

Communication Media Preferences in Business-to-Business Transactions: An Examination of the Purchase Process

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Abstract:

Although communication in marketing has been researched extensively, communication in buyer–seller exchanges during the sales process has received limited attention. This study examines the complexity of information interchange and buyers' and sellers' communication preferences for various media types during each stage of the purchase process. Findings reveal that, overall, buyers and sellers prefer face-to-face and telephone communications over other media types. For certain aspects of the sales process, computer-mediated communications, such as e-mail, serve an important role as a low-cost medium, whereas in other phases of the sales process, richer communication media are preferred by both buyers and sellers.

Keywords: computer-mediated communications | business-to-business sales | marketing communication

Article:

Research has clearly established the importance of communication in marketing channels (e.g., Duncan and Moriarty 1998; Mohr and Nevin 1990; Morgan and Hunt 1994). Studies examining the role of communication in marketing have focused on the importance of trust and commitment (Duncan and Moriarty 1998; Mohr, Fisher, and Nevin 1996) as well as the benefits of more collaborative communication modes (Mohr and Nevin 1990; Mohr, Fisher, and Nevin 1994). However, the choice of communication media in interorganizational relationships has received little attention (e.g., Heide and Miner 1992; Mohr and Nevin 1990; Morgan and Hunt 1994). In particular, the communication process during the stages of a buyer–seller exchange, from initiating to completing a transaction, has not yet been addressed.

A wide range of electronic and computer-mediated communications (CMC) have been used in the business-to-business (B2B) sales process in an effort to enhance the effectiveness and efficiency of the buyer–seller communication process. One example of these different communication media involves e-mail, which can be used to augment transactions based in e-commerce portals and extranets or in conjunction with traditional face-to-face and paper exchanges of information (Carter et al. 2000). In the current business environment, buyers and sellers choose from various forms of CMC (i.e., Internet, extranet, e-mail) and decide whether to use those instead of face-to-face communication or paper-based communications for the various types of communications that take place throughout the purchase process.

One reason for the high level of interest in enhancing the communication process is the flood of communications that threatens to overwhelm businesspeople. It has been documented that managers receive an average of 190 messages per day, including 52 telephone calls, 30 e-mails, 22 voice mails, 18 pieces of interoffice correspondence, 18 letters, and 15 faxes (Associated Press 1998). From a buyer/salesperson perspective, even an asynchronous form of communication, such as e-mail, may have a disruptive effect on work patterns (Jackson, Dawson, and Wilson 2003). Given the sheer volume of communications, buyers and salespeople alike seek more efficient and effective communication methods (Bean, Boles, and Cano 2003).

In practice, electronic communication, especially e-mail, is recognized as essential to selling, as noted by Schrage: “Sales teams need to use e-mails and instant messaging (IM) to manage the backstage of their presentations” (2003, p. 32). At the same time, there is concern that e-mail may not be used appropriately in the sales encounter. While salespeople can use e-mail to communicate with a buyer in an efficient and asynchronous manner, it may not always be appropriate—particularly if it takes the place of face-to-face or phone interaction. If that is the case, it may affect a firm’s bottom line (Gilbert 2003). E-mail has become an easy vehicle for avoiding cold calls, confrontation, and the likelihood of personal rejection. Unfortunately, avoiding unpleasant direct interactions may put some sales at risk—jeopardizing their firm’s revenues.

That means it is up to managers to break salespeople of their fear of using the telephone when reaching out to customers (Gilbert 2003). Even though it is not always wisely used, CMC is now part of the communication media mix, and needs to be integrated into the purchase process (McMaster 2002). In advising sellers on use of e-mail, Tynan (2002) noted that e-mail is a way to stay in touch with existing clients, as well as to reach out to new clients, because it is faster and easier than mail or telemarketing at a fraction of the cost. However, extensive reliance could hurt a firm’s business instead of helping it. Customers may be frustrated by a salesperson’s use of e-mail; wanting at least “a voice at the other end of the phone who could resolve issues and answer questions quickly” (Bulik 2004, p. 24).

This study examines communication media preferences and choices in B2B exchanges. It does this by applying two theoretical foundations from the communication and management literature to assess media use in the buyer–seller communication process. Theoretically, this research is based on rational choice theories, especially information richness theory (IRT; Daft and Lengel 1984), and social influence theory (Schmitz and Fulk 1991; Webster and Trevino 1995). The research uses these theoretical frameworks and addresses several questions concerning

communication during a typical purchase process. First, are communication media preferences of buyers and sellers across the eight phases of the purchase process different? Second, what communication media (in terms of richness and social influence) are relied on most heavily during each phase of the purchase process? Third, are buyers' and sellers' media choices aligned across the different phases of the purchase process? Finally, how do buyers and sellers rank their communication choices during each phase of the purchase process?

THE PURCHASE PROCESS

The purchase process is a series of decision-making activities. Each step is a process in which different kinds of information are exchanged. Therefore, buyers' and sellers' decisions regarding media choice for communication are a relevant issue in each phase of the purchase process. The eight-phase purchase process model, which typifies a series of information interchanges linking buyers and sellers (Robinson, Faris, and Wind 1967), serves as the foundation of the current study (Tullous and Utecht 1994). These eight phases include:

- Phase 1: Anticipate or recognize a problem and general solution.
- Phase 2: Define the product type needed.
- Phase 3: Develop specifications (characteristics) of the product needed.
- Phase 4: Search for qualified suppliers.
- Phase 5: Acquire and analyze proposals.
- Phase 6: Evaluate proposals and select supplier.
- Phase 7: Place and receive an order.
- Phase 8: Evaluate performance of product and supplier.

