



Western Journal of Communication (includes Communication Reports)

ISSN: 1057-0314 (Print) 1745-1027 (Online) Journal homepage: <https://www.tandfonline.com/loi/rwjc20>

Time orientation and temporal variation across work groups: Implications for group and organizational communication

Dawna I. Ballard & David R. Seibold

To cite this article: Dawna I. Ballard & David R. Seibold (2000) Time orientation and temporal variation across work groups: Implications for group and organizational communication, *Western Journal of Communication (includes Communication Reports)*, 64:2, 218-242, DOI: [10.1080/10570310009374672](https://doi.org/10.1080/10570310009374672)

To link to this article: <https://doi.org/10.1080/10570310009374672>



Published online: 06 Jun 2009.



Submit your article to this journal [↗](#)



Article views: 362



View related articles [↗](#)



Citing articles: 4 View citing articles [↗](#)

Time Orientation and Temporal Variation Across Work Groups: Implications for Group and Organizational Communication

Dawna I. Ballard and David R. Seibold

This investigation sought to identify theoretically coherent and empirically robust dimensions underlying work group members' perceptions of time (RQ1). We also tested the degree to which members' time orientation varied across work groups (H1). Utilizing data from a self-administered questionnaire completed by 337 employees of a national cable subcontractor with offices located in three regions of the United States, we identified three theoretically significant dimensions of time—*separation*, *concurrency*, and *flexibility*—via factor analysis (RQ1). The results of a discriminant function analysis conducted to test temporal differences among organizational groups supported H1. The findings suggest that work groups differ in theoretically meaningful ways with regard to time orientation and that their varied communication demands and patterns may contribute to these differences. Qualitative data are used to elaborate these results. Implications of these findings for communication, in general, and for group and organizational studies, in particular, are discussed, and several propositions for future research are offered.

Background and Statement of the Problem

Time has been a central construct in science and philosophy for at least the last 2,000 years (Jaques, 1982). The study of time is much newer in the social sciences, however, and is in its infancy in the field of communication (Bruneau, 1990). Perhaps the primacy of time in such disparate traditions has contributed to its ancillary treatment in our own discipline. The image of time as linear, absolute, and abstract—rooted in a “Newtonian” conception (McGrath & Kelly, 1986)—obscures its social, institutional, and inherently communicative origins.

DAWNA I. BALLARD (M.A., University of California, Santa Barbara) is a doctoral candidate and DAVID R. SEIBOLD (PhD, Michigan State University) is a professor in the Department of Communication, University of California, Santa Barbara, CA 93106-4020. This paper is based on a master's thesis submitted by Ms. Ballard and directed by Dr. Seibold at the University of California, Santa Barbara. The authors gratefully acknowledge the contributions of Howard Giles and John C. Lammers in the development of this work and Dennis Gouran, Marshall Scott Poole, Eric Eisenberg, George Cheney, Tony Mulak and Cynthia Stohl for their helpful suggestions and comments on an earlier draft. A version of this paper was presented at the 1999 convention of the National Communication Association, Chicago, IL.

When time has been studied by communication scholars, it has generally been treated as either an intentional or unintentional medium of communication. The definition of chronemics offered in a popular communication theory textbook reflects these views, as writers alternately define it as "the study of how time is used to communicate" and "the study of the way time functions in communication" (Infante, Rancer, & Womack, 1990, p. 260). The first definition highlights time as a purposive conveyor of information (e.g., an individual may keep another waiting to "communicate" dominance or power). More often, however, time is viewed from the perspective of the second definition as an unintentional conveyor of information, as when one makes attributions on the basis of temporal behaviors (e.g., punctuality, tardiness, or pace) that "communicate" certain internal dispositions (e.g., diligence, laziness, or lack of organization). The conflict that results from such attributions is often the focus of investigations in this area (e.g., Dubinskis, 1988; Hall & Hall, 1990; Limaye & Victor, 1991; Schein, 1992).

Although these are important ways to view communicative aspects of time, each portrays time simply as a medium of communication. The more fundamental, constitutive relationship between time and communication is overlooked. *Communication creates* persons' views and understanding of time, yet our sense of time *enables and constrains communication* in important ways. The communicative origins of time emanate through two distinct, yet interrelated, processes that are negotiated through group interaction: *culture and coordinated action*. The nexus of time and communication are in cultural constructions of time and in the emergence of time through coordinated action, ideas we treat next.

Time as a Cultural Construction

We seek out and create temporal order on the basis of our cultural values. "Clock" time, for instance, is a cultural construction (Glennie & Thrift, 1996; Hassard, 1991; O'Malley, 1992). The existence and proliferation of objective, independent time-measuring devices is itself a cultural by-product, and the uniform seconds, minutes, and hours that clocks appear to "measure" also are culturally constructed. All of nature's time mechanisms (for instance, days, moons, and seasons) are slightly variable; human beings have regularized time into 24-hour days, 7-day weeks, and the like. The standardization of time in certain cultures is evident in the existence of leap years to "correct" for variations in the Earth's cycles (Landes, 1983; Lundmark, 1996). Daylight Savings Time (DST) is perhaps the most obvious example of human resolve to "create" or "change" time to accommodate specific cultural values. The fact that not all communities use the same measures of time (note the geographic specificity of DST) further attests to its cultural basis. Indeed, in their classic treatment of managing

differentiation and integration in organizations, Lawrence and Lorsch (1967) identified variation in temporal norms across work groups and others have continued to pay attention to it (Dubinskas, 1988; Lorsch & Morse, 1974; Schein, 1992).

Not only is time a cultural construction, but culture is inherently a communicative creation (Conrad, 1990; Latane, 1996). As one of the most fundamental elements of any culture (Hall, 1976; Schein, 1992), conceptions of time also originate in communication and are managed symbolically. In organizations, the symbolic character of time is especially evident in group settings—unit schedules, work time norms, deadlines, project timelines, and the like. The resulting temporal norms, values, and practices then recursively guide and restrict members' communicative behavior. Consider the example of an approaching deadline on a team project. In a culture in which "time is money," the mere assignment of a task signals its perceived importance, given the expenditure of the valuable and finite resource (read "time") it will require. The establishment of a deadline, as opposed to an open-ended request, also emphasizes its gravity within a larger system of time-sensitive activities and tasks. Hence, the deadline stands as a symbol of temporal values and expectations. Furthermore, the impending deadline then structures communication. Group members may feel precluded from engaging in other work-related or personal interactions (Gersick, 1988; McGrath, 1991). As the deadline encroaches yet further, interpersonal communication may become strained. Thus, communication produces temporal constraints, which, in turn, produce particular symbolic behaviors.

Time and Coordination

In addition to being negotiated culturally, conceptions of time are instantiated in coordinated behavior. It is through communication that acts are coordinated, and time serves as a medium (as well as a measure) of that coordination. Thompson's (1967) seminal discussion of the types of coordination affirms these relationships. Since one of the primary requirements of organizing is the coordination of persons or events in time and space, there may be no other domain in which the relationship between time and communication is more central than in organizations. Their reciprocal nature is highlighted in work group processes in which time is central to the structuring of communication (e.g., the scheduling of meetings and the completion of project deadlines), and in which the communicative origins of time are evident in the variety of temporal subcultures that characterize variant work groups (e.g., the unique time orientation of research and development departments compared to sales or management groups is discussed in Dubinskas, 1988 and Lawrence & Lorsch, 1967). Work groups mediate temporal culture via their specific communication patterns, and they frequently are the nexus of intraorganizational coordination.

