The Process of Organizational Communication: A Model and Field Study

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Abstract*—*Research in computer-mediated communication has usually emphasized the cognitive over the social aspects of communication, the medium over the message, and the product of communication over the process. In contrast, this paper emphasizes three constructs of the communication process: goal-based communication strategies, message form, and medium. We seek to balance cognitive and social communication strategies and to combine new and old measures of the message form (organization, formality, and size). A field study in an academic institution examines the content of text-based communication delivered by letter, memo, fax, and email. As expected, people prefer certain message and medium attributes for certain strategies. These findings are further investigated using open-ended interviews. We conclude with examples of practical implications on designing and implementing computer-mediated communication.

Index Terms*—*Communication strategies, computer-mediated communication, media richness theory, organizational communication.

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Computer-mediated communication has become a major medium of organizational communication, particularly in dispersed and multinational organizations [1]–[3], and will constitute, de facto, the virtual organization of the future [4]. Intuitively, the theories and practice of communication should guide the design of such systems. Yet, system development methodologies have generally ignored theories of communication perhaps because the link between theory and design is not clear. The motivation for this study is to lay the groundwork for such a link so that we understand how to design and implement effective communication in the context of computer-mediated communication in organizations.

Today, information technology serves mainly as a passive carrier of information, albeit, with increasing ranges, speed, and bandwidth. This is not to say that information technology has not affected the way we communicate. Of course, the possibility of communicating around the world at a reasonable price has facilitated collaborations that were previously infeasible. Moreover, there is ample evidence suggesting that computer-mediated communication affects communication behavior such as patterns of communication (e.g., [5]). Yet, there is little research on how to design information technology to better support the communication process. One of the common assumptions made in the design of information technology is that one should fit the technology to the user rather than vice versa (see popular

textbooks such as Eason [6] on information technology, Senn [7] on management information systems, and Shneiderman [8] on human–computer interaction). To attain such fit in complex tasks, one must begin with a good understanding of the task as the user sees and performs it. In other words, it is necessary to open up the black box and understand the process, not only the inputs and outputs.

Media richness theory [9] and social presence theory [10] have been the most influential rational-choice models applied to studying the use of communication technology. In rational-choice models, the communicator is expected to determine the most effective medium for conveying a message in a given situation. For example, media richness theory claims that in ambiguous situations, a richer medium, such as face-to-face communication, is more effective than a leaner medium, such as a fax. However, rational-choice models alone cannot fully explain empirical findings about the use of communication technology without considering communication as a social construct ([11], [12]; for comprehensive accounts of evidence on media choice see also [2], [13], [14]). Moreover, current theories of media selection have not had a significant effect on the way information technology is designed ([6]–[8]). One reason for this may be that these theories do not incorporate the user's intentions and behavior at the level of producing and transmitting a message, which is the level needed to inform the design of human–computer interaction. A second reason may be the tendency of researchers to build either on cognitive or social aspects of communication instead of an integrated or complementary view of communication behavior [15]. Our goal, therefore, is to take a more balanced view of the communication process, which includes message as well as medium, and combines social as well as cognitive aspects of communication.

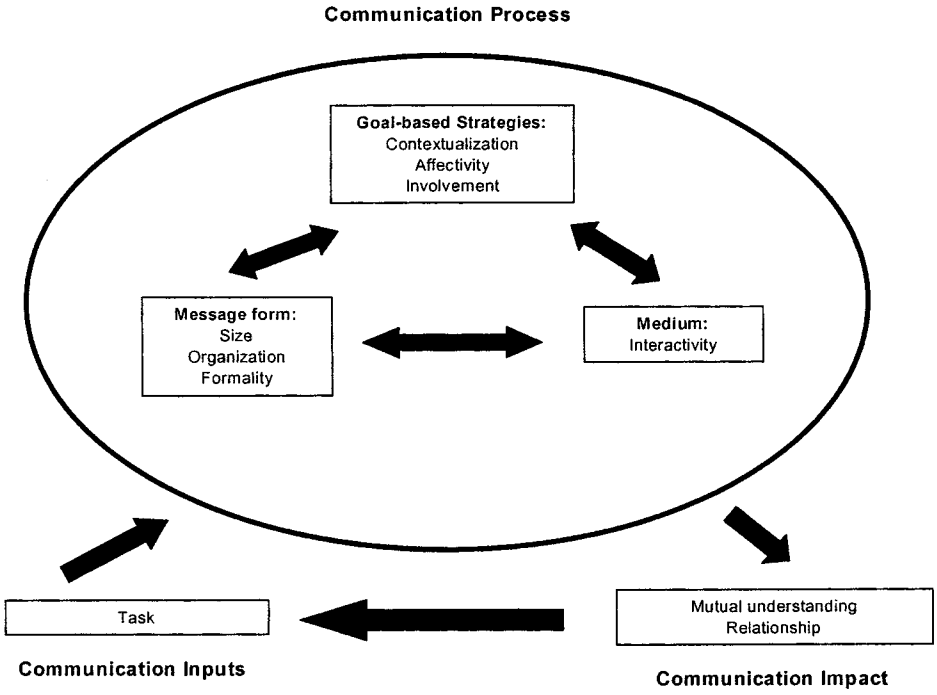
The paper begins with a section on theory that describes a model of communication composed of communication strategies, media, and message form. Given the model of organizational communication, we propose certain preferred combinations of strategies, media, and message. An empirical study, designed to test these propositions, combines two methods of inquiry: an analysis of written protocols and semistructured interviews. The final two sections describe the results and their implications.