THEORETICAL FOUNDATION AND RELEVANT CONCEPTS

Communication Media Choices

This literature review focuses on studies of media choice decisions. Previous research (Daft and Lengel 1986; Fulk, Schmitz, and Steinfield 1990) has suggested that three primary areas influence media choice decisions. First, a medium's capacity to convey the richness of a message (i.e., its ability to address ambiguity) is a factor that individuals seek to align when making communication media choice decisions. Individuals strive to use media that will suitably convey enough cues to carry particular messages. Second, the social influence of others within a communication network sways an individual's evaluation of a medium as appropriately rich for a given message. Third, the economics of the exchange affect the choice of media in a B2B setting, especially given the high costs associated with personal sales calls. Finally, other factors, such as urgency of the exchange and managerial expectations, have also been noted as context variables to consider when examining media choice decisions (e.g., Deeter-Schmelz et al. 2001; Minsky and Marin 1999; Webster and Trevino 1995).

Factors That Influence Media Choice

Daft and Lengel (1984) introduced IRT to explain how media differ in their capacity to convey shared meaning and engender comprehension. The richness of a medium varies with the

availability of feedback and social cues and the use of language and emotion. On the information richness continuum, Daft and Lengel (1984) argued that face-to-face is the richest medium, followed by telephone, written communication, and statistical reports. This stream of research regarding media choice decisions as rational choices supports the argument that the type of message being sent influences the choice of media. For example, several studies (e.g., Daft and Lengel 1986; Trevino et al. 1988) have extended the notion that the complexity and equivocality of the transmitted messages vary with media choice.

Rational choice theories such as IRT “posit that individuals choose communication media by matching the medium’s inherent objective characteristics and the object requirements of the communication task” (Minsky and Marin 1999, p. 197). Webster and Trevino suggested that message content drives media choice: “Highly equivocal messages are open to interpretation . . . a shared definition must be created through two-way interaction that uses language and other cues . . . media richness theory arrays media along a richness hierarchy” (1995, p. 1546). Face-to-face is considered to be the richest medium—written documents are considered among the leanest. Rational choice theories alone, however, typically explain only a small percentage of the variance in media-related behavior. This suggests that rational choice models are insufficiently complex (Minsky and Marin 1999). Social influence theories, which complement rational choice theories, offer more complex models for investigating media choices.

Schmitz and Fulk (1991) pioneered the study of how social influences affect communication channel choices. Social influence theories argue that a communicator is consciously or unconsciously influenced by social relationships, organizational structures, and local norms in matching a communication task with communication media (Minsky and Marin 1999). The foundation of social influence theory suggests that technology-related behaviors may be a product of social learning in the workplace (Fulk 1993).

Individuals are influenced by the information cues of various members from their social worlds. These cues are directly and indirectly present in different social contexts. Individuals garner norms and expectations that constrain the rationalization and justification of behavior within these social contexts (Salancik and Pfeffer 1978). The information derived can take many forms, including coworkers’ direct statements, vicarious learning, group behavioral norms, and social definitions of rationality (Fulk, Schmitz, and Steinfield 1990; Schmitz and Fulk 1991). Social influence is important in the buyer–seller relationship, because of the clear trend toward relationship selling, where the focus is on “developing and enhancing a mutually beneficial bond between buyers and seller” (Bauer et al. 1998, p. 3).

The framework for the present study focuses on the effects of coworkers upon their peers. The term “coworkers,” however, will be expanded to include peers who hold comparable or complementary positions in other firms. Social networks examined in prior research (Fulk, Schmitz, and Steinfield 1990) only included coworkers from the same firm. In the buyer–seller interface, the seller may exert social influence on the buyer, the buyer may influence the seller, or other buyers and sellers may influence both parties, because individuals in these positions are boundary spanners. The interactions among the members of a communication network influence individual evaluations of the richness of the various media choices. For example, over time, e-mail may be viewed as increasingly rich and able to convey more cues as social relationships

influence an individual to become more familiar with it, try to convey more cues, and so on (Panteli 2002). For example, using emoticons and comments such as “smile” or “grin” in e-mail messages are attempts to include more social cues into a lean medium.

As members of the communication networks develop familiarity and ease with both the media and each other as participants in the exchange, their evaluations of the richness of communication media increase. In short, peer evaluations of a medium in a communication network influence an individual’s own evaluation of that medium. Recently, these concepts have been expanded to include new media types, such as e-mail, fax, and voice mail (Markus 1994; Straub and Karahanna 1998). Studies using the IRT concept applied to internal company e-mail support the notion that evolving social processes result in electronic media performing more richly than expected (Lee 1994; Markus 1994; Panteli 2002).

The cost of information exchange is a driving force behind the selection of communication media choices. McCune (1998) argued that organizations use the extranet—a trading network of known business partners using the Internet—as a less costly way of sharing information with customers, suppliers, and business partners. Deeter-Schmelz et al. (2001) found that suppliers are critical in the adoption of new technology. Moreover, incentives, training, and convenience of use can increase the likelihood that buyers will adopt and use new technology.

Finally, managerial philosophies, urgency, and whether strategic versus tactical actions are being taken are all additional considerations that may influence an individual’s media choice. Carlson and Davis (1998) found that two significant categories of motives affect the media choice decision. The most common motive for media selection was a preference for the fastest, easiest, and most convenient method, whereas the second most common motive reflected the need to sort out meanings (supporting the idea that the media and message must align or “fit,” as proposed by IRT). Given that organizations’ media choice decisions are influenced by decision makers’ desire for convenience and fitting their communication method to the task, the use of e-mail and other CMC may be viewed as a credible purchase process alternative for some types of communication.

A managerial philosophy can provide a frame that fosters the notion of urgency as a primary driver of communication media choice decisions. Consider the managerial strategy of just-in-time (JIT), in which communication is regarded as a critical element. Richeson, Lackey, and Starner (1995) suggested that open communication links between manufacturers and suppliers improve synchronization of operations, foster the development of trust between the parties, help reduce opportunistic behavior, and facilitate the flow and exchange of information. Furthermore, of the communication mediums available, Richeson, Lackey, and Starner (1995) found that telephone communication ranks highest in daily and weekly use by JIT organizations. Also, Larson and Kulchitsky (2000) and Barry and Bateman (1992) supported the finding that face-to-face and telephone are preferred for strategic communications. In addition, telephone and fax are preferred for tactical communication, and electronic data interchange (EDI) and the Internet are characterized by low utilization.