Focus and Overview

Although the importance of time in organizations and work groups has been acknowledged by social psychologists (e.g., McGrath & Kelly, 1986), organizational behavior researchers (e.g., Bluedorn & Denhardt, 1988), sociologists (e.g., Hassard, 1996), and anthropologists (e.g., Dubinskas, 1988), this construct has languished in communication studies since early work by Bruneau (1977). Given the prominence of time in many group processes (Futoran, Kelly, & McGrath, 1989; Gersick, 1989; McGrath, 1991), a view of time and communication as recursively determinative has the potential to inform group and organizational communication research significantly.

Essential to any analysis of time is the recognition and assessment of time's *dimensionality*. The human experience of time is characterized by a certain pace, urgency, flexibility, linearity, scarcity, tangibility, and so forth that varies across groups and events (Schriber & Gutek, 1987). Communication affects these dimensions by means of a number of mechanisms, such as feedback, coordination, or the communicative nature of a task (Dubinskas, 1988; Lorsch & Morse, 1974). Therefore, two primary goals of this investigation were to examine the dimensionality of time in organizational work groups and whether temporal dimensions differentiate among these groups. Specifically, we explored how members of each group believe time should be structured. This was effected through an exploratory test of two well-established temporal constructs, *monochronism* (or *M-time*) and *polychronism* (or *P-time*) (Hall, 1983). Each construct represents Hall's (1976) conceptualization of a culturally-based temporal system within which group members' view of, or orientation toward, time is manifested outwardly through particular behaviors. Monochronism is characterized by a strong adherence to "clock" time, whereas polychronism is typified by more event-based temporal patterning. Although originally conceived by Hall (1966) on the basis of differences he observed across cultures, he subsequently modified his discussions of M-time and P-time to account for intracultural (and subcultural) temporal differences as well (Hall, 1983). Finally, our goal was to draw implications regarding the relationship between these temporal differences and their distinctive communicative patterns and, thereby, provide empirical support for the reciprocal relationship between time and communication in a specific organizational context—work units.

We begin with a rationale for and discussion of Hall's and other scholars' conceptions of time orientation, including explication of the underlying temporal dimensions in their research. This leads to our first research question concerning the empirical veridicality of these temporal dimensions. We then review two exemplar studies that addressed temporal differences across groups and pose a hypothesis predicting temporal variation across work groups that constituted the second focus of this study. We report an empirical test of these dimen-

sions based on factor analytic procedures (RQ1) and assess their power to differentiate among groups through a discriminant function analysis (H1). Finally, we discuss the significance and the limitations of the findings with respect to communication research, in general, and group and organizational communication research, in particular.

Dimensions of Time

Edward Hall (1959, 1966, 1976, 1983) has provided one of the most prominent and enduring treatments of temporal dimensions in the social sciences. Hall (1990) summarized the key differences between monochronism (M-time) and polychronism (P-time) as follows:

Monochronic cultures are those in which the time base is an outgrowth of the industrial revolution. Monochronic cultures stress a high degree of scheduling, concentration on one thing at a time (hence the name), and an elaborate code of behavior built around promptness in meeting obligations and appointments. *Polychronic* cultures are just the opposite: human relationships and interactions are valued over arbitrary schedules and appointments. Many things may occur at once (since people are involved in everything), and interruptions are frequent. (p. 184)

These constructs are among the most frequently utilized and tested in the literature (Bluedorn, Kaufman, & Lane, 1992; Kaufman, Lane, & Lindquist, 1991; Limaye & Victor, 1991; Schein, 1992) and provide an excellent example of how chronemic research can benefit from the treatment of time as a multidimensional construct. Although Hall (1959, 1966; Hall & Hall, 1987) implicitly outlined the dimensionality of time in his previous work, the absence of this as an explicit organizing framework creates significant measurement problems. For example, North Americans were traditionally considered to be very monochronic; that is, they tended to view time as a scarce resource and tended to focus on one thing at a time (Hall, 1959, 1983). However, today, North Americans tend to engage in a number of activities at once *precisely because* they view time as scarce. Therefore, in Hall's conceptualization, North American culture is high on both monochronism and polychronism. These broader terms, or categories, then become less meaningful than the dimensions that constitute them. In a recent interview with Hall (see Bluedorn, 1998), when asked whether the United States was a monochronic or polychronic culture, he also underscored the difficulty of categorizing contemporary U.S. culture.

The same question is less difficult to answer within a multidimensional framework because it is more reliable to make dimensional categorizations than absolute ones. Indeed, we believe M-time and P-time are best characterized in terms of three overarching dimensions: *tangibility*, *involvement*, and *scheduling*. There are several other dimensions embedded in these; however, these three provide the best classificational scheme for showing the interrelationships among them.

Tangibility

The fundamental difference between M-time and P-time centers on the tangibility (or intangibility) of time (Bluedorn & Denhardt, 1988; Hall, 1966). Monochronism is characterized by the belief that time is a tangible resource. In particular, time is valued as a scarce resource. From this valuing of time as scarce comes an emphasis on promptness and a sense of time urgency. Time is viewed as fixed, linear, and quantifiable.

Polychronism, however, is characterized by the *lack* of attention to time as a quantifiable, tangible resource. It is largely intangible; therefore, clocks and other human-made "time-keepers" are not the primary regulators of activity. Instead, activities are event-based, not synchronized with a particular "time" (e.g., six o'clock in the evening). Events are experienced as they naturally unfold. This follows from an agrarian culture, in which many events are not determined by human resolve but instead are largely determined by the mandates of the task. Within a polychronic temporal system, time is fluid, dynamic, and cyclical (Clark, 1985; Graham, 1981; Hall, 1976).

Involvement

Beliefs regarding the tangibility of time are also related to differences in involvement between the two systems. Monochronism is characterized by a high level of involvement with *tasks*. If time—like money—is tangible, scarce, and valuable, it follows that it should not be wasted. Minimizing the time required to complete a given task or activity maximizes one's total temporal resources available. Strong task involvement facilitates the judicious use of time. Consistent with high task involvement is the tendency to focus on one thing at a time—hence, the term "monochronism." M-time includes the compartmentalization of tasks and activities, the desire for privacy and physical separation, a dislike of interruptions, and other screening behaviors (e.g., screening phone calls or visitors) (Hall & Hall, 1987). Business offices within a monochronic culture are characterized by more closed space; some offices are even soundproof (Hall, 1990). M-time is considered the dominant temporal conception in U.S. organizations (Bluedorn & Denhardt, 1988; Clark, 1985; Hall, 1983; Hassard, 1996; Limaye & Victor, 1991; McGrath, 1988; McGrath & Kelly, 1986; McGrath & Rotchford, 1983; Schein, 1992); however, as discussed earlier, this is changing (Bluedorn, 1998).

