

Straight Talk: Delivering Bad News through Electronic Communication

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Abstract

Delivering bad news or negative information can be an unpleasant task; therefore people often either postpone it or mitigate its effect through positive distortion. Yet delivering (and receiving) timely and accurate negative information can be critical for performance improvement and organizational learning. This paper investigates the possibility that computer-mediated communication can increase honesty and accuracy in delivering negative information that has personal consequences for the recipient. In a laboratory experiment, 117 participants delivered positive or negative personally-consequential information to a confederate using one of three types of media: computer-mediated communication, telephone, or face-to-face conversation. Participants distorted negative information less, i.e., were more accurate and honest, when they used computer-mediated communication than face-to-face or telephone communication. There was no difference in distortion of positive information across media conditions. Participants also reported higher levels of satisfaction and comfort in the computer-mediated communication situation. The perceived quality of the relationship mediated the impact of media on satisfaction, but not on distortion.

Your project has been cancelled...you didn't get the promotion...you have to rewrite the report -- No one likes to hear bad news; few people like to deliver it either. However in organizations, receiving bad news or negative information can be a first step toward improvement. Delivering and receiving timely and accurate information are crucial for performance improvement and organizational learning. But when the information is likely to be perceived as negative by the recipient, the process of delivering it can become problematic (Fulk and Mani, 1986).

This paper explores the implications of using different communication media for delivering negative information that has personal consequences for the receiver. It begins by framing the problem within a generalized model of an asymmetrical communication process. It then presents several avenues of relevant prior research that, taken together, suggest that media might play a significant role in this type of communication task. As an illustration of this research arena, a laboratory experiment is described that begins to explore the phenomenon. Avenues for further research are suggested, as are potential implications for behavior in organizational contexts involving the delivery of bad news.

Theoretical Background

People in organizations are presented with asymmetrical communications tasks whenever they possess information that is of significance to others but not held by them. Figure 1 presents a generalized model of this process at the dyadic level, in which a sender presents a receiver with new and relevant information. The receiver is an active interactant in the communication process, and the space between the sender and receiver is conditioned by the particular context of the interaction and by the history of the relationship (Lave, 1993). Information is not merely "sent" in a social vacuum. During information delivery, both sender and receiver shape the information to appropriately fit the particular context and the nature of the interaction. The recursive and dynamic communication stream conditions and is conditioned by its context (Giddens, 1979; Lave & Wenger, 1990). During and after the interaction, the receiver may or may not incorporate the new information into his or her cognitive schemas and understandings, and he or she may or may not act on it. But apprehending and comprehending the information are necessary preconditions to cognitive and behavioral change. And they, in turn, depend upon communication with a sender.

Place Figure 1 about here

Several streams of research have investigated asymmetrical interaction when the information content has potentially negative consequences for the recipient. While such interactions are clearly reciprocal, the literature separates the experience of the sender from that of the receiver for theoretical clarity. Because we are interested in the effects of media use in this domain, and because information senders are in the more dominant position in such interactions and may have media choice options, we focus on the experience of the deliverer of negative information. The literatures below are presented from this vantage point.

The Mum effect

The reluctance to communicate undesirable information is a widely documented phenomenon labeled the "Mum" effect by Rosen and Tesser in 1970. Differences in transmission of bad news as opposed to good news have been demonstrated across a wide variety of cultures, settings and relationships (O'Neal, Levine & Frank, 1979; Tesser and Rosen, 1975). Example domains include a social work agency (Tesser, Rosen & Tesser, 1971), organizational hierarchies (Lee, 1993; Fulk and Mani, 1986), the performance feedback context (Larson, 1986), psychiatry and psychotherapy practice (Rice and Warner, 1994; Kivlighan, 1985), personnel hiring (Rosen, Grandison & Stewart, 1974), doctor-patient relationships (Seale, 1991; Waitzkin, 1984), and test failure (Bond and Anderson, 1987).

This Mum effect has been documented in several ways. People distort negative information in a positive direction in order to reduce its negative tone (Fisher, 1979; Ilgen & Knowlton, 1980). People delay or delegate the delivery of bad news (Rosen, Grandison & Stewart, 1974; Bond and Anderson, 1987). And people are more likely to pass on good news than bad news (Tesser and Rosen, 1975).

The Mum effect has been explained by hypothesizing that the process of communicating bad news can be psychologically unpleasant for the person who delivers it as well as for the person who receives it (Bond & Anderson, 1987; Maynard, 1996; Tesser & Rosen, 1975). The deliverer may anticipate that the receiver will react with defensiveness, disbelief, and emotional distress. If so, the deliverer will have to

work harder just to get the message heard and understood. If the deliverer anticipates that the receiver will be distressed, he or she can anticipate having to deal with the receiver's emotional state. If the deliverer suspects that the receiver might be hostile, he or she may anticipate a blame-the-messenger reaction. These anticipated negative reactions can increase stress, uncertainty and anxiety on the part of the deliverer even before the first word is spoken (Lazarus, 1966, Chap. 4).