THEORY

Foundation The proposed model describes a cognitive-social process of organizational communication [16] involving three elements of communication: goal-based communication strategies, message form, and medium. Fig. 1 depicts these elements of the communication process, as well as its inputs and impact.

The general *Theory of Communicative Action* by J. Habermas [17] defines four conditions of valid communication that can be grouped as mutual understanding and relationship, thus simplifying the analysis [16]. Mutual understanding implies that the communication

Fig. 1. A model of organizational communication.



be comprehensible and true. Relationship implies that the communication is seen by the communicators as trustworthy and appropriate given the relationship between the communicators. Successful communication necessitates both aspects, but their relative importance may depend on the precise communication goal. For example, if the sender's goal is to convey the price of a product, then mutual understanding is the desired impact. On the other hand, if the goal is to influence the receiver to purchase the product, then the communication must be not only comprehensible, but must also be perceived by the receiver as appropriate. The actual impact of the communication process is defined as mutual understanding and relationship.

The process described here is shown from the sender's viewpoint and can be described as a conscious choice of communication strategies, message form, and medium. Generally, people seek combinations of strategies, message, and medium that seem compatible to produce high-quality communication with little effort [18]. A higher quality of communication impact is taken to indicate a higher level of mutual understanding between sender and receiver and indicative of a better relationship between them. Below, we identify several strategies and attributes of message and medium, and then propose effective combinations.

The measures of communication impact were not included because of practical difficulties so that the emphasis of this paper is on the process, that is, the strategies, messages, and media that people chose in their communications. Several inputs may affect the communication process, of which task characteristics, such as urgency, have been shown to be crucial. In this study, we explore the effect of operational versus strategic tasks. Furthermore, although the study is relevant to all types of formal organizational communication, the measures of the main constructs in Fig. 1 have been developed and tested for written (text-based) communication only, including email.

Communication Strategies

Habermas's Theory of Communicative Action classifies social action into four main types of intentions: instrumental, communicative, discursive, and strategic. The intention in an instrumental action is to get the receiver to act according to the sender's wishes. The intention in a communicative action is to achieve mutual understanding. Discursive action is intended to achieve agreement for collective action. Strategic action attempts to influence behavior to conform to the sender's wishes but realizes the receiver can behave differently. We assume that in any act of communication, the sender has as his or her primary goal one of these four intentions. While it may be necessary to adapt these goals into categories that also consider the organizational context, the principle that we adopt fully is that communication is intentional. Furthermore, although people may have several goals behind any single communication, one will usually dominate.

Given these goals, communication strategies can be seen as the sender's means for achieving the communication goals. Communication strategies are used in constructing, transmitting, and receiving the message. Under some conditions, the sender may have very little discretion about how to communicate, for example, an organizational norm that emotions are not expressed in business communication, but such conditions should be treated as a special case. We chose to concentrate on three strategies: contextualization, affectivity, and involvement. These three are established communication strategies that represent a cognitive perspective (contextualization), an affective perspective (affectivity) and a combination of both perspectives (involvement) [4]. Each of these strategies is demonstrated in Table I, which shows three messages about two peers co-teaching a course. The first message (contextualization) includes a core message and explanations of why and how to go about dividing the teaching assignments. The second message (affectivity) explicitly deals with feelings (sorrow, guilt). The third message (involvement) attempts to consider explicitly the receiver's perspective.

Contextualization is the provision of explicit context in the message. The sender explicates an interpretation of the issue as opposed to explaining only the desired reaction or core message. Contextualization is central to theories of comprehension and is necessary for improved problem-solving performance [19], [20]. Context is usually constructed through layers of subsidiary information around the core message. These layers explain how an action can be performed, how it can be broken down into subactions, what is the motivation for the action, what information may be related to the message, and what alternative interpretations are possible. Context can also seek to elucidate the situation in which the message was created, detailing such issues as who is communicating with whom, when, and under what conditions (e.g., stress).

Affectivity is the provision of affective components in the message that describe moods and emotions of the sender. Moods, such as the state of feeling good, are relatively enduring affective states, usually with no salient cause. Emotions are more intense, relatively short-lived, and usually prompted by a clear trigger, such as excitement about the prospects of success, an apology, and the

pleasure of meeting someone. Work in the mid-1950s [21] mapped affect according to two dimensions: attention–rejection and pleasantness–unpleasantness. This was reconfirmed more recently for both nonverbal [22] and verbal [23] communication.