Polychronism is distinguished by a high level of involvement with *people* and *relationships*. Because activity is predominantly event-based, relational obligations often determine activity patterns. Individuals operating within this system are more bound to people than to a particular task. As a result, several activities or tasks are often managed at one time. For example, if a person requires one's attention, the

tendency will be simultaneously to address that person's needs while continuing the task on which s/he was previously working. Therefore, individuals operating within a P-time system deal well with interruptions and unpredictability, and this system is characterized by a high level of flexibility. Other specifics associated with this system (that relate to a high level of involvement with people and relationships) include: the tendency to build close business relationships, the desire for an open work area, and the tendency to borrow and lend items frequently (Hall, 1959, 1966, 1976, 1983; Hall & Hall, 1987, 1990). Although monochronism tends to be the dominant temporal conception in U.S. organizations, Hall (1990) has observed that U.S. citizens' personal lives have always been guided by a polychronic temporal patterning. Others (Graham, 1981; McGrath, 1988; McGrath & Kelly, 1986; McGrath & Rotchford, 1983; Schein, 1992) have supported this assertion.

Scheduling

Closely related to involvement within each of these two systems is the flexibility each affords with regard to scheduling. Monochronism is characterized by a low level of flexibility, a desire to control time, and a rigid adherence to schedules. In contrast, polychronism is characterized by a high level of flexibility. Individuals operating within a polychronic system change plans easily and often. Time commitments are regarded as tentative goals, and promptness is based on the norms of the relationship (Hall, 1959, 1966, 1976, 1983; Hall & Hall, 1987, 1990).

Tangibility, involvement, and scheduling represent three non-mutually exclusive factors that illuminate underlying differences between M-time and P-time. However, as described above, other singular dimensions are embedded in each of these terms. For example, tangibility is related more specifically to a valuing of time as *scarce* and *linear*. Involvement is related to such behaviors as *separation* (in time or space) as a component of task completion, and *concurrency*, or engagement in a number of activities at once. Scheduling preferences may be reflected in a group's temporal *flexibility*, with regard to plans and appointments, and temporal *precision*, regarding norms about punctuality.

Other scholars have also referred to time dimensionally. Schriber and Gutek (1987), for instance, explicitly examined the temporal dimensions of organizational culture. Their exploratory analyses revealed such dimensions as *awareness*, *future orientation*, *punctuality*, *variety versus routine*, *quality versus speed*, *work pace*, *sequencing of tasks*, *synchronization and coordination*, and *intraorganizational time boundaries*. However, no subsequent research has sought to verify these, or similar, dimensions.

McGrath and Kelly's (1986) discussion of *organizational* versus *transactional* time, implicitly suggested time's dimensionality. Organizational time is the temporal orientation adopted by the organization to deal with task instrumental activities. In contrast, transactional time is utilized by the individual to handle interpersonal matters (related to social interaction). Organizational time is phasic, linear, mathematical, and independently measurable, whereas, transactional time is epochal, developmental, observer determined, and measurable through multiple valid time constructs. Hassard (1996) described two paradigms for "working" time: *linear-quantitative* and *cyclic-qualitative*. The linear-quantitative paradigm emphasizes realism, determinism, linearity, homogeneity, nomothesis, and quantity. The cyclic-qualitative paradigm emphasizes nominalism, voluntarism, circularity, heterogeneity, ideography, and quality. Although Hassard (1996) and McGrath and Kelly (1986) do not explicitly discuss time as dimensional, the distinctions between organizational versus transactional time and linear-quantitative versus cyclic-qualitative time imply that these constructs are dimensional, as well.

In light of the preceding discussion of the varied theoretical and practical dimensions of time, and given the paucity of empirical research that has explored the dimensions of time across work groups, we addressed the following general research question:

RQ1: Are dimensions of time empirically robust among work group members?

Group Differences in Time Orientation

If temporal dimensions are salient among work group members, one could expect the salience of given dimensions to vary across groups based on a number of distinguishing factors. In an ethnographic study of scientists and managers in a genetic engineering firm, Dubinskas (1988) identified two contrasting conceptions of time held by these two groups that were based on the demands of their tasks. Company scientists worked to develop new genetic engineering technologies, a job with both extended and highly unpredictable time horizons. Managers had the task of coordination, which necessitated shorter temporal horizons and tighter temporal controls over others' time. These two ways of managing time—which Dubinskas (1988) called "development time" and "planning time"—were a primary outgrowth of the feedback cycles each group faced. Scientists worked in development time, whereas managers worked in planning time. Dubinskas's (1988) finding not only underscores the multidimensionality of time, but also suggests that potential variation among work groups' temporal orientations may be significant.

Lawrence and Lorsch (1967) studied the time orientations of organizational members in four departments (sales, production, applied re-

search, and fundamental research) across six organizations in the plastics industry. They found support for their hypothesis that the length of time prior to receiving feedback determined whether those groups possessed a short- or long-time orientation. The sales group had the shortest time orientation, followed by the production group. Longer time orientations were characteristic of the group responsible for fundamental research projects (which required the broadest time horizons), followed by the group responsible for applied research projects (which required less development time). Thus, group members' sense of time was derived from, and varied on the basis of, the duration of their feedback cycle.

These two case studies point to a variation in communication patterns (i.e., length of feedback loop) as a possible source of contrasting temporal orientations. Thompson (1967) noted another, perhaps more obvious, relationship between time and communication: communication takes time. In a culture in which "time is money," communication becomes costly. While this is true, in varying degrees, for members of most occupational groups, it is especially true for members of particular groups. Under piece-rate work, the more members can accomplish within a given period of time, the more compensation they will receive for their time. Therefore, compensation is quite directly a function of their use of time, and often their communication patterns. This relationship is not as direct for members of salaried or hourly personnel groups; rather, their compensation levels are set at a fixed rate (per hour or per year) for a time. However, bonuses and commissions are common incentives across groups.

On the basis of our previous discussion, occupation appears to be a relevant distinction among organizational groups and their use of time for a variety of reasons, including feedback cycle and compensation. Several writers have also examined railway workers as an exemplar case of how certain groups own a unique sense of time as a direct result of their occupational demands (Blyton, Hassard, Hill, & Starkey, 1989; Glennie & Thrift, 1996). Similarly, Zerubavel (1981), Ditton (1979), Cavendish (1982), and Hassard (1989) provided support for the notion of time as socially constructed through work group processes and norms. As Starkey (1989) observed, "Organizations manage time scarcity in differing ways that impact on individual experience which is mediated by membership of a particular occupational group" (p. 37). Although there is not sufficient evidence to predict particular dimensions of time that will be relevant for the groups in our study, the foregoing research regarding temporal variation across groups provides a basis for the following general hypothesis.

H1: Time orientation will vary across work groups.

To answer the research question concerning the empirical dimensions of time in work groups and to test the hypothesis that time

orientation will vary on the basis of group membership, we conducted a study to tap these dimensions and assess group differences. The details and findings follow.

Method

Questionnaire

Previous research. Kaufman, Lane, and Lindquist (1991), who constructed the Polychronic Attitude Index (PAI), made efforts to measure monochronism and polychronism at the individual level. This resulted in a four-item scale, with a reliability level of .68, designed primarily for use in consumer research. While valuable, the measures of time assessed in that study were unidimensional. The items focused solely on respondents' feelings toward combining activities within a unit of time. In light of the preceding description of the underlying dimensions of M-time and P-time, measurement of individuals' time orientation by these standards appeared to be too limited and limiting. Another possibility was the numerous observational measures that may be used for partially assessing the temporal constraints of a particular organization, department, or work group therein. Although such information is useful, system-level qualities typically are mediated through the practices of organizational members responsible for the day-to-day operation of the organization (see Giddens, 1979; Poole, Seibold, & McPhee, 1985). An individual-level questionnaire, we therefore believed, would best provide us with this information.