Lascelles and Dale (1989) researched the role of communication in quality management in the United Kingdom and identified five barriers to an effective buyer–seller relationship in quality

management: (1) poor communication and feedback, (2) supplier complacency, (3) poorly defined supplier quality improvement programs, (4) sellers' perceived lack of credibility of buyers, and (5) misconceptions about purchase power. Lascelles and Dale argued that weakness in buyer–seller communication is a “serious roadblock to quality improvement” (1989, p. 11). Managers choose written communication to convey formality and legitimacy and face-to-face communication to convey a desire for teamwork (Feldman and March 1981; Stryker and Statham 1985; Webster and Trevino 1995).

In summary, substantial research has suggested that the choice of communication medium is influenced by a need to fit the medium to the message, especially with regard to ambiguity and equivocality of the messages in a rational decision process (e.g., Daft and Lengel 1984; Larson and Kulchitsky 2000; Schmitz and Fulk 1991). Also, social factors influence choices and the cost of information exchange, especially the differential cost between face-to-face and mediated communication such as telephone, fax, and e-mail, are considered in media choice decisions. Furthermore, other context variables may be influential, such as task urgency, the nature of the task (i.e., strategic versus tactical), and the managerial philosophies framing the encounter for firms on both sides of the exchange.

HYPOTHESES

The theoretical foundation for the study hypotheses is a result of blending rational choice theory, specifically IRT, with the effect of social influences on the communication process. Rational choice theories (such as IRT) argue that the content of the message is a primary determinant of media choice. Rational choice theories suggest that a message's content drives media choice (Daft and Lengel 1984; Larson and Kulchitsky 2000; Webster and Trevino 1995). Hence, the interchange of information throughout the purchase process varies, as buyers and sellers seek the optimal media type for the content of the information being communicated.

IRT specifically indicates that media vary widely in their ability to convey meaning and enhance receiver comprehension. Immediate feedback and the availability of social cues are two indicators of a rich medium. Conversely, limited or delayed feedback and the lack of obvious social cues such as nonverbal communication would indicate a very lean medium.

Social influence theories suggest that the use of a particular medium is, at least partially, determined by what peers and counterparts have deemed appropriate (Fulk, Schmitz, and Steinfield 1990; Schmitz and Fulk 1991). If buyers indicate that the telephone is the preferred medium for certain types of information, then salespeople would be expected to utilize that communication medium to convey those facts. We view a combination of these theories as offering the most accurate portrayal of how media choices are actually made.

During the early phases (Phases 1–3) of the B2B buying process, a great deal of information is provided and gathered, as a need is recognized and a product/service that can meet that need is identified. This process results in the gathering of wide-ranging information from various sources. Information interchange is more detail oriented (i.e., technical data) than contractual (i.e., change of ownership). The type of information involves tacit knowledge (i.e., scientific expertise, product technologies, operational know-how) that requires a high degree of

interpretation, and therefore much face-to-face contact (Cliffe 1998). Buyers and sellers seek to match the nature of the message to the communication media, resulting in the selection of a relatively rich communication type.

During the first three phases of the purchase process, salespeople seek out opportunities to *sell* their product/service and buyers gather information to support their choices. Buyers and sellers develop a rapport that may lead to a closer working relationship. Hence, relatively richer communication such as face-to-face and telephone are preferred to leaner media. The following hypotheses are brought forward.

H1: During Phases 1, 2, and 3 of the purchase process, there are no differences in buyers' and sellers' preferences for the use of (1) e-mail, (2) telephone, (3) face-to-face, (4) written, (5) fax, and (6) extranet communications.

H2: During Phases 1, 2, and 3 of the purchase process, face-to-face communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

H3: During Phases 1, 2, and 3 of the purchase process, telephone communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

In Phase 4 of the purchase process, buyers seek qualified suppliers by investigating the assets of potential suppliers. Sellers maneuver to maximize their competitive advantage and gain a superior position over their competitors. Tactical communications are engaged during this phase of the purchase process. Larson and Kulchitsky (2000) and Barry and Bateman (1992) found that telephone and fax are preferred for tactical communications. These preferences suggest that both buyers and sellers seek a communication medium between the polar ends (face-to-face and written) of the richest hierarchy. Hence, the following is hypothesized:

H4: During Phase 4 of the purchase process, there are no differences in buyers' and sellers' preferences for the use of (1) e-mail, (2) telephone, (3) face-to-face, (4) written, (5) fax, and (6) extranet communications.

H5: During Phase 4 of the purchase process, telephone, fax, e-mail, and extranet communications are preferred to face-to-face communication.

H6: During Phase 4 of the purchase process, telephone, fax, e-mail, and extranet communications are preferred to written communication.

Analyzing proposals (Phase 5) requires two types of information: specialized and contractual. In Phase 5 of the purchase process, the content of the information interchange is likely to be technical and specific to each potential solution. Social influence theory suggests that the desire to convey formality and legitimacy leads to the use of written communication (Webster and Trevino 1995). Both buyers and sellers will seek contractual clarification in written form to reduce uncertainty and justify their actions (e.g., commitment of resources) (Milgrom and Roberts 1992), preferring written communication to all other media for which there is no difference in preferences. The buyer bears a greater degree of uncertainty and justification (i.e.,

risk), suggesting that more buyers than sellers will seek written confirmation (Rackham and DeVincentis 1999). Therefore, buyers and sellers will differ as to their preference, for written communication.

H7: During Phase 5 of the purchase process, there is a difference in buyers' and sellers' preferences for written communications.

