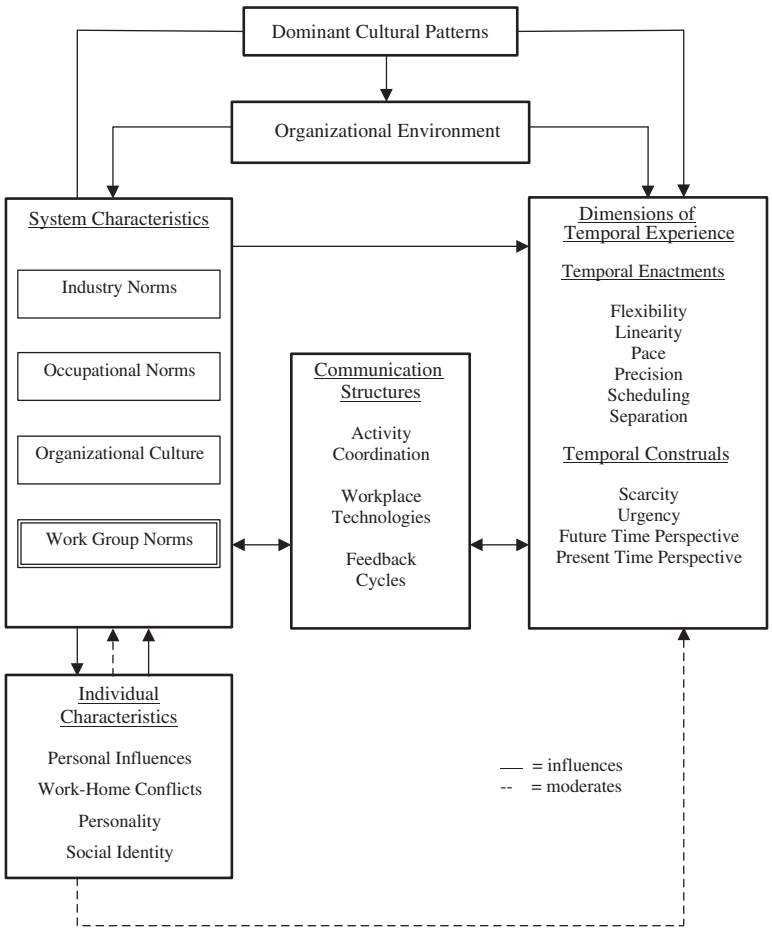

Figure 1: A Meso-Level Model of Organizational Temporality

CULTURAL AND ENVIRONMENTAL INFLUENCES

Consistent with our meso approach, models designed to make claims about intraorganizational processes are strengthened when they also consider the impact of external factors—particularly culture (Hofstede, 1993, 1999) and the environment (Reuf & Scott, 1998).

DOMINANT CULTURAL PATTERNS

The cultural context of an organization plays an important role in shaping members' temporality (Hay & Usunier, 1993). The dominant cultural patterns for a given organization include a competing mix of national, regional, local, and ethnic influences. For example, Levine (1988) demonstrated the heterogeneity of national cultures through his studies of time differences across regions, and more recently, Soja (2000) drew attention to these differences as well. Similarly, Jones (1988) showed that ethnic subcultures often have distinct orientations toward time. Overall, there is considerable evidence to support the influence of culture on organizational members' shared experiences of time at work (Hall & Hall, 1990; Hay & Usunier, 1993; Hofstede, 1993; Hofstede & Bond, 1988; Limaye & Victor, 1991; McGrath & Kelly, 1986; Schein, 1992).