Item pool. The questionnaire in this investigation was constructed following an extensive review of the literature regarding M-time and P-time. Items were generated from specific descriptions and examples regarding the two temporal orientations. Within the three broad conceptual dimensions of tangibility, involvement, and scheduling reviewed above, 40 items were utilized to tap flexibility, concurrency (the number of activities engaged in at one time), tolerance for interruptions, promptness, a sense of time as scarce, engagement in screening behaviors, and a focus on transaction completion (rather than time conservation).

Measurement. The self-administered questionnaire consisted of 40 8-point Likert-type scales designed to assess the prevalence of the dimensions of time listed above and ranging from "strongly disagree" (1) to "strongly agree" (8). An even-number 8-point scale was chosen to maximize variation among groups since time is at once a cultural variable (at the national level) and a subcultural variable (at the organizational level). Following some reverse coding, a higher score on a particular item indicated more polychronic values and behaviors, whereas a lower score was representative of a more monochronic orientation. The items were examined for face validity by colleagues familiar with the constructs, including professors of group, organizational, and intercultural communication at two universities. Examples

include such items as, "I accomplish tasks at work by screening out distractions" and "I do several things at once during the course of my workday/workshift." These were followed by additional demographic questions concerning age, ethnicity, gender, position/title, and years with the organization. Initial reliabilities were calculated to assess the internal consistency of the 40-item questionnaire. Cronbach's alpha was .71 (standardized item alpha = .72), and suggested that overall internal consistency was acceptable.

Respondents

Participants included 337 employees from a national U.S. cable installation subcontractor with several offices located in the West, Midwest, and Southwest. The sample was 68.2% Caucasian, 16.5% Hispanic, 6.2% Native American, 3.4% African American, 3.4% Asian, and 2.2% multi-ethnic. Men comprised 87% of the sample and women 13%. Respondents' ages ranged from 21 to 66 years; the average age was 36. Employees at all levels of the organization were surveyed; job classifications ranged from construction to management. Compensation levels (and data-analytic categories) included production, hourly, and salaried employees. The "production" category referred to organizational members who were employed doing construction work, for which they were paid according to the number of "jobs" completed. The 337 respondents represented approximately 80% of the organization's employees and 100% of the employees to whom questionnaires were distributed.

Procedure

The questionnaire was pilot-tested at an employee meeting with a sample of 22 members of the organization from one site who represented various departments. Basic descriptive tests were conducted to assess questionnaire performance. Informal feedback led to the minor rewording of several items. Since the content of all original items was retained and the overall format of the questionnaire remained the same, this sample was included in the total data set. The scale was then administered at a series of mandatory employee meetings at all offices. The first 20 minutes of each meeting were devoted to administration and completion of the questionnaire.

Results

Research Question 1

To answer the research question regarding the dimensionality of work group time, all items were subjected to exploratory factor-analytic procedures to determine which, if any, dimensions were robust. Given the exploratory nature of this research, principal components (PCA) extraction was chosen because it is recommended as the first step in factor analysis since it reveals a great deal about the probable number

and nature of factors (Tabachnick & Fidell, 1996). It is also considered the best extraction technique to reduce a large number of variables down to a smaller number of dimensions (Tabachnick & Fidell, 1996). Similarly, Varimax rotation was chosen to simplify the factors by maximizing the variance of loadings on each factor, and make interpretation clearer (Tabachnick & Fidell, 1996). Pairwise deletion of cases was used to attain the greatest number of cases while not compromising the accuracy of the model.

Exploratory analyses yielded a five-factor model. However, inspection of the scree plot, percentage of variance accounted for, and Eigenvalues associated with each factor suggested that only three were robust. Thus, three orthogonal factors, each with items loading at least .50 on their respective factor and with a loading no higher than .30 on any other factor were retained for further analysis. Table 1 shows the rotated factor matrix. Table 2 displays the communalities for all variables, and the Eigenvalues associated with each of the factors.

The factors were then labeled, and their reliabilities were assessed on the basis of Cronbach's alpha. Factor 1 was represented by five items that measured the (a) desire for a soundproof office, (b) tendency to screen out distractions at work in order to complete a task, (c) allowance for disturbances of one's work, (d) tendency to separate oneself from co-workers in order to concentrate on a task, and (e) desire to work on one thing at a time at work ($\alpha = .69$). We labelled Factor 1 *separation* because each of its items referred to the separation (or intermeshing) of activities and people in time and space. Factor 2 was represented by four items that measured the (a) (self-assessed) ability to "juggle" several tasks in the same time frame at work, (b) tendency to do several things at once at work, (c) tendency to combine several

TABLE 1
Rotated Factor Matrix of Extracted Temporal Dimensions

Variable	Separation	Concurrency	Flexibility
Desire for a soundproof office	.7420	.0792	.0313
Screening behaviors	.6719	-.0333	-.1144
Allowance for disturbances	.6585	-.0356	-.0015
Separating for task completion	.6582	-.0982	-.0479
Completing one thing at a time	.4895	.2464	-.2344
Juggling several tasks	-.0489	.8264	.0325
Doing several things at once	-.1223	.7679	-.0703
Combining several activities	.0155	.6418	.2288
Natural to do several things	.2015	.5917	.0717
Desire for a flexible schedule	-.1652	.0865	.7225
A relaxed approach to plans	-.1135	-.0916	.6981
Schedule is open to change	.0823	.2395	.6918

TABLE 2
Items, Communalities, and Eigenvalues of Temporal Dimensions

Variable	Communality	Factor	Eigenvalue	% of Variance
Desire for a soundproof office	.5695	Separation	2.8957	17.0
Screening behaviors	.5026	Concurrency	2.3157	13.6
Separating for task completion	.5511	Flexibility	1.5799	9.3
Allowance for disturbances	.4538			
Completing one thing at a time	.3885			
Juggling several tasks	.6885			
Doing several things at once	.6218			
Combining several activities	.5018			
Natural to do several things	.4047			
A relaxed approach to plans	.5297			
Desire for a flexible schedule	.5800			
Schedule is open to change	.5430			

activities, and (d) feeling that it is "natural" to do several things at once ($\alpha = .70$). We named Factor 2 *concurrency* because its constituent items referred to the number of activities an individual combines in time and space. Factor 3 encompassed three items relating to the (a) desire for a flexible schedule so that one is able to fulfill all responsibilities, (b) tendency to take a relaxed approach with regard to plans, and (c) belief that one's schedule is open and subject to change as needed ($\alpha = .54$). We applied the term *flexibility* to Factor 3 because each of its items relate, in one way or another, to the level of flexibility an individual desires in his/her schedule. This last factor was not highly reliable; however, we retained it for the following two reasons. First, Tabachnick and Fidell (1996) propose that factors of marginal reliability may be retained when they represent promising theoretical leads. Second, as reported in Singhapakdi, Vitell, Rallapalli, and Kraft (1996), Nunnally suggests that alpha levels of .50 to .60 are acceptable during the early stages of research.

Table 3 lists all items that comprise each of the final three factors. Each of the extracted factors is inherently bi-directional (as in the instrument) and represents theoretically robust dimensions of work group members' time orientation. Each is discussed explicitly in Hall's (1959, 1983; Hall & Hall, 1990) research and is supported by the work of other scholars as well (Clark 1985; Hassard, 1996; McGrath & Rotchford, 1983; McGrath & Kelly, 1986).