H8: During Phase 5 of the purchase process, there are no differences in buyers' and sellers' preferences for (1) e-mail, (2) telephone, (3) face-to-face, (4) fax, and (5) extranet communications.

H9: During Phase 5 of the purchase process, written communication is preferred to (1) e-mail, (2) telephone, (3) face-to-face, (4) fax, and (5) extranet communications.

After analyzing the proposals, buyers evaluate the proposals and appraise sellers (Phase 6). The information interchange relies heavily on the social cues. Therefore, both buyers and sellers preferred relatively richer communication media (telephone and face-to-face) during this phase.

H10: During Phase 6 of the purchase process, there are no differences in buyers' and sellers' preferences for (1) e-mail, (2) telephone, (3) face-to-face, (4) fax, and (5) extranet communications.

H11: During Phase 6 of the purchase process, face-to-face communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

H12: During Phase 6 of the purchase process, telephone communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

When placing and receiving an order (Phase 7), ownership of the product/service is transferred, and contractual obligations are satisfied. The content of communication is complex, albeit to a lesser degree than in Phase 6 (since to the extent possible, most ambiguities and conflicts have been resolved). Sellers bear a greater responsibility for the relationship's success relationship than do buyers (Rackham and DeVincentis 1999). For buyers, the purchase decision is complete; for sellers, it is time to confirm the buyer's choice of supplier (Churchill et al. 2000). Buyers and sellers will prefer a relatively high-level communication type (telephone) in the richest hierarchy, although the richest media, face-to-face communication, is not prescribed.

H13: During Phase 7 of the purchase process, there are no differences in buyers' and sellers' preferences for the use of (1) e-mail, (2) telephone, (3) face-to-face, (4) written, (5) fax, and (6) extranet communications.

H14: During Phase 7 of the purchase process, telephone communication is preferred to (1) e-mail, (2) face-to-face, (3) written, (4) fax, and (5) extranet communications.

During the final phase of the purchase process (Phase 8), evaluation of performance, buyers and sellers seek to augment their business relationships (Churchill et al. 2000). Social factors

influence communication choices, suggesting a relatively rich communication type. The nature of communications during this phase is strategic, supporting the relatively rich communication (face-to-face and telephone) choice.

H15: During Phase 8 of the purchase process, there are no differences in buyers' and sellers' preferences for the use of (1) e-mail, (2) telephone, (3) face-to-face, (4) written, (5) fax, and (6) extranet communications.

H16: During Phase 8 of the purchase process, face-to-face communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

H17: During Phase 8 of the purchase process, telephone communication is preferred to (1) e-mail, (2) written, (3) fax, and (4) extranet communications.

METHODOLOGY

MBA students enrolled in a large southern university gathered the data for this study. Each student was required to administer a survey to *at least one* purchase agent and one salesperson engaged in B2B sales. The research is based on a wide cross-section of companies engaged in B2B exchanges. The final data analyzed for this study included the responses of 131 buyers and 141 salespeople.

Measures

Respondents were asked to consider a specific major sale (purchase) and complete an 8×7 matrix (eight stages of the purchase process by seven communication choices) representing media preferences (e-mail, telephone, face-to-face, written, fax, extranet, other) for each phase of the purchase process. Participants were asked to rank their communication media choices for each phase as first choice (1), second choice (2), third choice (3), use the medium but not first three choices (4), and do not use this communication medium (5). A questionnaire attached to the survey was used to gather descriptive data.

Statistical Methods

Analyses of variances (ANOVAs) were conducted to test differences between buyers and sellers regarding (1) communication media choices during each phase of the purchase process, (2) hours on the Internet per workweek, (3) experience using the Internet, (4) years of experience in sales, and (5) dollar value of purchase considered. Chi-square analyses were conducted to examine preferences between communication media during each phase of the purchase process. The reported use of the various communication media by buyers and sellers was calculated using descriptive statistics.

ANALYSES AND FINDINGS

The average age of buyers and sellers differed by approximately one year (38.6 and 39.7, respectively) and the average years of work experience varied slightly (12.4 and 11.9,

respectively). Both buyers and sellers anticipated using the Internet somewhat more in the coming year. Buyers reported 29 months of experience on the Internet as compared to the sellers at 30.4 months. Buyers spent 10.6 hours on the Internet per week that were job-related, whereas sellers spent 9.7 job-related hours on the Internet. The survey asked respondents to consider a recent purchase (sale) when ranking communication choices. The average amount of that transaction was \$1.9 million for buyers and \$2.9 million for sellers.

An ANOVA revealed that there were no significant differences between buyers and sellers at $\alpha = 0.05$ as to hours on the Internet per workweek ($F = 0.610, p = 0.44$), experience on the Internet ($F = 0.252, p = 0.62$), years of experience on the job ($F = 0.180, p = 0.68$), age ($F = 0.65, p = 0.42$), and dollar of amount of purchase (sale) ($F = 0.235, p = 0.63$).

Communication Choices

While both buyers and sellers reported some preferences for “other” communication media (media other than face-to-face, telephone, e-mail, fax, written, and extranet), no more than 17 buyers and 10 sellers selected “other” communication for any one phase of the purchase process. The minimal number of both buyers and sellers selecting “other” communication media in any one phase of the purchase process indicates that communication choices fitting in the “other” category were not heavily used and that they offer little insight into communications during the sales process. Therefore, the “other” category was not considered in the following analyses.

Phase 1: Anticipation or Recognition of a Problem and General Solution

As hypothesized, there were no significant differences at $\alpha = 0.05$ between buyers’ and sellers’ choices of communication media during Phase 1 of the purchase process (Table 1): e-mail ($F = 2.76, p = 0.10$), telephone ($F = 2.33, p = 0.13$), face-to-face ($F = 0.99, p = 0.32$), written ($F = 0.00, p = 0.99$), fax ($F = 0.59, p = 0.44$), and extranet ($F = 0.22, p = 0.64$). Hence, H1 was supported as to Phase 1.