Hofstede and Bond (1988) identified time as one of the dimensions of culture that accounts for significant variation in organizational members' work patterns across nations. Based on their administration of the Chinese Value Survey (CVS) in 22 countries across five continents, Hofstede and Bond (1988) added a temporal dimension—labeled *long-term* versus *short-term orientation*—to Hofstede's (1985) earlier typology of national value systems. A long-term orientation is characterized by a future time perspective, persistence, and temporal "thrift." In contrast, a short-term orientation is marked by past- and present-centered values, respect for tradition, and social obligation (Hofstede, 1993). The finding that cultural values can account for variation in organizational members' experience of time is consistent with other work in this area (Hall & Hall, 1990; Limaye & Victor, 1991; McGrath & Kelly, 1986). Hall's (1983) work on monochronic and polychronic cultures showed differences in organizational behavior to be attributed in part to members' varying temporal conceptions (see Hall & Hall, 1990, for a further discussion). Following the same observation, Limaye and Victor (1991) hypothesized that differences in time orientation across cultures may cause conflict in business negotiations. Finally, McGrath and Kelly (1986) noted that cultural context influences organizational temporality. Therefore, based on the foregoing discussion, we propose that:

Proposition 1: Organizations' cultural context influences their members' experience of time.

Although culture creates the broad landscape of an organization's environment, there are many other factors present in the environment that impact members' constructions of time. Following from Scott's (1987) classic work on organizational environments, we consider organizations' technical and institutional environments and the temporal implications thereof in turn next.

ENVIRONMENT

To understand the relevance of organizations' technical environment in shaping their members' experience of time, a brief review of three problems inherent in collective action identified by McGrath and Kelly (1986) is instructive. The three problems with which all organizations must contend are uncertainty, conflicting interests, and the inherent scarcity of resources. At the organizational level, these problems give rise, respectively, to corresponding needs for predictability, coordination, and priority setting. All of these needs implicate members' time-related responses: They are prototypically met through plans and schedules, the synchronization of activities in time and space, and the allocation of limited temporal resources to particular activities and units, respectively. Although McGrath and Kelly (1986) focused on the intraorganizational dynamics that give rise to these problems (and their intraorganizational solutions), both uncertainty and scarcity have environmental causes as well. Each stems in part from an organization's technical environment. The technical environment of an organization refers to its source of inputs, market for outputs, competitors, and regulators—as such, it guides industry norms and practices that in turn mediate members' temporal experience.

Managing an organization's technical environment involves "ensuring adequate supplies of resources and markets, designing efficient work arrangements, and coordinating and controlling technical activities" (Scott, 1987, p. 127). This is manifest intraorganizationally through emphasis on temporal dimensions such as scheduling and can contribute to units' construals of time's scarcity

and urgency. Related to Scott's (1987) conception of technical environments, Aldrich (1979) described six dimensions (capacity, homogeneity-heterogeneity, stability-instability, concentration-dispersion, consensus-dissensus, and turbulence) that impact the uncertainty and dependence an organization faces with respect to its environment. Organizations in technical environments characterized by high levels of uncertainty (often associated with more heterogeneity, instability, dispersion, dissensus, and turbulence) have recently begun to emphasize flexibility as an important macro-temporal strategy designed to manage high levels of change (Collins, 2000; Holder & McKinney, 1992; Vinton, 1992).

In addition to the direct cultural influences that shape organizational members' experience of time (as described earlier), cultural values and practices also affect the institutional environment—that is, the kinds of institutions that social collectives create—thus indirectly influencing members' temporality through the character of the work arrangements with which they become engaged (Grossin, 1993; Ingold, 1995; Marx, 1849/1977; O'Malley, 1992; E. P. Thompson, 1967). Scott's (1987) description of the institutional environment revealed how organizational structures are impacted by the larger cultural context. Whereas technical environments are created by economic and political systems and concern the very practical business of organizational life, institutional environments concern the cultural context within which organizations are embedded and call attention to the cognitive and normative systems that characterize organizations.

To illustrate the cultural aspect of institutional environments, Scott (1987) referred to three distinctive organizational forms—Latin, Anglo-Saxon, and traditional. The Latin type, represented by French, Italian, and Spanish organizations, is distinguished by relatively high centralization, rigid stratification, sharp inequalities among levels, and conflicts surrounding areas of uncertainty. The Anglo-Saxon type, illustrated by British, American, and Scandinavian organizations, is characterized by decentralization and is more flexible with regard to stratification and the application of rules. The traditional type, found in nonindustrialized or underdeveloped countries, tends to follow paternalistic leadership patterns and informal rules, and its members observe little or no demarcation between organizational and nonorganizational roles.