Hypothesis 1

While the foregoing factor analysis was important to confirming the salience of temporal dimensions for organizational work groups, it was also undertaken to identify the relevant factors to employ in a test of the temporal variation across groups. To test the hypothesis that members' time orientations vary across work groups, we conducted a

TABLE 3

Temporal Dimensions and Their Component Items (with Reliabilities)

Factor	Items
Separation (.69)	<p>Ideally an office would be soundproof to filter out distractions.</p> <p>I accomplish tasks at work by screening out distractions.</p> <p>I allow my work to be disturbed only by the most important people or priorities in my life.</p> <p>I tend to separate myself (either mentally or physically) from co-workers when I need to concentrate.</p> <p>When given a choice, I work on one thing at a time at work.</p>
Concurrency (.70)	<p>I can successfully juggle several tasks in the same time frame at work.</p> <p>I do several things at once during the course of my workday/work-shift.</p> <p>It feels natural to do a number of activities or tasks at one time.</p> <p>I have been known to engage in a combination of activities at once.</p>
Flexibility (.54)	<p>I consider my schedule open to change as people and events require.</p> <p>I take a relaxed approach to daily plans in my personal life (e.g., easily changing plans if necessary).</p> <p>It is important for my schedule to remain flexible, so that I am able to meet all of my responsibilities.</p>

Note. Reliability coefficients in parentheses.

discriminant analysis with a classification function that permitted assessment of work group-related differences in *flexibility*, *separation*, and *concurrency*. These dimensions were assessed across employees in production, hourly, and salaried personnel groups. A stepwise procedure was used to minimize the Wilks' Lambda statistic as a test of the power of the dimensions. Stepwise analysis was chosen because we had no theoretical basis to suspect particular dimensions to be better predictors than others. *Separation* and *concurrency* emerged as statistically significant predictors of group membership, $F(2, 280) = 7.27$, ($p < .0008$) and $F(2, 280) = 6.76$, ($p < .0001$), respectively. Significant differences emerged for the production group compared with the two other (hourly and salaried) groups on both dimensions. For the *separation* dimension, while the mean (and standard deviation in parentheses) for members of the production group was 3.46 (1.30), it was 4.12 (1.26) and 4.12 (1.35) for the hourly and salaried groups, respectively. Also, for the *concurrency* dimension, while the mean was 5.97 (1.24) for members of the production group, it was 6.63 (.75) and 6.49 (.95) for the hourly and salaried groups, respectively. Together, these differences accounted for approximately 10% of the variation among groups which minimized Wilks' Lambda to .90. Entered at step 1, *separation* reduced it to .95, while *concurrency*, entered at step 2, reduced it to .90. The classification function was successful nearly 75% of the time in predicting group membership. These findings, thus, provide support for the hypothesis that temporal dimensions vary across groups.

Discussion

This investigation used exploratory factor analysis to identify the dimensions underlying organizational members' perceptions of time (RQ1) and discriminant function analysis to test the degree to which these members' perceptions of the dimensions varied across work groups (H1). In this section, we further examine the three dimensions of time orientation explicated during this investigation. Implications of the findings concerning work group differences with respect to time are reviewed. The cultural and coordinative bases of temporality in work groups are then assessed. Finally, concluding comments concerning the limitations of this study and suggestions for future research, including several propositions, are offered.

Findings

Dimensions of time orientation. The three dimensions of time identified in our factor analysis—*separation*, *concurrency*, and *flexibility* (RQ1)—are theoretically meaningful and important. Although these are not presumed to be the only dimensions of time orientation, each is a basic component for which support can be found in previous scholarly work.

The existence of *concurrency* as a distinguishing factor of time orientation was discussed as early as 1959 in *The Silent Language*, in which Edward Hall stated concisely, "Monochronism means doing one thing at a time" (p. 150). The theme continues through his latest publication, *Understanding Cultural Differences*: "Polychronic people do many things at once" (Hall & Hall, 1990, p. 15). McGrath and Rotchford (1983) also refer to this dimension in their review of various cultural attitudes toward time.

Similarly, in his review of the images of time in work and organizations, Hassard (1996) asserts that time is considered within two dominant metaphors: the cycle and the line. He labels these two time orientations as *linear-quantitative* and *cyclic-qualitative*, and they can be related to the *separation* of time reported here. Within a *linear-quantitative* view, time is treated as divisible. Hall and Hall (1990) refer to the *separation* dimension in their observation that "in monochronic time cultures, the emphasis is on the compartmentalization of functions and people" (p. 15). Clark (1985) also discusses this concept in his description of two alternate ways of managing time: *even* time and *event* time. Even time is characterized by a high degree of *separation*, as it is distinguished by its divisibility into equalized, cumulating units. In contrast, event time is framed by external occurrences; therefore, individuals cannot compartmentalize one activity from the other: These various activities are the recognized driving force of one's time use.

Another dimension inherent in Clark's (1985) constructs is the *flexibility* of time. Flexibility, as a dimension, is apparent in Hall's

(1990) comparisons: "Monochronic people adhere religiously to plans," whereas "polychronic people change plans often and easily" (p. 15). Temporal flexibility in work groups, as revealed in our data, also relates to differences between even and event time because the compartmentalization that characterizes even time requires more rigid time-management strategies. In contrast, event-based temporal systems require a high level of flexibility in time structuring. A summary of the three temporal dimensions revealed in the time orientation of work groups in this investigation is provided in Table 4, including conceptual definitions and operational indicators of each. We hope these are useful to other researchers working in this area.

Temporal variation across work groups. Although they did not explain a large percentage of the variance, the observed dimensions of *separation* and *concurrency* differentiated the salaried, hourly, and production groups beyond chance expectation. As an observer at the morning staff meetings (where "jobs" were received), and later during a "ride-along" with a member of the production group, qualitative observations of the differences in each group's work conditions and task requirements illuminated possible sources of the quantitative variation. For example, members of the production group meet together each morning to receive their "jobs" for the day. They then go out individually in their trucks and spend the day (and, often, the night) trying to complete as many jobs as possible. Two of the most common crews, and most illustrative for our purposes, are the "locators" and the "dig-and-bury" work groups. Locators must determine where underground lines, or cables, already exist and mark these locations for the dig-and-bury group. The dig-and-bury crew then excavate and bury new cable wires to provide service to new residential developments. The successful completion of this task depends on the locators having adequately performed their jobs. These activities and temporal correlates to production group members' tasks reflect a time orientation low in *separation*, moderate in *concurrency*, and moderate in *flexibility*. In contrast, the hourly group carries out the organization's office-related duties, including such tasks as answering phones, typing, scheduling appointments, and processing paperwork. Given these responsibilities, hourly group members' time orientation might be considered high in *separation*, moderate to high in *concurrency*, and low in *flexibility*. Finally, the salaried group's work consists of standard managerial, human resources, and accounting functions. Their work process, therefore, tends to be high in *separation*, high in *concurrency* (depending on the specific task), and low in *flexibility*. Hence, each group is engaged in work processes with widely varied task and environmental characteristics.