Face-to-face communication was preferred to e-mail ($\chi^2 = 280.012$, significance = 0.000), written ($\chi^2 = 266.565$, significance = 0.000), fax ($\chi^2 = 275.553$, significance = 0.000), and extranet ($\chi^2 = 280.460$, significance = 0.000) at $\alpha = 0.05$, supporting H2 as to Phase 1. Similar preferences were detected for telephone over e-mail ($\chi^2 = 306.79$, significance = 0.000), written ($\chi^2 = 250.347$, significance = 0.000), fax ($\chi^2 = 299.776$, significance = 0.000), and extranet ($\chi^2 = 280.000$, significance = 0.000) communications. Hence, H3 was supported as to Phase 1.

Descriptive Statistics. The descriptive statistics for Phase 1 indicate that 72 percent of buyers and 87 percent of sellers reported partiality for telephone communication (choices 1–4 for usage preference). Face-to-face was the second most frequently mentioned communication type used. Twenty-four percent of buyers and 28 percent of sellers reported face-to-face as their first choice of communication, and 54 percent of buyers and 61 percent of sellers stated this communication type was their first, second, or third choice. Twenty-nine percent of buyers and 42 percent of sellers reported telephone as their first choice of communication media. Similar data were observed for buyers’ and sellers’ first three choices; 79 percent of the sellers and 64 percent of

the buyers reported telephone as their first, second, or third choice of communication media in Phase 1 of the purchase process.

Phase 2: Define the Product Type Needed

Comparable to Phase 1, no significant differences ($\alpha = 0.05$) were found between buyers' and sellers' choices of communication type during Phase 2 of the purchase process (Table 1): e-mail ($F = 0.00, p = 0.97$), face-to-face ($F = 0.47, p = 0.49$), written ($F = 1.74, p = 0.19$), and fax ($F = 2.11, p = 0.15$). Heteroskedasticity of the data, a nonrobust assumption of parametric analysis, was violated. Parametric analysis of heteroskedastic data is suspect and nonparametric analysis is prescribed (Mendenhall and Sincich 1996). Therefore, a nonparametric ANOVA test of differences between buyers and sellers as to telephone and extranet in Phase 2 was conducted. No significant differences ($\alpha = 0.05$) were found as to telephone ($p = 0.22$) and extranet ($p = 0.45$). Therefore, H1 was supported as to Phase 2.

Face-to-face communication was preferred to e-mail ($\chi^2 = 287.315$, significance = 0.000), written ($\chi^2 = 280.112$, significance = 0.000), fax ($\chi^2 = 291.930$, significance = 0.000), and extranet ($\chi^2 = 280.224$, significance = 0.000). Hence, H2 was supported as to Phase 2. Preferences for telephone communication over e-mail ($\chi^2 = 287.121$, significance = 0.000), written ($\chi^2 = 280.112$, significance = 0.000), fax ($\chi^2 = 291.930$, significance = 0.000), and extranet ($\chi^2 = 280.224$, significance = 0.000) were observed, supporting H3 as to Phase 2.

Descriptive Statistics. Seventy-five percent of buyers and 85 percent of sellers reported using telephone communication in Phase 2; 62 percent of buyers and 63 percent of sellers reported using face-to-face communication during Phase 2. The majority of the buyers (67 percent) and sellers (78 percent) reported telephone as their first, second, or third choice of communication medium. Slightly more buyers reported telephone as their first choice (26 percent of buyers compared to 24 percent of sellers).

Phase 3: Develop Specifications (Characteristics) of Product Needed

No significant differences ($\alpha = 0.05$) were found between buyers' and sellers' communication media choices as to e-mail ($F = 0.01, p = 0.97$), fax ($F = 2.11, p = 0.15$), written ($F = 0.42, p = 0.52$), and extranet ($F = 0.00, p = 0.99$) during Phase 3 of the purchase process (Table 1). Heteroskedasticity of the data, a nonrobust assumption of parametric analysis, was violated imposing a nonparametric analysis (Mendenhall and Sincich 1996). The findings were nonsignificant at $\alpha = 0.05$ as to telephone ($F = 9.58, p = 0.00$) and extranet ($F = 4.21, p = 0.04$). Hence, H1 was supported as to Phase 3.

Chi-square analyses revealed that face-to-face communication was preferred to e-mail ($\chi^2 = 288.744$, significance = 0.000), written ($\chi^2 = 297.415$, significance = 0.000), fax ($\chi^2 = 287.673$, significance = 0.000), and extranet ($\chi^2 = 280.699$, significance = 0.000) communications. Therefore, H2 was supported as to Phase 3. As hypothesized, telephone was preferred to e-mail ($\chi^2 = 287.157$, significance = 0.000), fax ($\chi^2 = 290.434$, significance = 0.000), written ($\chi^2 = 280.17$, significance = 0.000), and extranet ($\chi^2 = 280.007$, significance = 0.000) communications, supporting H3 as to Phase 3.