Involvement is a strategy connected with considering and shaping the receiver's perspective. It is concerned with the matter of whether the receiver's view is a target of the communication or whether it is left outside the scope of communication. Involvement includes both cognitive and social aspects of the receiver's perspective. Scollon and Scollon [24] discuss involvement in relational communication in a slightly different sense, however. They stress the sender's involvement in the receiver's world but include the public image of that world, which lies beyond the scope of this study. Involvement can best be demonstrated by taking interest in the receivers' viewpoint, inquiring about their affairs and attitudes and supporting them, sharing common beliefs, and talking in a personal style. It usually includes the sender's expression of attitude that can be characterized by the use of magnifying adverbs and attitudinally loaded words [25]. An example of an expression of involvement is *Given your past involvement in charity, you should be extremely interested in this proposal.*

Message One of the problems that has plagued applied research in information sciences is the lack of agreement on the definition of information and whether it should be seen as an objective or subjective (or perhaps inter-subjective) construct [26]. In communication, information is considered from a minimum of two perspectives and is thus inherently subjective, making explicit the distinction between the **thing** sent and that received. We must, therefore, begin with the question of what should be defined as the information communicated? To do so we adopt a particular philosophical perspective, realizing well that it may be a simplified one. A sender sends a message (sign) to the receiver and does so to accomplish some purpose. A message "is meant very broadly to be anything that signifies, or stands for, or can be seen to stand for, something else," and information "is the propositional content of a sign" [26, p. 290]. It is an objective commodity. Information is always carried by some message (e.g., *we sold 200 cars*) through some medium (e.g., by telephone). Meaning, which will be outside the scope of our discussion, is what "the listener gains from a particular utterance, and indeed that a speaker intends" [26, p. 293].

In this study, a message is taken to be a package of information transmitted on some medium. We characterize a message by (1) its size, (2) its degree of organization (structure), and (3) its degree of formality.

Message size is the number of semantic units in the message (e.g., words or sentences).

The DEGREE OF MESSAGE ORGANIZATION is a multidimensional construct that characterizes the message as being more or less structured for improved understanding. The elements

TABLE I
EMAIL MESSAGES DEMONSTRATING EACH OF THREE COMMUNICATION STRATEGIES

	Context: Two instructors teaching in collaboration
Contextualization (cognitive perspective)	We need to come up with a division of teaching assignments between you and Prof. Chin. The reason for having two instructors in this course is the need to expose students to the cultural differences in negotiation. This diversity should be stressed in as many topics as possible. The best way to finalize the teaching assignments is for you to suggest topics you would like to teach in the negotiation class and those topics you would rather have Prof. Chin teach. Send it to me and I'll take it from there.
Affectivity	Dear Michael, I know you did not get along with Chin last year and I'm sorry that I must ask you to try once more. I feel a little guilty about not monitoring the collaboration and I'm going to rely on our candid relationship to expect open and instant criticism from you.
Involvement	Michael, please give this collaboration a chance. I know you feel it is a waste of time working together but in the long run you will probably save yourself nearly half of the lecture and grading. You may feel uncomfortable at first, but I'll try and help out by simply being there. Most of the time you can collaborate by email, which will relieve you from your social obligations.

of a message that support understanding are order, organized and accessible layers of context (macrostructure), and familiarity to ease inferences and memorization (see [20] on discourse comprehension and [26] on irregularity and complexity). In the case of action-oriented communication, message organization should also include a clear allocation of tasks to ease understanding of what action is expected of the receiver.

A high degree of message organization is characterized on several, but not necessarily all, of the following dimensions:

1. An explicit set of ordered elements clearly distinguished (e.g., paragraphs with an opening that indicates the theme or sections with subtitles or numbering).
2. A clear allocation of tasks between senders and receivers (e.g., the sender provides information and the receiver is expected to take action).
3. Access to different levels of specificity (e.g., explanations as footnotes, references to documents that provide more details or a more complete rationale, hypertext style access to more details).
4. A standard format with customary greetings, subject, references, and ending or a given template (monthly update on exchange rates), including professional standards such as are generally considered appropriate for certain documents like legal documents.

Formality is the third attribute of message. Textual formality is a function of several parameters: (1) use of standard unabbreviated syntax, (2) no references to writer, (3) thematic prominence given to the main concept, (4) frequent use of embedding, (5) lexically dense noun-phrase structures, (6) nominalized vocabulary (i.e., actions as nouns), and (7) elevated vocabulary [25].

Having articulated the communication strategies and the characteristics of message form, it is possible to associate strategies with message. Here we demonstrate three such associations. Contextualization implies more complex information (different perspectives and opinions, broader terminology, etc.) and requires a well-organized message to improve readers' comprehension [19].

Although there is little evidence on the relationship between formality and strategies, it seems reasonable to assume that higher affectivity and higher involvement are both associated with lower formality [28]. The discussion is formalized as three propositions, which are demonstrated by several hypotheses that are tested empirically. The propositions are stated in the general categories of strategies, messages, and media; the hypotheses are formalized with specific instances. For the first proposition of fit between message form and communication strategies, we offer the following three hypotheses.

H1: Higher message organization is preferred when using the strategy of contextualization.

H2: Lower message formality is preferred when using the strategy of involvement.

H3: Lower message formality is preferred when using the strategy of affectivity.

The underlying proposition in H1–H3 is that certain message attributes fit certain message strategies.

Medium Interactivity A variety of communication media is available to the sender including letters, memos, faxes, oral communication by phone, face-to-face, email, and more. Media richness theory [9], [28] classifies these media according to level of interactivity, number of channels supported, capacity to transmit high-variety languages, and ability to personalize messages. Rich media are media that rank high on these dimensions. A full analysis of how people select media is given in media richness theory and other theories such as physical accessibility of the medium or availability in space and time [30], [2], [31], [32].