As the communication actually occurs, the receiver's reaction, including expression and demeanor is likely to signal and convey the anticipated negative reactions in a vivid way, thereby reinforcing the deliverer's discomfort. If the deliverer likes the receiver, she or he will be unhappy to see the distress and may fear damage to a positive relationship. Given all of these negative consequences for the deliverer, it is no wonder that deliverers tend to mitigate negative information when it has personal consequences for the recipient.

The Mum effect does not distinguish between the phenomenon of suppressing portions of content (keeping "Mum") from that of mitigating the "negativeness" of information (positive distortion of negative information) during bad news delivery. Thus the Mum effect confounds these phenomena. Politeness theory clarifies this distinction (Brown & Levinson, 1987).

In anticipating face-threatening situations, a communicator can relate negative information "baldly," stating it completely and straightforwardly. Or she or he may choose to use one of two categories of politeness strategies. Positive politeness strategies typically are those in which the deliverer acknowledges the listener's needs, claims common ground with the listener, and/or attempts to comfort and encourage the listener. Alternatively, the deliverer can use negative politeness strategies, in which the importance or relevance of the bad news to the listener is minimized and its apparent "negativeness" mitigated (Brown & Levinson, 1987). We define the distortion of bad news as presentation that aims to *decrease the importance and relevance of the bad news to the receiver*.

Computer-mediated communication and the distortion of negative information

Computer-mediated communication may afford opportunities to reduce the distortion of negative information in organizations. Compared to face-to-face communication, computer-mediated communication provides the deliverer of bad news with relatively fewer cues regarding the social context and the recipient of the communication (Sproull & Kiesler, 1986). Where these cues are attenuated, the deliverer tends to pay less attention to the recipient, both as the communication begins and as it proceeds. By buffering the deliverer from the receiver, computer-mediated communication may decrease the deliverer's psychological discomfort throughout the delivery process. If discomfort is reduced, the tendency to distort negative information via negative politeness strategies may also be reduced. If so, straight talk, i.e. undistorted delivery of negative information, will be increased.

Although the role of computer-mediated communication in increasing straight talk has not been investigated directly, results from previous research offer indirect support for our argument. Sproull & Kiesler (1986) asked organizational employees if they would prefer to use face-to-face communication or electronic communication to deliver different kinds of news with personal consequences for the recipient such as a salary raise or personnel recommendation. Employees reported a greater preference for electronic communication when the news was bad (no raise or a half-hearted recommendation) than when it was good (raise or enthusiastic recommendation). These results represented responses to hypothetical situations; the researchers did not measure behaviors in real good news or bad news communication situations. In experimental studies measuring actual behavior, participants communicating electronically behave as though their communication partners are less salient to them in comparison with participants

communicating face-to-face. They are less inhibited in their language (e.g., Kiesler & Sproull, 1992) and pay less attention to their partners' opinions in decision making tasks (Weisband, 1992). They report feeling less evaluation apprehension (e.g., Gallupe et. al. 1992) and less personal regard for their partner (Bailey and Pearson, 1983). Taken together, the results of these studies suggest that people may find it less stressful to deliver bad news electronically than to do so face-to-face because they are socially buffered from their communication partners.

Most of the previous experimental research on computer-mediated communication, including the studies cited above, has used tasks characterized by neutral information rather than information with positive or negative consequences for the recipient. These tasks are also characterized by information symmetry, that is, all participants have equal information resources to contribute to the interaction and resulting performance. Such tasks include getting to know someone (Kiesler, Zubrow, Moses, & Geller, 1985), brainstorming (e.g., Connolly, Jessup & Valacich, 1990; Dennis & Valacich, 1993; Gallupe et. al., 1992; Valacich, Dennis, & Connolly, 1994), planning (Applegate, Konsynski, & Nunamaker, 1986), and decision making (e.g., Hiltz, Johnson, & Turoff, 1986; Kiesler & Sproull, 1992; Weisband, Schneider, & Connolly, 1995). Bad news delivery, by contrast, is an asymmetric information task in which one person is the primary source and the other is the primary recipient. In on-going organizations and relationships the task is embedded in a two-way conversation, but the delivery process is relatively asymmetric in comparison with other kinds of tasks studied.