Table 1. ANOVA Results, Mean, and Standard Deviation

Phase	Media	ANOVA		Buyers		Sellers	
		F-value	p-value	Mean	Standard Deviation	Mean	Standard Deviation
1. Recognition of Problem and General Solution	E-Mail	2.76	0.10	3.79	1.45	3.64	1.37
	Telephone	2.33	0.13	2.83	1.61	2.25	1.40
	Face-to-Face	0.99	0.32	3.18	1.64	2.89	1.59
	Written	0.00	0.99	3.90	1.40	4.03	1.27
	Fax	0.59	0.44	4.15	1.13	4.09	1.11
	Extranet	0.22	0.64	4.78	0.76	4.84	0.65
2. Define Product Type Needed	E-Mail	0.00	0.97	3.69	1.48	3.48	1.39
	Telephone	—	0.22*	2.84	1.53	2.51	1.33
	Face-to-Face	0.47	0.49	3.22	1.68	2.84	1.66
	Written	0.74	0.19	3.79	1.43	3.97	1.41
	Fax	2.11	0.15	3.81	1.28	3.93	1.30
	Extranet	—	0.45*	4.72	0.90	4.83	0.73
3. Develop Specifications	E-Mail	0.01	0.97	3.60	1.49	3.72	1.41
	Telephone	9.58	0.00	3.10	1.47	2.79	1.50
	Face-to-Face	4.21	0.04	3.38	1.71	2.99	1.67
	Written	0.42	0.52	3.87	1.63	3.40	1.42
	Fax	—	0.07	3.75	1.30	3.86	1.38
	Extranet	0.00	0.99	4.83	0.069	4.82	0.71
4. Search for Qualified Suppliers	E-Mail	1.12	0.29	3.72	1.34	3.75	1.46
	Telephone	9.58	0.00	2.48	1.42	2.55	1.61
	Face-to-Face	4.27	0.04	3.57	1.52	4.03	1.40
	Written	—	0.04*	3.91	1.39	4.37	1.08
	Fax	0.85	0.37	4.01	1.21	4.08	1.19
	Extranet	0.60	0.44	4.44	1.34	4.40	1.27
5. Acquire and Analyze Proposals	E-Mail	1.08	0.30	3.60	1.47	3.56	1.56
	Telephone	0.04	0.85	3.53	1.39	3.36	1.51
	Face-to-Face	0.02	0.88	3.39	1.62	3.08	1.66
	Written	4.27	0.04	3.13	1.63	3.55	1.59
	Fax	0.19	0.66	3.45	1.55	3.54	1.44
	Extranet	0.17	0.68	4.77	0.83	4.84	0.62
6. Evaluate Proposals and Select Supplier	E-Mail	0.76	0.39	3.71	1.42	3.84	1.38
	Telephone	3.81	0.05	3.08	1.82	2.99	1.57
	Face-to-Face	1.90	0.17	3.32	1.62	3.59	1.63
	Written	3.95	0.05	3.40	1.70	3.83	1.61
	Fax	0.56	0.46	3.88	1.38	4.17	1.19
	Extranet	0.00	0.99	4.78	0.78	4.82	0.75
7. Place and Receive Order	E-Mail	2.64	0.11	3.55	1.44	3.64	1.49
	Telephone	3.86	0.05	2.72	1.42	3.09	1.56
	Face-to-Face	0.21	0.65	3.84	1.43	3.63	1.56
	Written	—	0.86*	3.69	1.57	3.84	1.40
	Fax	1.05	0.31	3.14	1.57	3.23	1.57
	Extranet	0.03	0.87	4.67	0.97	4.67	.097
8. Evaluate Performance of Product and Supplier	E-Mail	1.73	0.19	3.52	1.51	3.85	1.41
	Telephone	1.41	0.24	2.83	1.53	3.01	1.61
	Face-to-Face	0.28	0.60	3.23	1.73	3.28	1.74
	Written	1.51	0.22	3.59	1.52	3.81	1.46
	Fax	—	0.25*	4.24	1.04	4.27	1.17
	Extranet	0.51	0.48	4.82	0.70	4.87	0.63

Notes: * Nonparametric ANOVA; boldface figures are significant at $\alpha = 0.05$.

Descriptive Statistics. Stated media usage in Phase 3 was consistent with Phases 1 and 2 for sellers, but not for buyers. A higher percentage of sellers reported face-to-face (69 percent) and telephone (76 percent) usage than all other communications types. For telephone communication, buyers' use was consistent with that of sellers—72 percent of buyers used this medium. However, 54 percent of the buyers reported using face-to-face communication, 55 percent e-mail, 56 percent written, 58 percent fax, and 7 percent extranet. Larson and Kulchitsky (2000) similarly found a low utilization of the extranet.

Phase 4: Search for Qualified Suppliers

Unexpected results emerged in Phase 4. Although buyers and sellers were not significantly different ($\alpha = 0.05$) as to their communication preferences for e-mail ($F = 1.12, p = 0.29$), fax ($F = 0.85, p = 0.37$), and extranet ($F = 0.60, p = 0.44$), buyers and sellers were significantly different as to telephone ($F = 9.58, p = 0.00$), face-to-face ($F = 4.27, p = 0.04$), and written (nonparametric $p = 0.04$) (Table 1). These differences in the richer communication media, face-to-face and telephone, suggest that buyers seek to resolve ambiguity and seek out more nonverbal cues (e.g., body language, voice tone) than do sellers. Moreover, the exactitude of written communications contributes to risk reduction. H4 was supported as to e-mail, fax, and extranet and not supported as to telephone, face-to-face, and written.

As hypothesized, telephone, fax, e-mail, and extranet were preferred to face-to-face and written communications. Telephone was preferred to face-to-face ($\chi^2 = 304.722$, significance = 0.000) and written communication ($\chi^2 = 284.091$, significance = 0.000); fax was preferred to face-to-face ($\chi^2 = 204.741$, significance = 0.000) and written communication ($\chi^2 = 211.328$, significance = 0.000); e-mail was preferred to face-to-face ($\chi^2 = 275.001$, significance = 0.000) and written communication ($\chi^2 = 272.047$, significance = 0.000); and the extranet was preferred to face-to-face ($\chi^2 = 223.307$, significance = 0.000) and written communication ($\chi^2 = 224.490$, significance = 0.000). Hence, H5 and H6 were supported.

Descriptive Statistics. Sellers reported using communication types between the two polar ends (face-to-face and written) of the richness hierarchy, except for the extranet, for information exchange during Phase 4 of the purchase process. In descending order, sellers use telephone (75 percent), e-mail (51 percent), fax (43 percent), face-to-face (39 percent), and written (29 percent) communications. Buyers stated using tele phone (85 percent) more than all other communication types. However, buyers' reported use of other communication types is less discriminating; they included face-to-face (56 percent), e-mail (54 percent), written (46 percent), and fax (48 percent).