In the organization we studied, typed letters and typed faxes were used for official communication when interactive dialog or immediate response was not vital. Handwritten faxes to remote locations or handwritten memos within the same physical site were usually, but not necessarily, used to conduct or initiate interactive dialog. Email was also usually intended for interactive dialog. Given this situation, we focused on one dimension of text-based communication, namely, interactivity (see [14] for a complete review of interactivity).

The strategy of involvement usually requires the sender to understand new viewpoints and information and adapt the message accordingly [33]. Furthermore, it also requires the sender to adapt the message, to make it more personal. In contrast, managers dictating information symbolically to a given group or organization about formal authority, competency, or legitimacy (i.e., setting procedures and roles) will select a written rather than face-to-face mode of communication.

H4: More interactive media is preferred when using the strategy of involvement.

The underlying proposition in H4 is that certain medium attributes fit certain message strategies.

There is also a question of fit between medium and message form. Trevino et al.[34] found that

smaller amounts of information are associated with higher interactivity. When the receiver is expected to process a long message before responding, high interactivity is inappropriate because of the cost of interactivity to the user, for example, perceived need to answer so as not to break the conversation.

H5: Less interactive media is preferred for larger sized messages.

The underlying proposition in H5 is that certain message attributes fit certain medium attributes.

The Effect of Input on the Communication Process The three propositions summarize the relationships between strategies, medium, and message. The process, as a whole, is affected by its input. In this paper, we did not develop propositions on specific effects on particular strategies, message attributes, or media attributes, but rather explored a more general claim that communication around strategic tasks differs from communication around operational tasks. It has been suggested that several attributes of information and task depend on organizational level, and it is, therefore, plausible that this effect may carry over to the way the information is communicated [35], [36]. For example, one would expect a higher need for influencing at the strategic levels in comparison to the operational level, which is based on expectations that the receiver will act upon routine instructions without negotiation. Moreover, assuming that strategic tasks are usually less routine than operational tasks, and therefore induce a more thoughtful solution process, it is reasonable to assume that the commensurate communication is also quite different from the communication around routine tasks. For example, if the solution process as a whole is more labor intensive, it seems reasonable to assume that any communication that is part of the solution process would also be controlled more tightly [37]. Aggregating the behavioral constructs of the communication process (strategies, media, and message) elaborated above into a general notion of a communication pattern, we offer the following.

H6: Strategic-task communication patterns differ from operational-task communication patterns.

The underlying proposition in H6 is that fit among strategies, medium attributes, and message attributes depends on the task.

METHOD

The empirical study was designed to test the six hypotheses developed above. We chose to perform a field study that ensures a study of a social phenomenon such as communication in its natural setting rather than a controlled laboratory experiment. We had to find an organization that would completely open up its communication for us to analyze, and this turned out to be an academic institution in which the authors work. Permission to code the communication was granted on condition that the coding was done under the observation of the first author and in confidence. The coding of actual protocols is described below and resulted in a structured set of data, which was analyzed by statistical methods. Only the set of coded data was revealed to the entire group of researchers. Once the preliminary results were analyzed, we engaged in a qualitative stage in which the last author interviewed people in the organization who had sent or received messages. This was done to clarify some findings and reaffirm our a priori explanations.

As noted above, we had to develop new measures for message form. In contrast to the bulk of empirical work on media choice, which relies on perceptions of medium and task characteristics, our measures are based on classifications and counts of elements of actual communications. We begin with several operational definitions of the message and strategies. The medium is simply one of the following types: typed letter, typed fax, hand-written memo, hand-written fax, and email.

So far we have treated the message as a basic unit of analysis that can be related to strategies and media. In practice, the physical package of information transmitted from sender to receiver may incorporate several distinct messages. In order to clarify these issues to the coders, we used the term physical package to denote letter, email message, fax, etc., and we used the term message to denote the information transmitted that has an identifiable goal. Thus, a message is either the entire physical package or part of it; it can be bundled with other messages in the same file or letter. While this distinction between a physical package and message was not elaborated in the theoretical discussion, it is important to clarify that the unit of analysis is a message and not the physical package.

These distinctions are used in the process of coding messages. The first step in the coding procedure (which is detailed in the appendix) is to examine the entire package of information and decompose it, if necessary, into multiple messages. To do this, one needs to identify a communication goal of the message. The next step is to identify elements within each message. The elements are the building blocks of the message, that is, the action to be taken and the reason for the action. They are classified into categories depending on the type of messages as described in the tables below. There is always one element in the message designated as the core. For example, in a message that has been identified as an instrumental act, the core is the action to be taken.

The measures of the three communication strategies are then applied to each message as follows: (1) Contextualization is measured as the proportion of words devoted to noncore elements of the message. (2) Affectivity is measured as the proportion of affective words in the middle of the message excluding initial greetings (e.g., *Dear*) and closing courtesy clauses (e.g., *yours sincerely*). Affective words include any words describing moods and emotions of the receiver or sender. (3) Involvement is the explicit consideration of the receiver's perspective, reactions, perceptions, or possible misperceptions. Further details of these measures are provided in the appendix.