Each type of organization described by Scott (1987) has implicit consequences for temporal patterning. In fact, the characterization of the traditional organization has a high degree of correspondence with E. P. Thompson's (1967) classic description of task-oriented cultures, or cultures in which there is little "demarcation between 'work' and 'life'" (p. 60). As opposed to hurrying "home" from "work," in traditional institutional environments, work and life are less separable. The institutional environment of an organization is influenced by the broader culture in which it exists. In all likelihood, the temporal character of work in the dominant organizational "form" (Scott, 1987) for that culture cumulates over time to recursively influence larger cultural values regarding time. Therefore, the following propositions are offered:

Proposition 2: The dominant culture within which organizations exist affects their institutional environments and shapes the normative and cognitive systems that enable and constrain members' behavior (including industry norms, occupational norms, organizational culture, and work unit norms).

Proposition 3: Organizations' technical environments influence the norms and practices of their respective industry.

Proposition 4: Organizations' temporal norms are influenced by their institutional and technical environments.

MEDIATING STRUCTURES AND MODERATING FACTORS IN THE CONSTRUCTION OF TIME

The temporal patterns created by the communication structures central to our model and influenced by cultural and environmental factors are mediated in organizations through a variety of system-level structures in addition to industry norms. In addition, members' experience of time is moderated by a number of individual factors. Three other mediating structures—occupational norms, organizational culture, and work group norms—and four moderating factors—personal influences, work-home conflicts, personality, and social identity—also affect organizational members' constructions of time. Each is described in the following.

MEDIATING STRUCTURES

Occupational norms. Occupation is a relevant site for instantiating organizational members' temporal orientations (Ballard & Seibold, 2000; Starkey, 1989). Starkey (1989) explained: "Different occupational groups are characterized by different experiences of time because different forms of work are 'more or less constraining in terms of time' (Grossin, 1974, pp. 12-13)" (pp. 36-37). Zerubavel (1981) agreed that temporal norms are mediated through membership in a particular occupational group and pointed out that several modes of temporality exist in any one organization on this very basis. Other scholars have provided empirical evidence for occupational differences in time orientation (Ballard & Seibold, 2000; Dubinskas, 1988b; Lawrence & Lorsch, 1967). We identify several factors that contribute to temporal variation across occupational groups in our discussion of the communication structures that order members' work and temporal patterns.

Organizational culture. Organizations also have their own temporal cultures—even different sites of the same firm may have dissimilar orientations (Schein, 1992; Schriber & Gutek, 1987). Schriber and Gutek (1987) examined members' perceptions of various organizational norms about time. Their resultant Time Dimensions Scales supported the existence of 13 temporal dimensions of organizational culture. These dimensions included allocation, autonomy of time use, awareness, future orientation, intraorganizational time boundaries, punctuality, quality versus speed, schedules and deadlines, sequencing of tasks, synchronization and coordination, time boundaries between work and nonwork, variety versus routine, and work pace. They summarized: "People may alter their uses of time, as well as their notions about appropriate time norms and values, when they enter a particular organization (e.g., work organization, social club)" (p. 642). Organizations contain temporal subcultures as well, as the literature on work group differences demonstrates.

Work group norms. The larger organizational culture impacts work units' temporal norms, but these norms are influenced by and mediated through group-level processes. As Poole (1998)

observed, groups are the ideal social unit from which to understand how intersubjective phenomena are created and maintained and to explore the relation between action and structure. Seibold (1998) concurred that system-level qualities are mediated through the practices of organizational members. Zerubavel's (1981) conceptions of temporal "symmetry" and "asymmetry" support these characterizations. According to Zerubavel, work groups represent a location of temporal symmetry in organizations, wherein members have similar orientations toward time. In contrast, organizations often constitute sites of temporal asymmetry, wherein members attempt to coordinate their behaviors but possess unique temporal orientations (characteristic of their work units) or temporal subcultures. As such, the model in Figure1 locates work groups as the primary site of organizational temporality—at least as time is experienced by organizational members.