Implications

Organizational culture / group differences. Consideration of the practical differences noted above reveals the roles that culture, communica-

TABLE 4
Dimensions of Work Group Time Orientation

<i>Dimension</i>	<i>Flexibility</i>	<i>Separation</i>	<i>Concurrency</i>
Definition	The degree of rigidity in time structuring;	The tendency to eliminate (or allow) extraneous factors in the completion of a task;	The number of activities engaged in per unit of time;
Explication	In work groups, flexibility in time structuring may be a function of the task, the assignment, or group norms/practices.	It is evidenced in the physical and/or psychological protection (or availability) of group members' time and space.	Where separation refers to the environment created (to complete a task), concurrency refers to the actual task execution.
Indicators	<p><i>Task:</i> extended (or condensed) temporal horizons (research and development vs. accounting); absence (or presence) of imposed deadlines;</p> <p><i>Assignment:</i> provided in work group autonomy (or control of the process); few (or several) intermediate benchmarks;</p> <p><i>Group Norms:</i> avoiding scheduling meetings (or scheduling meetings); rescheduling (or rigidly adhering to) meeting times; fluid (or restrictive) temporal boundaries with regard to deadlines or arrival at meetings</p>	<p><i>Physical:</i> keeping the door closed (or open); screening (or taking) phone calls; sending nonverbals to indicate inaccessibility (or availability): e.g., looking harried (or taking a relaxed pose), staring at clock;</p> <p><i>Psychological:</i> mentally screening out (or attending to) a variety of stimuli; compartmentalizing (or connecting) projects or areas of activity</p>	<p><i>Task execution:</i> combining (or compartmentalizing) projects and activities; attending to many (or few) tasks at the same time</p>

tion, and coordination might play in temporal variations among these groups. First, several scholars have dealt with the issue of cultural differences in time across work and occupational groups (Dubinskas, 1988; Starkey, 1989; Zerubavel, 1979, 1981). Zerubavel (1979) proposed, "a heterogeneity of work situations differing in their degree of temporal constraint . . . leads to multiple manifestations of time. Occupational groups can, then, be seen, in a Durkheimian sense, as constituting a 'multiplicity' of 'loci of sociotemporal orders'" (p. 106). Simi-

larly, Starkey (1989) examined group differences on the basis of temporal autonomy, and observed that it is inherently more difficult to gain precise temporal measurement of traditionally professional work than other kinds of organizational functions. This was certainly true of the work groups involved in the present study. Members of the production group, while given temporal autonomy, in the sense that they were not accountable for particular hours worked, had tight controls over their time since their work was paid using a piece-rate system.

Information/communication differences. The cultural basis of time in work and occupational groups arises, in large part, through fundamental communication and coordination differences among these groups. As a constituent part of communication, performance feedback varies significantly across organizational groups, in general (Cusella, 1987), and especially in the groups in this study. Related to the temporal constraints on each group is the length of their time horizon, or feedback loop. In this study, members of the production group set daily, even hourly, temporal goals. At the end of each day, the production group was keenly aware of how well the members had met their targets—information also available to their supervisors and management. In contrast, members of the hourly and salaried groups were more likely to be engaged in tasks with highly extended temporal boundaries. Anecdotally, it is such differences in temporal horizon that may have contributed to the different communication “climates” we observed in these groups. Production group members were quite task-focused and limited in their opportunities for unessential communication. In contrast, members of the hourly and salaried groups—in which time horizons and boundaries were greater—evidenced climates in which many tasks and issues were managed in an environment with alternating organizational and interpersonal pretexts. This is analogous to the “punctuated equilibrium” that Gersick (1988, 1989, 1991) found characterizes group progress. Groups’ work patterns are affected more by members’ awareness of their temporal boundaries (deadlines), than by an absolute amount of work to be accomplished, and they tend to experience patterns of alternating inertia and revolution in its completion.

Other scholars have contended that performance feedback creates unique temporal cultures within groups. For example, Jaques’s (1982) treatment of the concept of *time span of discretion*, or the maximum period of time over which an individual is required to exercise discretion in carrying out his or her assigned duties, is directly related to how often certain organizational groups receive feedback. In Jaques’s analysis, organizational groups’ sense of time was derived from, and varied as a function of, their time span of discretion.

Relatedly, Starkey (1989) found variations in pace and intensity across various occupational groups. The frequency of feedback inherent

in a given job is also likely to affect the pace and intensity with which group members carry out their duties. The dimensions of *separation* and *concurrency* established in Hall's (1983) work and empirically supported here are implicitly related both to pace and intensity. When North Americans do many things at one time (or *concurrently*), it is often in an effort to maintain a fast pace (Bluedorn et al., 1992). The tendency to *separate* tasks for completion implies a relatively intense approach to task completion. Our earlier discussion of Lawrence and Lorsch (1967) provides additional empirical support for the assertion that a work group's sense of time is related to the frequency of feedback received from task completion.

Coordination differences. Thompson's (1967) typology of intraorganizational interdependence can inform our understanding of the role coordination plays in a group's relationship to time. McGrath and Rotchford (1983) and Hassard (1991) used this typology as a basic framework of the temporal problems all organizational groups, or sub-units, face. According to Thompson, the three types of interdependence among organizational groups, and the corresponding coordination required, are: *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. The amount of communication required increases as units move from pooled to reciprocal interdependence. Thompson also has noted that an organization's structuring of time will vary across units according to the level of interdependence and differential coordination demands it faces.

In terms of Thompson's (1967) typology, the production group in this study was bound largely by sequential interdependence, and most of the coordination was accomplished through planning. The locators had to go out (often in tandem with local utility companies) to inspect and mark an area; then, the dig-and-bury crew arrived later to complete the job. This was handled through the timing of the "jobs" requests. In contrast, the hourly and salaried groups were primarily faced with pooled interdependence and the corresponding temporal standardization that requires (e.g., reporting times, schedules, and project deadlines).

As a result of these differential coordination needs and requirements, the distinctions among groups on the basis of various temporal dimensions is logical. As Thompson (1967) suggests, "In a situation of interdependence, concerted action comes about through coordination; and if there are different types of interdependence, we would expect to find different devices for achieving coordination" (pp. 55-56). This will likely be associated with different senses of 'time' across work groups.

Directions for Future Research

Limitations. There were several limitations to the present investigation that point to possible directions for future research. Although we included varied situational response options to guard against item-desirability bias, self-report data may potentially suffer from such weaknesses (Boster, 1988; Seibold, 1988). Additionally, though our focus concerned group and organizational processes (which also were observed and reported qualitatively), quantitative data were collected and analyzed at the individual level. While group and organizational norms are mediated through individual practices (Seibold, 1998), future research should utilize additional methods of measurement to gain insight into these processes. Relatedly, more extensive qualitative observations than those reported here should be undertaken as means of triangulating the quantitative findings in this area (e.g., in-depth interviews). Also, the use of a single organization limits our ability to generalize to other contexts. For this reason, cross-sector and other interorganizational comparisons are important for future studies.

Finally, given the heuristic value we believe studying chronemics from a dimensional perspective has to offer, subsequent research should focus on empirical validation of these and other dimensions of time and examine their discriminant power as well. More work that examines the role of each of these dimensions in work group and organizational processes is needed.

Reprise. We have argued that time, culture, and coordinated action are inextricably linked to communication. Communication and time are reciprocally related: communication sustains temporal orientations that affect communication in important ways. We described how culture, itself a communicative manifestation, contributes to temporal norms and values. We also examined how different coordination requirements involve different kinds of communication. These coordination differences constitute, and give rise to, unique temporal cultures.