Sample This study focuses on written and recorded communication, which clearly is only part of communication in organizations. By written, we mean not spoken, but rather handwritten, typed, drawn, or electronically transmitted text, and graphical files. By recorded, we mean filed in some official file rather than destroyed after transmission.

The site chosen is an academic setting that agreed to open up its communication for this study. The messages originated from or were addressed to one or more of the 50 members of one organizational unit, all of whom send and receive email. The messages were collected over a period of 12 months. The study included both internal and external organizational communications. Physical messages were sampled from all current and most recent files of communication (if current files were not full) and from printouts of email. Several email applications were used (e.g., Eudora, Netscape, elm), but we saw no need to distinguish among them. We obtained these printouts from the users with their permission. A total of 252 messages were coded from 217 physical packages.

The study has several limitations regarding the sample and measures that should be addressed in future studies. In terms of measures, better or more complete measures of involvement strategy are needed and these must be developed and tested. The study concentrated on one organization and must be extended to multiple organizations. Moreover, it concentrated on formal and written communication, thus a major portion of communication (phone conversations, face-to-face) was left out of the analysis. The organization was an independent unit within an academic institution but one that conducted itself as a profit center and was similar to many other organizations that operate within governmental regulation.

Procedure The first author trained two coders who were social science students working as research assistants. After a detailed instruction meeting, and as part of the training, each coder analyzed several messages according to the procedure detailed in the appendix. The coders and the author then met to compare the codings and resolve disagreements in a team session. The coders were then asked to work separately.

Each of the 252 messages was coded on a set form and later fed into SPSS for analysis. A sample of 30 messages was coded by both coders to assess their inter-rater reliability. We used Cohen's kappa [38] to assess the level of non-chance agreement. The proportion of cases for which the two coders agreed was 80%, and Cohen's index of agreement was 0.500, which is acceptable.

Data Analysis In order to test the propositions, we employed two widely used statistical procedures: *t*-test and discriminant analysis. The former, frequently referred to as the student's *t*-test, is used to compare two means; significant *t* values indicate that the difference between the means is more than what might have occurred by chance. Discriminant analysis is the appropriate statistical technique when we have two or more groups, and our aim is to discriminate between them according to several independent variables. In this paper, we used this technique to find the best linear combination of communication patterns that discriminate between strategic and operational tasks.

RESULTS

Table II summarizes the descriptive statistics of the main variables. The message size and the strategy of affectivity (both measured in words) show a very large range. Other than these two variables, the ranges are predefined. In addition, the significant correlations are indicated by the superscripts. Most notable are the correlations between contextualization and medium, message size and message organization, and the correlations between affectivity and message size and formality.

Certain Message Attributes Fit Certain Strategies: Three hypotheses related to the fit between message and strategies were generated: (H1) users will prefer more organized messages when using the strategy of contextualization , (H2) users will prefer less formal messages when using involvement, and (H3) they will prefer less formal messages when using affectivity. We tested these hypotheses by means of *t*-test for independent samples. In order to compare the degree of organization for messages with either a high or low level of contextualization (H1), the sample was divided into two groups using a median split on contextualization. The means of message organization for low and high contextualization levels were 0.60 ($SD = 0.25$) and 0.71 ($SD = 0.25$), respectively. According to the *t*-test, the difference was significant ($t[224] = 3.56$, $p < 0.001$). This result

suggests that indeed users prefer more organized messages for contextualization to make it easier for the receiver to comprehend the additional complexity introduced by contextualization. For testing proposition H2, we compared the message formality levels of the low and high involvement. As hypothesized, formality in low involvement (0.49, $SD = 0.51$) was significantly lower than in high involvement ($M = 0.74$, $SD = 0.47$; $t[221] = 3.46$, $p < 0.01$). As expected, senders consider formality to fly in the face of involvement and therefore prefer informal messages when using involvement. Finally, proposition H3 was evaluated by comparing two groups, using a median split on affectivity. As predicted, a high level of affectivity was associated with a low degree of message formality. Mean formality for low and high affectivity levels were 0.69 ($SD = 0.49$) and 0.50 ($SD = 0.52$), respectively. Based on t-test, the difference was significant ($t[217] = 2.79$, $p < 0.01$). This result further supports our claim that users prefer lower formality when they use affectivity in their communication to avoid the mixed message of affective words in formal style. Overall, the results of the three hypotheses support Proposition 1.

Certain Medium Attributes Fit Certain Strategies: Hypothesis H4 demonstrated the general proposition that certain medium attributes fit certain strategies. In particular, higher interactivity is better suited for the strategy of involvement. To test H4, we compared the two levels of interactivity of low and high involvement using a chi-square test. However, no relationship could be found between the strategy of involvement and medium interactivity so that no support was found for the notion of a fit between medium attributes and communication strategy.

Certain Message Attributes Fit Certain Medium Attributes: Hypothesis H5 demonstrated the fit between certain combinations of message and medium constitute. In particular, users will prefer lower interactivity for longer messages. This is because interactivity implies an active part of both sender and receiver with potentially immediate feedback on the message, which seems especially appropriate for shorter messages in which the receiver can be expected to read and react quickly.

Table III presents the size of message (measured by number of words) for each medium and for two groups of media, clustered according to interactivity level. As is apparent from the table, the data clearly supports H5 showing that the lower the media level of interactivity, the larger the size of the message. The low interactivity levels of typed fax and typed letter exceeded each of the other media in terms of the information involved. Using t-test, the difference was significant: ($t[244] = 3.86$, $p < 0.001$).