Based on the foregoing discussion of the role of occupational norms, organizational culture, and work group norms as mediating structures for the construction of time in organizations, we pose the following proposition:

Proposition 5: Organizational members' experience of time is mediated via their occupational group membership, their organizational culture, and their work group norms.

MODERATING FACTORS

There is a great deal of research regarding the role of individual-level characteristics in shaping individuals' time orientation (Cottle, 1976; Fraisse, 1963; Rappaport, 1990; Usunier & Valette-Florence, 1994). Whereas our model is primarily concerned with the influence of various communication structures on organizational members' experience of time, these influences are moderated by individual factors. In addition to moderating work group norms with respect to members' personal experiences of time, these individual-level characteristics may also shape members' contributions to work group norms—thereby also influencing shared experiences of time. For example, through social influence processes

(Lewis & Seibold, 1993), individuals may privilege the use of particular communication structures over others in their work units (e.g., they may favor telework practices) based on work-home conflicts arising from their familial responsibilities. Alternatively, they may contribute to a more harried, rushed work environment, consistent with their Type A personality (Mueser et al., 1987), especially if in supervisory positions. As a consequence of these individual-level characteristics, certain constructions of time may become privileged over others, highlighting the importance of considering individual-level traits (and states) in studying temporal constructions in organizations. Personal influences (i.e., gender and age), work-home conflicts, personality, and social identity are explored in the following, and related propositions are offered.

Several personal influences have been described in the literature as relevant to studying social conceptions of time. Specifically, members of a given age group have been found to share similar conceptions of time unique to their cohort (Rappaport, 1990). Similarly, Hassard (1991) wrote about the age-group-related social clocks that are salient within organizational contexts and order our perceptions of time. Gender has also been cited as a subcultural basis for discrepancies in time orientation (Hall, 1983), based in large part on differences in work-home conflicts (Hochschild, 1997). Rather than being the outcome of some biological difference between men and women, Hochschild (1997) demonstrated how time is socially constructed differently for each gender based on their respective roles in the home. Similarly, Blau (1994, 1995) found empirical support for the influence of work-home conflicts (caused by familial responsibilities) on temporal behavior. In his study of lateness, Blau (1994) cited familial responsibilities, such as dropping children off at day care, as a persistent reason organizational members gave for being late.

The urgency of the Type A personality is also meaningful to consider in investigations of time in organizations (Gastorf, 1980; Mueser et al., 1987). Also, Gonzalez and Zimbardo (1985) constructed a general index of time personalities, and Rappaport, Enrich, and Wilson (1985) found time perspective to be associated with ego identity, a personality variable. Intergroup social identity issues are also important sources of variation in any social context

(Mummendey, Kessler, Klink, & Mielke, 1999), and this is especially so of organizational practices surrounding time—an inherently cultural variable.

Taken together with factors such as position, status, influence, and group size, these individual characteristics may exert significant influence on group temporal norms. Consequently, attention to the need to measure and control for these variables in investigations of groups' time orientation allows for more precise assessment of the factors of interest. The relationship between these individual characteristics and the broader organizational conceptions of time is articulated in the following propositions:

Proposition 6: Individual-level characteristics moderate the influence of work group norms on organizational members' subjective experiences of time.

Proposition 7: Individual-level characteristics influence work groups' norms and the construction of members' intersubjective experiences of time.

As is evident from our review thus far, scholars have explored a variety of cultural, organizational, and individual factors in their investigations of time orientation. However, the communication structures that guide and constrain members' behavior at all of those levels of analysis have received scant consideration. In the following sections, we address three communication structures at the center of our meso approach to the construction of time in organizations.