Our primary goal involved exploring the dimensionality of time in an effort to illustrate its complexity as a social-scientific construct and to afford more precise distinctions among groups. Three theoretically significant dimensions of time orientation were extracted: *separation, concurrency, and flexibility*. A secondary goal was to illustrate how such temporal distinctions might lead to notable variation among organizational groups. Two of the three dimensions (*separation and concurrency*) proved to be successful predictors of group membership. A related goal was to draw implications regarding the relationship between these temporal differences and their distinctive communication patterns. A qualitative discussion of the task environment each group faces viewed through traditional organizational and group research pointed to some information/communication differences, such as variations in the frequency of feedback and type of coordination, which may

account for these findings. Both the quantitative and qualitative data support our position that temporal variation may be related to other important differences in organizational groups. Below, we examine these relationships and offer several propositions that highlight the heuristic potential of continuing research on work group time orientation and provide direction for future research.

Propositions. While our present focus was on distinctions among groups, we believe that these temporal dimensions also contribute to particular intragroup dynamics that have meaningful and measurable outcomes. McGrath and Kelly's (1986) discussion of the temporal issues embedded in the process of organizing suggests some of these dynamics. Three problems inherent in collective action form the foundation of their analysis: uncertainty, conflicting interests, and scarcity of resources. At the organizational level, each of these problems gives rise to corresponding needs for predictability, coordination, and priority setting. All of these needs implicate time: they are prototypically met through plans and schedules, synchronization of activities in time and space, and allocation of limited temporal resources to particular activities and units.

For the organizational member, however, the problems of collective action give rise to a different set of issues and related solutions. Here, uncertainty leads to *role ambiguity*, conflicting interests leads to *role conflict*, and the scarcity of resources leads to *role load*. McGrath and Rotchford (1983) discuss the temporal element intrinsic to each of these three sources of role stress identified by Kahn and his colleagues (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Role ambiguity involves knowing when to engage in specific role behaviors. Role conflict involves knowing which of two or more competing behaviors to perform at a specific time. And role load involves having more role behaviors to execute than can be accomplished within a specific time period (or having too little time allocated than is appropriate for a specific set of role activities). Organizational members also manage this time-based role stress in prototypical ways. Temporal role ambiguity gets managed through establishing a series of interpersonal commitments (i.e., mutually negotiated appointments and deadlines). Temporal role conflict is managed through the negotiation of norms for behavior sequencing. And temporal role load is dealt with through the development of stratagems to regulate the flow of interpersonal interaction.

The three dimensions of time (*separation*, *concurrency*, and *flexibility*) identified in the present investigation share some correspondence with the three sets of variables laid out in McGrath's (McGrath & Kelly, 1986; McGrath & Rotchford, 1983) framework. The relationship between our dimensions and this typology is most evident when we examine the solutions that organizational members adopt to cope with the problems identified. Members cope with uncertainty (which causes temporal role ambiguity—or the problem of knowing what to do when)

through establishing appointments, dates, and deadlines. Our discussion of *flexibility*, described as the degree of rigidity in time structuring, centers around this very issue. The flexibility dimension addresses how consistently organizational members make appointments or establish deadlines and keep (or reschedule) these commitments. Within McGrath's analysis, establishing appointments and deadlines helps organizational members to cope with role ambiguity. Hence, we advance the following proposition:

Proposition 1: Organizational groups that are characterized by moderate to low levels of *flexibility* will experience less temporal role ambiguity than groups characterized by high levels of *flexibility*.

The problem of conflicting interests causes temporal role conflict for the member (i.e., knowing which of two or more competing behaviors to do within a given frame of time), which is managed by establishing norms of behavior sequencing. One of the norms Americans have adopted is combining as many tasks as possible within a given unit of time (Bluedorn, 1998; Hall & Hall, 1990; Kaufman, & Lane, 1992; Kaufman, Lane, & Lindquist, 1991). We have termed this *concurrency*. Thus, our second proposition:

Proposition 2: Organizational groups that are characterized by moderate levels of *concurrency* will experience decreased temporal role conflict.

The problem of the inherent scarcity of resources causes temporal role overload for organizational members. That is, the problem of too many tasks to complete within a given unit of time or, similarly, not enough time available to complete a given task. (Members may also suffer from role underload, when they are given too few activities to fill a unit of time.) Organizational members typically respond to this issue using strategies to help regulate the flow of interpersonal interaction. The characteristic response is a measure of *separation*, the tendency to eliminate (or allow) extraneous factors in the completion of a task—evidenced in the physical and/or psychological protection (or availability) of one's time and space during work activities. McGrath and Kelly (1986) note that Altman (1975) has described similar behavior in his discussion of privacy and interpersonal boundary regulation. Hall (1983) has also discussed the relationship between the perception of time as scarce and a corresponding desire for privacy, separation and decreased levels of relational communication. Particularly in the situation in which organizational members routinely have too little time available to complete an assigned task, we specify the following two relationships.

Proposition 3a: Increased levels of organizational group *separation* will result from increasing temporal role overload.

Proposition 3b: As organizational group *separation* increases, relational communication will decrease.

It must be noted that an additional way to regulate the flow of interpersonal interaction is to refrain from making appointments or

reschedule (or cancel) standing ones. Therefore, we pose the related proposition:

Proposition 3c: Organizational groups that are characterized by high levels of *flexibility* will experience decreased temporal role overload.

These foregoing relationships suggest how, when considered together, these dimensions may affect communication patterns. Our final proposition specifies this relationship.

Proposition 4: Organizational groups that are characterized by high levels of *flexibility*, low levels of *separation*, and moderate levels of *concurrency* will engage in more relational communication than other groups.

Conclusion

We believe the current investigation is significant in two respects with regard to the study of group and organizational communication. First, it provides support for previous research that suggests groups may differ with regard to time (Dubinkas, 1988; Lawrence & Lorsch, 1967). This is critical for group communication scholars because, as Hassard (1989) states, "The experience of work is inextricably linked to the way time is personally and socially constructed" (p. 37). Thus, it is important to understand the way in which it is constructed. Second, and more importantly, it adds to existing research by highlighting the possibility that groups' varied communication demands and patterns may contribute to these differences in temporal perceptions. Additionally, these temporal differences vary across multiple dimensions, which further allows us to investigate how particular communication patterns produce and reinforce temporal orientation. While the preceding investigation is exploratory in nature, we believe it and related research offers a promising theoretical framework through which the study of group and organizational communication may be better informed.

REFERENCES

- Altman, I. (1975). *The environment and social behavior: Privacy, personal space, territoriality, and crossing*. Monterey, CA: Brooks-Cole.
- Bluedorn, A. C. (1998). An interview with anthropologist Edward T. Hall. *Journal of Management Inquiry*, 7, 109-115.
- Bluedorn, A. C., & Denhardt, R. B. (1988). Time and organizations. *Journal of Management*, 14, 299-320.
- Bluedorn, A. C., Kaufman, C. F., & Lane, P. M. (1992). How many things do you like to do at once? An introduction to monochronic and polychronic time. *Academy of Management Executive*, 6(4), 17-23.
- Blyton, P., Hassard, J., Hill, S., & Starkey, S. (1989). *Time, work, and organization*. New York: Routledge.
- Boster, F. J. (1988). Comments on the utility of compliance-gaining message selection tasks. *Human Communication Research*, 15, 169-177.
- Bruneau, T. (1977). The study of time in human interaction. *Communication*, 6, 1-30.
- Bruneau, T. (1990). Chronemics: The study of time in human interaction. In J. A. DeVito & M. L. Hecht (Eds.), *The nonverbal communication reader* (pp. 301-311). Prospect Heights, IL: Waveland Press.