The Fit Between Strategies, Medium, and Message Depends on the Task: Hypothesis H6 demonstrated the possibility of different preferred combinations for different types of task. In particular, people will prefer different combinations of strategies, media, and messages when they are engaged in strategic rather than operational communication. To test this hypothesis, we used discriminant analysis, which divides the observations into separate groups that correspond to the strategic and operational classification of tasks. A measure of the resulting discrimination is given by the Chi-square test, which was 40.0 with 7 d.f. (discriminant function) and is significant at 0.000. The structure of the discriminant function is given in Table IV and is followed by the statistics of classification results that show a relatively high percent of correct classification—69%. This hit rate exceeds the acceptable rule of thumb [39]. Furthermore, Press' Q measure of classification accuracy relative to chance was 22.5, which is significant at 0.001. These results suggest that indeed there is difference in the pattern of

TABLE II
DESCRIPTIVE STATISTICS

Variable	Mean	SD	Range	1	2	3	4	5	6
1. Medium interactivity	1.78	.41	1-2	-					
2. Message size	81.4	84.3	3-663	.24[b]	-				
3. Message organization	.65	.24	0-1	.34[b]	.15[a]	-			
4. Message formality	.57	.51	0-2	.28[b]	.01	.23[b]	-		
5. Strategy of involvement	1.69	.46	1-2	-.14[a]	.00	.12	.23[b]	-	
6. Strategy of contextualization	.62	.25	0-1	.18[b]	.42[b]	.37[b]	.10	.10	-
7. Strategy of affectivity	6.55	7.97	0-46	.09	.31[b]	-.16[a]	.29[b]	.15[a]	.01

[a] $p<.05$, [b] $p<.001$

communication between strategic and operational tasks.

Looking at the discriminant function below, one can see that operational communication, rather than strategic, relies on more interactive media, shorter messages, and lower affectivity. We hasten to add that these are exploratory findings.

DISCUSSION

Fig. 1 shows the main elements of the proposed model of organizational communication. The purpose of this paper was to demonstrate the general ideas presented in the model by formulating several propositions and testing them empirically.

TABLE III
MEDIA INTERACTIVITY AND MESSAGE SIZE

Media		Message	
Low interactivity	**N**	**Mean**	**S.D.**
Letter (typed)	148	79.14	74.03
Fax (typed)	44	136.82	121.81
TOTAL	*192*	*92.35*	*90.27*
High interactivity			
Memo (handwritten)	8	40.25	58.67
Fax (handwritten)	18	38.50	32.99
E-mail	28	47.43	43.90
TOTAL	*54*	*43.39*	*42.47*
GRAND TOTAL	*246*	*81.61*	*84.59*

TABLE IV
DISCRIMINATING VARIABLES BETWEEN OPERATIONS AND STRATEGIC COMMUNICATION

Variable	Measure of Discrimination Contribution
Medium interactivity	.78
Message organization	-.18
Message size	-.61
Message formality	.06
Contextualization	-.18
Affectivity	-.33
Involvement	.12

Overall, the results tend to support our notions of communication strategies, media and messages, and the relationships between them.

The propositions reflect general relationships that are based on the cognitive-social communication strategies meant to accomplish the sender's goals. The hypotheses relating communication strategies to characteristics of the message (H1–H3) proved to be in the direction expected and statistically significant. Contextualization was associated with higher message organization (H1), involvement with lower formality (H2), and affectivity with lower formality (H3). However, medium and strategy (H4) were not related, which is in contrast to the hypothesized positive relationship between interactivity and involvement as defined previously. Finally, medium and message were also related: higher interactivity was associated with shorter messages (H5).

In order to probe some of these results further, we returned to the organization to interview the most frequent communicators about their rationale for using communication strategies. We talked to ten people (20% of the original sample). These interview results provide informal support for the statistical results. In particular, we sought explanations for the quantitative unexpected results on H4. Most of the interviews supported the logic defined in the propositions. For example, one interviewee explained that she uses less contextualization when she knows the receiver, and he knows her. But external forces such as norms of behavior may also affect the choice of medium and message, and the way people use communication strategies. Another interviewee explained she preferred email over faxes or letters because she could be less formal and felt that she could engage in a more interactive session. Interestingly, the only time she wrote email in a formal manner was when she wished to put pressure on someone to act and wished to present herself as detached from the person and as interested in the task only. She used formality in the email by supplying the full title and address (which is very uncommon in her use of email), by using formal language for her main request and minimal reference to other matters, and by referencing the formal organization's hierarchy. This communication strategy is one of very little involvement.

Research Implications The model of the communication process described here is only part of a more comprehensive view of organizational communication that takes account of multiple inputs into the communication process [16]. Indeed, in addition to the propositions about the communication process, we explored the possibility of different patterns of communication in different organizational situations (H6). In particular, we examined the differences between communication patterns at the strategic level versus the operational level. We found very different communication environments in terms of the strategies, media, and messages used at each level. Future studies should continue this line of research to develop a more complete understanding of the communication process, as well as its determinants and consequences. Moreover, the current view of the communication process represents only one side. Namely, it assumes the sender's view and should take a more visible awareness of the receiver viewpoint and more empathic communication.