ORGANIZATIONAL COMMUNICATION STRUCTURES

Organizational communication practices and structures interpenetrate (Giddens, 1984) significant other organizational structures, including decision making (Poole, Seibold, & McPhee, 1996), climate (Poole & McPhee, 1983), interorganizational cooperation (Browning & Beyer, 1998), power (Mumby, 1996), hierarchy (Seibold, 1998), and participation programs (Seibold & Shea,

2001). Three communication structures in particular are central to the production of organizational work and mediate the recursive effects of members' perceptions of time and their work. The communicative aspects of coordination methods, workplace technologies, and feedback cycles associated with task performance are central to organizational members' experience of time and in turn, temporal constraints on work.

COORDINATION METHODS

Coordination can be defined as the collective accomplishment of individual goals through a cooperative process, typically a process involving communication. Indeed, coordination is one of four communication processes central to McPhee and Zaug's (2000) theoretical framework of the communicative construction of organizations. J. D. Thompson (1967) noted coordination's communicative nature as well. In his view, varying coordination requirements, linked to internal interdependence, reflect organizational units' need to communicate as well as the frequency of that communication. In addition, the issue of communication frequency reflects the temporal constraints of coordination. J. D. Thompson described these relationships in his typology of three types of interdependence among organizational groups and the corresponding coordination required: pooled interdependence, in which efficient coordination is accomplished through standardization; sequential interdependence, in which efficient coordination is accomplished through planning; and reciprocal interdependence, in which efficient coordination is accomplished through the ongoing mutual adjustment of units. Each of these methods of coordination entails varying levels of communication and explicitly different temporal strategies.

Pooled interdependence exists when units produce distinct deliverables (products or services) that are not directly contingent on another unit's performance. However, each is still impacted by the performance of all other units based on their shared fate as members of the same organization. In these cases, frequent communication is unnecessary to task completion, and activity coordi-

nation can be regulated through establishing regular standards for behavior. Requiring employees to report to work at 9 a.m. to begin the workday, go to lunch at 12 p.m., and leave the office at 5 p.m. is an example of a standardized temporal policy.

Sequential interdependence characterizes temporally serial relationships, as when one unit relies on another having successfully carried out its task to complete a job. The relationship between research and development (R&D) and marketing is sequentially interdependent. R&D must proceed with initial product development before marketing has a product to vend. In addition, unless their product is eventually marketed, R&D's ultimate goal is not realized—that is, getting the product to consumers. R&D members do not necessarily need to consult with marketing to complete their task. However, they need to communicate regarding when their product will be completed. This is done through planning—setting a projected date for completion. Although these dates may be renegotiated at some point, the nature of their communication still revolves around plans for project completion.

Finally, in reciprocal interdependence, the outputs of each unit become inputs for the other units. Sales and production departments may share a reciprocally interdependent relationship. Sales is dependent on production to have a product to sell, and the adequacy with which sales personnel perform their jobs partially determines whether production employees will have a steady supply of orders to fill. Because this is an ongoing, continuous process, the nature of their communication patterns is similarly dynamic. Consequently, standardization and planning are ineffective temporal devices to coordinate their behaviors. Instead, J. D. Thompson (1967) suggested that units coordinate using mutual adjustment that "involves the transmission of new information during the process of action" (p. 56). The dynamic nature of this relationship has temporal implications as well. In our example, both sales and production members need to be regularly informed about each other's actions; therefore, online inventory systems may be employed as a means of accomplishing these goals in real time.

In a study involving 127 work units in 33 organizations, Cheng (1983) provided empirical support for J. D. Thompson's (1967) claim that as the level of interdependence increases, organizations' use of (more complex) coordinating mechanisms increases as well.