Phase 5: Acquisition and Analysis of Proposals

As hypothesized, buyers and sellers were significantly different ($\alpha = 0.05$) as to written (nonparametric $p = 0.04$), and not significantly different as to their communication preferences for e-mail ($F = 1.08, p = 0.30$), telephone ($F = 0.04, p = 0.85$), face-to-face ($F = 0.02, p = 0.88$), fax ($F = 0.19, p = 0.66$), and extranet ($F = 0.17, p = 0.68$). Hence, H7 and H8 were supported (Table 1).

Written communication was preferred to e-mail ($\chi^2 = 272.885$, significance = 0.000), telephone ($\chi^2 = 272.222$, significance = 0.000), face-to-face ($\chi^2 = 280.009$, significance = 0.000), fax ($\chi^2 = 206.294$, significance = 0.000), and extranet ($\chi^2 = 223.242$, significance = 0.000) communications, supporting H9.

Descriptive Statistics. A majority of buyers (54 percent) reported written communication as their first, second, or third choice. However, sellers reported using a relatively rich communication during this phase of the purchase process (face-to-face [64 percent] and telephone [62 percent]). Only 15 percent of sellers used written communication as their first choice.

Phase 6: Evaluation of Proposals and Selection of Supplier

There were no significant differences between buyers' and sellers' communication preferences ($\alpha = 0.05$) as to e-mail ($F = 0.76$, $p = 0.39$), face-to-face ($F = 1.90$, $p = 0.17$), fax ($F = 0.56$, $p = 0.46$), and extranet ($F = 0.00$, $p = 0.99$) during Phase 6 of the purchase process (Table 1). However, buyers, and sellers' preferences as to telephone communication during Phase 6 were significantly different ($F = 3.81$, $p = 0.05$) (Table 1). Therefore, H10 is supported as to e-mail, face-to-face, fax, and extranet, but not supported as to telephone. The difference may be attributed to sellers' preference to use a richer communication media type to reduce uncertainty during the evaluation phase.

As hypothesized, relatively rich communications (face-to-face, telephone) were preferred to other communication media. Face-to-face communication was preferred to e-mail ($\chi^2 = 273.825$, significance = 0.000), written ($\chi^2 = 291.368$, significance = 0.000), fax ($\chi^2 = 204.510$, significance = 0.000), and extranet ($\chi^2 = 223.079$, significance = 0.000) communications. Hence, H11 was supported. Telephone communication was also preferred to e-mail ($\chi^2 = 280.009$, significance = 0.000), written ($\chi^2 = 285.644$, significance = 0.000), fax ($\chi^2 = 230.063$, significance = 0.000), and extranet ($\chi^2 = 223.996$, significance = 0.000) communications, supporting H12.

Descriptive Statistics. Seventy-three percent of buyers and 68 percent of sellers used telephone communication, and 61 percent of buyers and 51 percent of sellers used face-to-face communication during this phase. Sixty-five percent of both buyers and sellers used telephone as their first, second, or third choice; 47 percent of buyers and 39 percent of sellers stated that face-to-face was their first, second, or third choice.

Phase 7: Place and Receive an Order

Communication media preferences of buyers and sellers were not significantly ($\alpha = 0.05$) different during Phase 7 of the purchase process: e-mail ($F = 2.64$, $p = 0.11$), face-to-face ($F = 0.21$, $p = 0.65$), written (nonparametric $p = 0.86$), fax ($F = 1.05$, $p = 0.31$), and extranet ($F = 0.03$, $p = 0.87$) (Table 1), supporting H13 as to these communication media. However, buyers and sellers were significantly different as to telephone ($F = 3.86$, $p = 0.05$), and H13 was not supported as to telephone. The difference between buyers and sellers may be attributed to the seller's need to meet the expectations of the buyer and comply with managerial standards. Sellers

prefer a communication medium (e.g., written) that *spells out* the implementation of the agreement.

During the order phase of the purchase process, telephone communication was preferred to e-mail ($\chi^2 = 289.006$, significance = 0.000), face-to-face ($\chi^2 = 283.836$, significance = 0.000), written ($\chi^2 = 272.392$, significance = 0.000), fax ($\chi^2 = 205.338$, significance = 0.000), and extranet ($\chi^2 = 223.304$, significance = 0.000) communications. Hence, H14 was supported.

Descriptive Statistics. Buyers reported using telephone (81 percent), e-mail (59 percent), and fax (69 percent) more than face-to-face (47 percent) or written communication (48 percent). Twenty-four percent of the buyers selected fax as their first choice. Most sellers (67 percent) reported using telephone communication. Preference for telephone was further noted by the strength of sellers' choice for this medium; sixty-one percent of sellers reported telephone communication as their first, second, or third choice.

Phase 8: Evaluate Performance of Product and Supplier

As hypothesized, communication media preferences of buyers and sellers were not significantly different ($\alpha = 0.05$) during Phase 8 of the purchase process: e-mail ($F = 1.73$, $p = 0.19$), telephone ($F = 1.41$, $p = 0.24$), face-to-face ($F = 0.28$, $p = 0.60$), written ($F = 1.51$, $p = 0.22$), and extranet ($F = 0.51$, $p = 0.51$) (Table 1). Nonparametric ANOVA revealed no significant difference between buyers and sellers as to fax ($p = 0.25$). These findings supported H15.

Similar to Phase 7, a relatively rich communication media (face-to-face and telephone) was preferred to other media (e-mail, written, fax, extranet) during Phase 8 of the purchase process. Face-to-face was preferred to e-mail ($\chi^2 = 251.505$, significance = 0.000), written ($\chi^2 = 254.686$, significance = 0.000), fax ($\chi^2 = 197.699$, significance = 0.000), and extranet ($\chi^2 = 203.905$, significance = 0.000) communications, supporting H16. Telephone was favored over e-mail ($\chi^2 = 308.228$, significance = 0.000), written ($\chi^2 = 280.218$, significance = 0.000), fax ($\chi^2 = 230.239$, significance = 0.000), and extranet ($\chi^2 = 223.307$, significance = 0.000), supporting H17.