This study took some important steps in validating the measures of the main variables introduced in the model. The feasibility of judging the communication goal from the message without necessarily probing the sender is of great practical importance for

researchers. This was underscored by the high inter-rater reliability achieved after training the coders. Moreover, the classification of organizational communication into an exhaustive set of goals is meaningful for several directions of both research and application. In research, matching goals and strategies of communication opens up a wide stream of experimental and field research to find optimal combinations of goals and strategies. Such studies can be integrated into the body of research on media selection, such as media richness theory.

Practical Implications Fig. 1 can serve as a basis for practical implications ranging from training to building computerized systems, but, in line with our initial motivation, we concentrate on the role of professional communicators in the use and design of computer-mediated communication. Professional communicators must first be aware of communication strategies and choices of medium and message attributes, and they should also understand that certain combinations will be more effective than others. Such knowledge will allow better utilization of information technology. For example, the need for contextualization (e.g., when the subject is new) requires a highly organized message. Organizations could introduce simple templates in the email that trigger the user to organize the message around a core part of the message and include appropriate levels of context.

The role of professional practice in influencing the new communication technologies is more challenging. The world is running ahead full-throttle with new communications and connectivity devices. Whether wired or wireless, instant-messaging or delayed, synchronous or asynchronous, the technology advances daily. We often find ourselves subject to a new mode or method of communication without having been given the chance to consider if the "advance" in technology really advances our communicative goals.

As technology advances in these key areas, there is a growing need to study the effects such communication modes are having on communication in our organizations, and the social-cognitive model we have presented provides a basis for doing so. There are a number of areas in which the model can be helpful in analyzing and understanding changes in communication behavior. Consider, for a start, the following.

- Using Wireless Application Protocols (WAP)-enabled phones to add instant textual context to voice communications.

- Removing formality from structured organizational communications by providing instant-messaging between levels in the organizational hierarchy.

- Adding formality in unstructured organizations through delayed or asynchronous communications in organizations requiring additional structure.

As much as it is important to study the changes in organizational communication brought about by technological advance, it is even more important to examine and guide the organizational change brought about by the communication changes. There is a chicken and egg problem here in that we are now seeing emerging organizational behavior and interactions that have never before been envisioned, let alone studied. Our framework will make such study possible.

Computer-mediated communication is quickly moving beyond one-to-one communication and enabling multiparty communication on all fronts, in everything from straight-text email to synchronous face-to-face. Each one of the communication strategies articulated in this paper is a candidate for computer support. Our work on contextualization is a good example. Cognitive maps and related documents can be used to supplement a message with its context [40] and augmented email can draw upon organizational memory to build layers of context around it in situations that call for higher contextualization [41]. We argue that the importance of providing context grows proportionately, if not exponentially, with the number of participants in the communication process.

Theories of organizational communication must be re-evaluated in order to understand the new and complex communication behavior in today's organizations, particularly in the networked organizations. One might draw a parallel from the way Open Systems Theory challenged the study of interactions and effects of classic systems theory when networked distributed computation began its growth [42]. Ideally, we should be able to construct a multilevel theory of communication that begins with an individual sending or receiving a message, advances to the level of a sender and a receiver interacting, and advances further to the level of the organization and perhaps beyond it. Such a theory should also consider both task-oriented and relational communication, along with the cognitive and social communication processes that facilitate effective communication. We have attempted in this paper to take a small and balanced step in this direction.

APPENDIX

Coding Procedure

Step 1: Read the entire physical package and then record structured parameters: sender,

receiver, formal distribution, and blind copies (if so indicated).

Step 2: Identify MESSAGES within PHYSICAL PACKAGES and define the GOAL OF EACH MESSAGE. The default is on a per-paragraph basis but ask first if the entire physical package can be one goal. Every message has a goal (it may have a secondary goal, but you identify only one major goal). To identify the message read the first paragraph in its entirety. If it is constructed properly, it should have one major point or theme that constitutes a message. Use "Operational Definitions for Goals" in this Appendix for goal classification.

Step 3: Characterize the message as strategic or operational or procedural (see "Organizational Function" in this Appendix).

Step 4: Within a message, read one sentence at a time and treat it as a basic unit for classification into an element of a message. If it is built of two (or more) clauses, count each one as a basic unit if they fall into different categories (e.g., the core and motivation). Note, there is some loss of information due to ignoring context information that appears as a part of core sentences rather than separate sentences.

In INSTRUMENTAL or DISCURSIVE ACTION the categories are action details (the core), reason for action, explanation of "how" details (subactions), and related information (other background). In instrumental actions defined as SETTING WORK PROCEDURES the categories are procedure details (the core), reason for procedure, explanation of "how" details (subactions), and related information (other background). In STRATEGIC ACTION, the categories are proposition or opinion details (the core), motivation for proposition, proposition pros and cons, and related information. In communicative action (either SEEKING or PROVIDING information) the categories are topic of information (the core), relevance and importance, detailed information, related information.

Step 5: Count number of SENTENCES and number of WORDS in each category.

Step 6: Identify communication strategies: CONTEXTUALIZATION was defined as the proportion of words devoted to nonaction elements of the message. AFFECTIVITY was defined as the proportion of social words in the middle of the message. For INVOLVEMENT see "Coding the Involvement Strategy."