Cheng also found that coordination was a much more critical factor in the quantity and quality of work output for groups characterized by high levels of interdependence. Hence, work groups' need for efficient and effective coordination methods corresponds with their inherent task constraints. Indeed, Thompson recommended that groups seek out appropriate methods of coordination based on their interdependence with other units to ensure efficiency and effectiveness. These coordination methods in turn shape work groups' norms and practices. These coordination needs also stem from the temporal constraints that govern their task-related activities (Hassard, 1991; McGrath & Rotchford, 1983). Therefore, units' coordination methods not only determine the temporal strategies they adopt, but they are a consequence of the temporal constraints they face. Based on the foregoing discussion, we offer the following propositions:

Proposition 8: Based on their level of interdependence, work groups seek out commensurately complex coordination methods to accomplish their tasks. These coordination methods in turn shape their work norms and practices.

Proposition 9: Work groups' coordination methods influence and are influenced by their members' experiences of time.

WORKPLACE TECHNOLOGIES

Although communication research has typically been limited to the study of information technologies (Fulk & Steinfield, 1990), no doubt because of the explicit focus of these technologies as communication tools, this reflects a narrow conceptualization of the communicative implications of technology. In a collection of studies on the structuring of time and technology across organizational groups, Dubinskas (1988a) observed that technologies order interaction. In some cases, "machines are symbols . . . they are embodiments of times and central social ordering devices for the physicists who build and use them" (p. 28). In other contexts, group members

> apprehend (the technology) as an externally created, relatively immutable presence around which work (read interaction) must be organized. The artifact appears to impose temporal order on the

> users. Technologies in use appear to impose an external temporal order; they structure time. (p. 28)

Based on findings from the ethnographies presented in Dubinskas' work, technologies (ranging in these essays from solar energy panels to medical imaging) emerge as a primary means of structuring interaction in organizations. This locates them as central communication structures in organizations.

Accordingly, for the theoretical model in Figure 1, workplace technologies are inclusively defined as the physical and social tools that structure or assist task completion—not simply information technologies. Therefore, this includes advanced information technologies, physical machines, rudimentary instruments, timekeeping devices, and assembly lines. There are no tools that fall out of the purview of this model; however, we are concerned with "technologies-in-practice" as described by Orlikowski (2000, p. 408) rather than the structural or rational features of a given tool. Orlikowski described that technologies-in-practice

> refer to the specific structures routinely enacted as we use the specific machine, technique, appliance, device, or gadget in recurrent ways in our everyday situated activities. Some properties provided by the artifact do not exist for us as part of our technology-in-practice, while other properties are rich in detailed possibilities. (p. 408)

Elsewhere, we offer a typology of the temporal dimensions of technologies-in-practice based on their influence on interaction (Ballard & Seibold, 2001).

The social entrainment model developed by McGrath and Kelly (1986) is well suited to analyzing the relationship between workplace technologies and social conceptions of time. Kelly and McGrath (1985) reported that individuals become entrained to the temporal conditions of their work. If technologies temporally structure groups' working conditions, it is the technology to which groups are becoming entrained. Barley (1988) found evidence of this dynamic in his study of the members of two hospital radiology departments. The unique temporal features of the radiology equipment from unit to unit led to observable differences in technicians' temporal behaviors. This is consistent with McGrath's (1991)

proposition that behavior in work groups evidences "entrainment processes leading to patterns of synchronization, both of group members' behavior with one another, and of group behavior with 'external' events" (p. 161) and several supporting empirical findings (Kelly, Futoran, & McGrath, 1990; Kelly & McGrath, 1985). Ancona and Chong (1996) also recognized the existence of entrainment patterns in organizations.

Although research that implicates specific dimensions of time is rather limited, a few studies point to particular relationships between time and technology. Horning, Ahrens, and Gerhard (1999) found a relationship between organizational technologies and persons' temporal practices such as flexibility. Gleick (1999) noted the high levels of precision offered by current technologies and offered examples of their behavioral and psychological effects on users. Finally, even technologies as basic as the calendar are seen to contribute to an experience of time as linear and scheduled and to engender a future and present time perspective in users (Payne, 1993).