- Cavendish, R. (1982). *Women on the line*. London: Routledge & Kegan Paul.
- Clark, P. (1985). A review of the theories of time and structure for organizational sociology. In S. B. Bacharach & S. M. Mitchell (Eds.), *Research in the sociology of organizations* (pp. 35-79). Greenwich, CT: JAI Press.
- Conrad, C. (1990). *Strategic organizational communication: An integrated perspective* (2nd ed.). Fort Worth, TX: Holt, Rinehart and Winston.
- Cusella, L. P. (1987). Feedback, motivation, and performance. In F. M. Jablin, L. L. Putnam, K. H. Roberts, & L. W. Porter (Eds.), *The handbook of organizational communication* (pp. 624-678). Newbury Park, CA: Sage.
- Ditton, J. (1979). Baking time. *Sociological Review*, 27, 157-167.
- Dubinskas, F. (1988). Cultural construction: The many faces of time. In F. Dubinskas (Ed.), *Making time: Ethnographies of high-technology organizations* (pp. 170-232). Philadelphia: Temple University Press.
- Futoran, G. C., Kelly, J. R., & McGrath, J. E. (1989). TEMPO: A time-based system for analysis of group interaction process. *Basic & Applied Social Psychology*, 10, 211-232.
- Gersick, C. J. G. (1988). Time and transition in work teams: Toward a new model of group development. *Academy of Management Journal*, 31, 9-41.
- Gersick, C. J. G. (1989). Marking time: Predictable transitions in task groups. *Academy of Management Journal*, 32, 274-309.
- Gersick, C. J. G. (1991). Revolutionary change theories: A multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review*, 16, 10-36.
- Giddens, A. (1979). *Central problems in social theory*. Berkeley: University of California Press.
- Glennie, P., & Thrift, N. (1996). Reworking E. P. Thompson's "Time, work-discipline and industrial capitalism." *Time & Society*, 5, 275-299.
- Graham, R. J. (1981). The role of perception of time in consumer research. *Journal of Consumer Research*, 7, 335-342.
- Gulick, L. (1987). Time and public administration. *Public Administration Review*, 47, 115-119.
- Hall, E. T. (1959). *The silent language*. Garden City, NY: Doubleday.
- Hall, E. T. (1966). *The hidden dimension*. Garden City, NY: Doubleday.
- Hall, E. T. (1976). *Beyond culture*. Garden City, NY: Anchor Press/Doubleday.
- Hall, E. T. (1983). *The dance of life*. Garden City, NY: Doubleday.
- Hall, E. T., & Hall, M. R. (1987). *Hidden differences: Doing business with the Japanese*. New York: Doubleday.
- Hall, E. T., & Hall, M. R. (1990). *Understanding cultural differences*. Yarmouth, ME: Intercultural Press.
- Hassard, J. (1989). Time and industrial sociology. In P. Blyton, J. Hassard, S. Hill, & K. Starkey (Eds.), *Time, work, and organization* (pp. 13-34). New York: Routledge.
- Hassard, J. (1991). Aspects of time in organization. *Human Relations*, 44, 105-125.
- Hassard, J. (1996). Images of time in work and organization. In S. R. Clegg, C. Hardy, & W. R. Nord (Eds.), *Handbook of organization studies* (pp. 581-598). Thousand Oaks, CA: Sage.
- Infante, D. A., Rancer, A. S., & Womack, D. F. (1990). *Building communication theory*. Prospect Heights, IL: Waveland Press.
- Jaques, E. (1982). *The form of time*. London: Heinemann.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: John Wiley & Sons.
- Katz, R. (1980). Time and work: Toward an integrative perspective. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 81-127). Greenwich, CT: JAI Press.
- Kaufman, C. F., Lane, P. M., & Lindquist, J. D. (1991). Exploring more than 24 hours a day: A preliminary investigation of polychronic time use. *Journal of Consumer Research*, 18, 392-401.

- Landes, D. S. (1983). *Revolution in time: Clocks and the making of the modern world*. Cambridge, MA: Belknap Press.
- Latane, B. (1996). Dynamic social impact: The creation of culture by communication. *Journal of Communication*, 46(4), 13-25.
- Lawrence, P. R., & Lorsch, J. W. (1967). *Organization and environment: Managing differentiation and integration*. Boston: Harvard University Press.
- Limaye, M. R., & Victor, D. A. (1991). Cross-cultural business communication research: State of the art and hypotheses for the 1990s. *Journal of Business Communication*, 28, 277-299.
- Lorsch, J. W., & Morse, J. J. (1974). *Organizations and their members: A contingency approach*. New York: Harper & Row.
- Lundmark, L. (1996). The separation of time and nature. In J. T. Fraser & M. P. Soulsby (Eds.), *Dimensions of time and life: The study of time VIII* (pp. 97-104). Madison, CT: International Universities Press.
- McGrath, J. E. (1991). Time, interaction, and performance (TIP): A theory of groups. *Small Group Research*, 22, 147-174.
- McGrath, J. E., & Kelly, J. R. (1986). *Time and human interaction: Toward a social psychology of time*. New York: Guilford Press.
- McGrath, J. E., & Rotchford, N. L. (1983). Time and behavior in organizations. *Research in Organizational Behavior*, 5, 57-101.
- Nunnally, J. C. (1967). *Psychometric theory*. New York: McGraw-Hill.
- O'Malley, M. (1992). Time, work and task orientation: A critique of American historiography. *Time & Society*, 1, 241-358.
- Poole, M. S., Seibold, D. R., & McPhee, R. D. (1985). Group decision-making as a structurational process. *Quarterly Journal of Speech*, 71, 74-102.
- Schein, E. H. (1992). *Organizational culture and leadership*. San Francisco: Jossey-Bass.
- Scriber, J. B., & Gutek, B. A. (1987). Some time dimensions of work: The measurement of an underlying dimension of organizational culture. *Journal of Applied Psychology*, 72, 642-650.
- Seibold, D. R. (1988). Colloquy on item desirability: A response to "item desirability in compliance-gaining research." *Human Communication Research*, 15, 152-161.
- Seibold, D. R. (1998). Groups and organizations: Premises and perspectives. In J. S. Trent (Ed.), *Communication: Views from the helm for the 21st century* (pp. 162-168). Boston: Allyn & Bacon.
- Singhapakdi, A., Vitell, S. J., Rallapalli, K. C., & Kraft, K. L. (1996). The perceived role of ethics and social responsibility: A scale development. *Journal of Business Ethics*, 15, 1131-1140.
- Starkey, K. (1989). Time and work: a psychological perspective. In P. Blyton, J. Hassard, S. Hill, & K. Starkey (Eds.), *Time, work, and organization* (pp. 57-78). New York: Routledge.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: Harper Collins.
- Thompson, J. D. (1967). *Organizations in action*. New York: McGraw-Hill.
- Zerubavel, E. (1979). *Patterns of time in hospital life*. Chicago: University of Chicago Press.
- Zerubavel, E. (1981). *Hidden rhythms: Schedules and calendars in social life*. Chicago: University of Chicago Press.