Step 7: Code message for degree of message organization according the operational definition above and "Coding Degree of Message Organization" in this Appendix.

Step 8: Code formality of message according to Eggins and Martin's characterization, using the following heuristics:

Formality is high when formal language abounds and informal language, if at all present, is delineated (e.g., separate paragraphs or opening and ending sentences only). Put 1 if informal language is minimal and separated in opening or ending, and on the other hand, formal language according to Eggins and Martin, is noticeable. Put 2 if there is official language that explicitly uses authority or organizational rules and hierarchy. Otherwise put 0.

Operational Definitions for Goals

Instrumental Action: Commanding specific action involves communication to receiver, usually in form of an instruction, to initiate a specific action. This category also includes setting work procedures and rules. The emphasis is on general guidelines or ongoing directives versus specific actions that are part of categories 1 and 2. Include here also job appointments or responsibilities, relief from appointments, etc. Note that making sure that people act according to set rules is part of maintaining command and control.

Discursive Action: Managing a collective and interdependent action. Collective action (including thinking and monitoring) begins after a collective goal of has been agreed upon. If one party is proposing some collaboration or relation, it is not collective action (it is probably "strategic"). Managing collective action may be similar to instrumental action but must include more than one agent in making the decision or implementing it so that there is also a need for managing the group of agents. Note some typical actions under the category of discursive action that may help you identify this category.

- Thinking collectively. Part of collective action. It includes any communication to further collective thinking, for example, generating ideas, suggesting alternative actions, making decisions, evaluating or criticizing suggestions, etc. It does not include managing a process or taking action.
- Monitoring and maintaining communication, command, and control. Can be part of a collective action or more generally ongoing management of a group or sometimes setting procedures when they have to do with communication. This category includes also (1) monitoring the authorization of actions, which is a form of communication for control and authorizations that maintain command and control but do not shape action (which is part of collective action or thinking); (2) coordination of group communication, meetings, and other control arrangements; (3) detecting and correcting errors; and (4) dissemination of messages with or without clarifications.

Strategic Action: Influencing. As opposed to commanding actions, in influencing or persuasion there is usually an obvious element of

judgment on behalf of the receiver whether to oblige or not. Some are hierarchical, such as acts of leadership that are requests or motivation for action. Some acts of influencing are lateral, for example, one department asking for help from another department or a "special favor." External influencing often tries to influence the environment, e.g., clients to join a membership. Influencing also includes propositions to make a deal, to take upon oneself a task or job, to join a partnership, etc. This category can, occasionally, be part of collective action, particularly in negotiation. Note that this does not include mass communication for some request. Note further that if there is a dilemma between influencing and another category, choose influencing.

Communicative Action: Providing and obtaining information for future action. Providing information is about knowledge dissemination, teaching, training, all for something that is usually not clearly directed to an immediate action but it is up to the receiver to apply it to future actions or some current issue that requires the receiver's association. Seeking information for future action. This is the opposite of providing information and is about knowledge acquisition with the intention of applying it in the future.

Coding the Involvement Strategy

Put 1 if there is no consideration of the receiver's perspective, background, and possible perceptions of the message.

Put 2 if there is some thought of the receiver's possible reactions, perceptions, and misperceptions of the message, background, language, role, etc.

Coding Degree of Message Organization For each of the following four dimensions of organization, indicate 0 (none), 1 (little or moderate), or 2 (high).

An obvious set of ordered elements clearly distinguished (e.g., paragraphs with an opening that indicates the theme or sections with subtitles or numbering). Put 2 only if numbering or subtitles of paragraphs (not just a list of items), usually requires a complex enough message to warrant such organization.

A clear allocation of tasks between senders and receivers (e.g., the sender provides information and the receiver is expected to take action). Put 1 if there is one simple instance of allocation, e.g., *I am letting you know x, y, z* and *You should now do a, b, c.* Put 2 if there a more elaborate division, e.g., *Sender does x, y, z, Receiver should do a, b, c,* and *Sender will then do x, y.*

A clear access to different levels of specificity (e.g., explanations as footnotes, references to documents that provide more details or a more complete rationale). Put 1 if there are references to documents that explain or provide related information. Put 2 if there are details or rationale in a different format (e.g., footnotes, indented paragraphs, *See x, y for more details on how to compute*). In electronic media, put 2 if there are hyperlinks to more detailed information. A standard format with customary greetings, subject, references and ending, or a given template (monthly update on exchange rates), including professional standards of writing such as appropriate for legal documents, appointment letters, etc. Put 1, if standard opening, ending, and parameters such as subject, reference, contact information (letterhead information). Put 2, if professional formats such as a standard appointment letter, legal agreement, tables, and graphs.

Coding: Organizational Function

- *Strategic*: The content relates to an issue of significance to the future of the organization, is demanding in terms of resources, of great impact on people and the environment, medium- and long-term planning, performed by top management, political, etc.

- *Operational*: The content relates to company operations, usually carried out according to plan, but occasionally relates to unexpected performance of operations. Emphasis is usually on (1) doing rather than planning or designing solutions, (2) making routine decisions such as deciding how much to order, or (3) carrying out set procedures.

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