Technology also shares a reciprocally dependent relationship with work groups' experience of time and their work norms. For instance, groups that regularly engage in a great deal of long-term planning will seek out and adopt technologies designed to meet their needs. The use of such technologies in turn contributes to a future time perspective and patterns their work norms in a similar fashion. Similarly, we can expect fast-paced work groups (e.g., production)—for whom speed is a critical resource—to actively pursue technologies that enable higher speeds. The pace they achieve as a result of this technology may reinforce their work norms and lead them to seek out faster paced technologies that continue to increase their productivity or output per unit of time. Based on this analysis of workplace technologies, the following propositions are offered:

Proposition 10: Workplace technologies influence groups' work norms and their experience of time, each of which recursively influences their choice of technologies.

Proposition 11: Workplace technologies influence organizational members' construals of time—particularly members' temporal present and future perspective.

Proposition 12: Workplace technologies influence members' enactments of time—particularly flexibility, linearity, precision, and scheduling.

FEEDBACK CYCLES

Feedback cycles are the time horizons across which units are held accountable for their performance (Cusella, 1987). As such, feedback loops are inherently temporal. In addition, feedback cycles are fundamentally communicative as they represent the frequency with which organizational members receive information from the environment about the outcomes of their work and frequently correspond to how regularly they are held accountable for their work products by other organizational members or stakeholders. Although this information may be transmitted interpersonally (e.g., via performance appraisals) or mechanistically (e.g., via quality control databases that individuals can assess themselves), feedback cycles shape work groups' experience of time (Ballard & Seibold, 2000). Their time orientation also leads them to favor certain feedback cycles as more consistent with their work norms (Lorsch & Morse, 1974), thus suggesting there is a mutually constitutive relationship between time orientation and feedback. Furthermore, groups' work norms typically lead them to particular feedback cycles that in turn enable and constrain their work patterns (Dubinskas, 1988b). Two examples that follow help to illustrate these points.

Lawrence and Lorsch (1967) studied the time orientation of groups that faced fundamentally different task and temporal constraints on the basis of their membership in one of four basic departments (sales, production, applied research, and fundamental research) across six organizations in the plastics industry. The members of each group received feedback at various intervals consistent with their task constraints that in turn shaped their work norms. The frequency of this feedback also shaped their time orientation. Findings revealed that members of the sales department had the narrowest temporal perspectives, followed by members in the production department. The broadest temporal perspectives (con-

sistent with a future time perspective) were held by members in the departments responsible for fundamental research projects, followed by members of the departments responsible for applied research projects. In sum, Lawrence and Lorsch found support for their hypothesis that work groups' feedback cycles impact their temporal perspective. In addition, work by Lorsch and Morse (1974) suggested a recursive relationship between feedback and members' experience of time. In a study of research laboratories, they found that R&D groups who were required to submit regular progress reports—inconsistent with the inherent "timing" of their projects and corresponding time orientations they had developed—had poorer performance compared with groups who were allowed to demonstrate their progress following more intrinsic feedback cycles.

In an ethnographic study of the scientists and managers in a genetic engineering firm, Dubinskas (1988b) discovered two contrasting conceptions of time held by these groups based on their task demands. Company scientists held the task of developing new genetic engineering technologies, a job with extended, highly unpredictable time horizons—not well suited for regular progress reports. In contrast, the job description of the managers at this venture capital start-up involved communicating objective standards of progress and growth to their investors on a much more frequent basis. Thus, on the basis of their feedback cycles, the scientists worked in "development time" while the managers worked in "planning time." Conflict often erupted as the managers pressed the scientists for "results," whereas the scientists were upset that the managers were not letting them do their "jobs." These findings point to an additional source of variation that may account for work groups' experience of time (for a typology of feedback cycles based on their timing demands, see Ballard & Seibold, 2001).

The preceding discussion leads us to the following propositions:

Proposition 13: Groups' work norms support particular feedback cycles that in turn help to shape those norms.