Descriptive Statistics. Face-to-face and telephone communication were the most widely used communication choices of both buyers and sellers during Phase 8. Seventy-two percent of buyers and 65 percent of sellers reported telephone use; 67 percent of buyers and 64 percent of sellers reported telephone communication as their first, second, or third choice. Face-to-face communication was the second most used media of both buyers and sellers, with 58 percent and 55 percent, respectively.

DISCUSSION AND IMPLICATIONS

Our findings indicate that both buyers' and sellers' communication choices vary throughout the purchase process. This is consistent with theory and previous research findings. Rational choice theories espouse that message content, urgency, and the need for reduction of uncertainty and ambiguity in the communication instance will influence media choice. Given the varying nature of communication needs in the different phases of the sales process, we believe that these theories are relevant in sales encounter research. The data gathered for this study do not provide

much insight into the effects of social influence on the media choice. This is an issue worthy of future study.

The reported low utilization of the extranet and the “other” category (predominantly Internet) is consistent with Larson and Kulchitsky’s (2000) research. It is also supported by the low adoption rate of the Internet by B2B companies (Forrester Research 2001). However, it may be that buyers and salespeople engaged in long-term relationships utilize the Internet much more in the between-purchase stage of the sales cycle. Salespeople may use it to provide service, “touch base” with customers, or send information about new products that may trigger need recognition or set the stage for a new round of the purchase process.

In practice, “while we all say the Internet has taken over, there is still a certain degree of a personal relationship that people want to have in the sales process” (Bulik 2004, p. 24). Significantly, both buyers and sellers preferred relatively richer communication (face-to-face and telephone) to leaner media throughout the purchase process. These types of communication, although more costly, offer opportunities for business partners to augment their relationships. In the twenty-first century, American businesses are moving toward relational exchanges. DuPont Corporation, for example, developed a customer interface strategy delineating how it plans to interact with the customer groups it serves, balancing the customers’ needs with the costs associated with different types of relationships (Bauer et al. 1998, p. 3). Importantly, this highlights the notion that the buyer–seller relationship is changing, and relational exchanges are emerging as a major marketing strategy in successful American businesses. With this in mind, organizations should seek strategies that shift from a low-cost to a value-based approach to selling (Dumond 1994). Furthermore, the findings suggest that social influence theory explains communication choice during the purchase process better than rational choice theory.

However, CMC, as a low-cost means of communication, serves important functions during the purchase process. For example, during the order phase (Phase 7), 69 percent of buyers and 63 percent of sellers reported using fax communication. However, with few exceptions, the percentage of e-mail use did not exceed its nonuse by more than 10 percent (use versus nonuse was approximately equal). This suggests that companies, while still in the growing stage of adopting e-mail communication, are sometimes substituting e-mail (CMC) for written communication. E-mail use may increase as younger, more computer literate people begin to work for these companies and use Internets/extranets for communication.

Discrepancies between buyers and sellers regarding communication media choices have important sales management implications. It is interesting that buyers seek a relatively rich communication (face-to-face) when searching for a supplier, whereas sellers are inclined to communicate using less rich communication media such as the Internet during the prospecting process. The situation is reversed when buyers acquire and analyze proposals; sellers seek the richest communication (face-to-face), whereas buyers lean toward leaner communication (written). In order to maximize the effectiveness and efficiency of the sales process, sellers must understand buyers’ communications preferences and align their communications accordingly. This is particularly salient when buyers prefer a relatively rich communication medium and sellers do not deliver (Phase 7). It also may be particularly important during the early phases of

the purchase process, where the salesperson may be able to help a firm determine its needs for products or services.

With the emergence of relational marketing and the exponential growth of technological advances, how buyers and sellers communicate is an essential element of the purchase process. Management is faced with a variety of variables that influence both buyers' and sellers' communication choices. The challenge is to manage communications such that communication media preferences are aligned between the parties. Purchase professionals and salespeople must keep abreast of technological advances that offer potential in both the short run (i.e., cost efficiency) and long run (i.e., building relationships or communicating most effectively or efficiently). This study has taken a preliminary look at the complexity of information interchange and offered a tool for understanding the role of communication in B2B exchanges.

LIMITATIONS AND FUTURE RESEARCH

While these research findings offer preliminary insight into buyers' and sellers' communication media choices, this study was limited by three major conditions. First, the factors influencing communication choices can extend beyond those considered in this study. The complexity of industries and situations limited the identification of common variables that moderate communication choices. Second, although the sample represented a wide range of industries, any particular industry or buyer–seller pair may have established norms that differ from these findings. Furthermore, the limited number of respondents working within an extranet environment did not allow for meaningful analysis of that medium, which is evidently becoming increasingly important (Transora 2002). As technology changes, so do the communication choices available to salespeople and buyers. Our findings may not include all of the choices that are currently being used by some salespeople or buyers. Despite these limitations, this study used a large sample representing diverse industries to bring forward important data on an understudied subject in B2B exchanges.

Future research regarding communication choices should address a wide range of questions, including but not limited to the following:

- What variables moderate communication media choices in the purchase process of a B2B exchange?
- How does communication between a salesperson and sales manager influence communication media preferences?
- How do communication choices differ in a B2B exchange involving more than one buyer and one seller?
- What types of communication, during which phases of the purchase process, moderate the buyer–seller relationship?
- What role does technology diffusion play in communication media choice?
- What types of organizations, products, and trading relationships are best suited for CMC?
- Is the dyadic match of communication media choices more similar between a buyer and salesperson who are engaged in a long-term relationship?
- What are the communication needs of B2B transactions in the global marketplace? How can management meet those needs?

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