Proposition 14: Groups' feedback cycles shape their experience of time that in turn influences their preferred feedback loops.

Proposition 15: More extended feedback cycles engender a greater future time perspective than do less extended feedback cycles.

The foregoing three communication structures represent fundamental generative mechanisms in the theoretical model depicted in Figure 1. The implications of this model are summarized next.

SUMMARY AND IMPLICATIONS

The modern industrial organization has arguably exerted the greatest single influence on its members' collective sense of time. First, it stands as the site where the Protestant work ethic, industrial capitalism, and the clock were collectively mobilized toward a single, unified mission. In addition, it holds power because persons derive their sense of time from the kind of work with which they are engaged (Hassard, 1996; McGrath & Kelly, 1986; Starkey, 1989). Most analyses have sought to identify the source of time orientation at various levels of analysis (Gonzalez & Zimbardo, 1985; Grossin, 1993; Hofstede, 1993; Schriber & Gutek, 1987). However, few have explored organizational practices as units of analysis through which to understand members' temporality. Because intersubjective interpretations of time are influenced by structures at several levels, we adopted a meso approach centered on three communication structures—coordination methods, feedback cycles, and workplace technologies—that shape the experience of time in work groups. Consistent with practice theorists' contentions, we believe that members' conceptions of time are best understood with reference to the practical demands of the systems with which they are involved. Accordingly, coordination, feedback, and workplace technology are among the most fundamental structures shaping members' work lives and their task constraints.

Our model focused on 10 dimensions of time—separation, scheduling, precision, pace, present time perspective, future time perspective, flexibility, linearity, scarcity, and urgency. We also considered the influence of various constraints at several levels of analysis, including mediating structures at the system level (e.g., occupational norms and organizational culture) and moderating factors at the individual level (e.g., work-home conflicts and personality traits). Propositions were offered to explicate the role of each of these elements in shaping members' experience of time.

Ultimately, we addressed how intersubjective experiences of time are constructed through communication structures that form the basis of members' work norms. This aligned with our claims of recursivity and the central premise of our model: Communication is at the nexus of the relationship between time and work.

For organizational communication theory and research, the value of understanding temporal issues stems from their intrinsic tie to human interaction. Because members' experience of time not only arises through their interaction in the workplace but in turn influences their interaction in key organizational relationships, a deeper discernment of temporal processes also furthers knowledge regarding communication. For example, multisite or multiindustry research must consider temporal differences as a potential source of variation shaping important communication outcomes. Or the internal communication dynamics of a work group may be influenced via persistent work-home conflicts faced by one of its members. Awareness of such factors strengthens our theory-building efforts regarding a variety of organizational communication phenomena.

In the same way, practical concerns may be elucidated through a temporal lens (Ancona et al., 2001). For instance, communication is facilitated to the extent that members are aware of group differences surrounding time: Knowing that "soon" may not carry the same meaning across units helps teams to avoid misunderstandings. This also improves coordinative processes. Similarly, conflict may be reduced and cooperation increased when members are able to attribute work norm differences to the practical demands of each unit's task environment rather than territoriality. Acknowledging that temporal issues are instantiated at several levels of analysis and mediated through group practices distributes responsibility for managing these differences. The locus of responsibility extends to department managers, human resources personnel, management consultants, team leaders, and group members. For instance, during routine values checks for cross-functional teams, potential temporal differences should be discussed.

In sum, it is our hope that this theoretical framework advances scholars' understanding of the processes involved in shaping temporal experience at work and draws our attention to the corresponding communicative implications. As the proliferation of organiza-

tional tools and routines designed to extract greater "value" from members' time continues to increase, we believe it is imperative that scholars continue to expand our knowledge of the theoretical and practical implications of these trends.

NOTE

1. Although we provide sufficient grounding for this analysis, more complex understandings of this perspective are available elsewhere (Everett, 2002). Also, see Alexander (1995) for an analysis of the material economy and implicit Marxian predispositions of this tradition.

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