Studies comparing how people report their own behavior or attitudes across different communication media can be interpreted as relevant to the bad news delivery context. (See Weisband and Keisler (1995) for a review of this research.) Their focus is not on information that will have consequences for the recipients, which is the focus of this paper, but rather on information that will have consequences for the deliverer. When participants report on their own feelings and behavior, they tend to be more negative when they report electronically than when they report face-to-face or even when they report using paper and pencil. Psychiatric patients reported more undesirable behaviors and health habits when responding to a computerized clinical history program than to a therapist asking the same questions face-to-face (Greist, Klein, & VanCura, 1973). Job applicants reported lower GPAs and SAT scores when interviewed via computer than when interviewed face-to-face (Martin and Nagao, 1989). Survey respondents reported more negative behaviors (such as illegal drug use) when filling out an electronic survey than when filling out a comparable paper and pencil one (Kiesler & Sproull, 1986). The explanation for these results is analogous to that for the studies of symmetric information tasks; namely people find the social context and recipient less salient in electronic communication, are less concerned about presenting themselves in a positive light or "looking good" to the recipient, and so are more honest. If this argument holds when people deliver bad news of personal consequence to the receiver, they would be less concerned about social niceties and so would be more honest and direct during the delivery process.

This research on self-report elicitation of negative or undesirable information is based on a self-presentation task, not on a task entailing delivery of negative information that has consequences for another person. Moreover, most studies of self-reports confound "negativeness" with "honesty." They measure the negativeness of self-reports (e.g., reports of greater illegal drug use defined as more negative reports) and assume that more negative reports are also more honest. They do not collect objective, behavioral measures to corroborate the self-report data. (See Waterton and Duffy (1984) and Martin and Nagao (1989) for exceptions.) An alternative explanation for such studies, when they do not include measures of honesty, is that electronic communication induces a negative emotional state, independent of the content of the communication. People may react more negatively to a "dehumanized" communication situation; they may feel anxious and uncertain about the technology. If this were true, then computer-mediated communication should lead generally to more negativeness in all communication

rather than to greater honesty. Because accurate delivery of bad news requires honesty, not negativeness per se, it is necessary to separate these two alternatives in any investigation of it.

If computer-mediated communication leads to more accurate communication of negative information, rather than merely to more negativeness, we would expect to see less distortion in delivering negative information (more straight talk) but no difference in delivering positive information. Thus,

H1: Participants interacting via computer mediated communication will distort negative information less than will participants interacting face-to-face, but there will be no difference in the distortion of positive information.

Independently of how much (or little) deliverers distort bad news, we suspect that they will find the delivery process to be stressful and embarrassing. Because the recipient is less socially salient in electronic communication than in face-to-face communication, we think people will find it less stressful and embarrassing to deliver bad news via computer than face-to-face. All other things being equal, they should therefore find the interaction to be more satisfying. Hence:

H2a: Participants delivering bad news via electronic communication will report higher levels of satisfaction with the communication interaction than will participants delivering bad news face-to-face.

Unlike delivering bad news, delivering good news is psychologically pleasant and satisfying (Tesser, Rosen and Batchelor, 1972). People with positive information to convey can anticipate that the recipient will accept it without defensiveness or hostility, reacting pleasantly and with positive emotion. During the communication process, the receiver's demeanor is likely to convey the positive reaction to the good news, making the delivery job a pleasant one. If the deliverer likes the receiver, he or she will be happy to see the positive reaction to the information. Thus we can expect that communicators will enjoy the process of passing on good news more than bad news (O'Reilly and Roberts, 1974; Tesser and Rosen, 1975).

As discussed above, compared with face-to-face communication, computer mediated communication provides a person delivering information with relatively fewer cues regarding the context and the recipient of the news. For tasks such as decision-making, participants communicating electronically behave as though their communication partners are less salient to them in comparison with participants communicating face-to-face. We think that this behavior is likely to be true for the information asymmetric task studied here.

Since delivering positive information is a psychologically-pleasant task resulting from both anticipated and actual positive receiver response, and this response tends to be more socially salient during face-to-face rather than computer mediated communication, it follows that:

H2b: Participants delivering good news via face-to-face communication will report higher levels of satisfaction with the communication interaction than will participants delivering good news via electronic communication.

If satisfaction with the interaction does differ between media conditions, we are interested in the cause of such differences. One possibility is that partner relationships develop differently in different media, and that it is these relationship differences which engender different levels of satisfaction. It may be that media type affects the amount of goodwill a person feels towards a communication partner, and it is this

goodwill rather than the media type that creates a satisfying experience. To the extent that this is true, communicators' perceptions of their partners will intervene between any positive relationship between media type and communicator satisfaction. If so, media type will affect communication satisfaction only indirectly through the mediating effect of perceived relationship quality. In cases where information delivery occurs within the context of an acquaintanceship rather than a long-term relationship, the quality of the acquaintance process serves this purpose (Schaffer, Smith and Tomarelli, 1982).

It is important to identify where media have direct effects on outcomes, versus where these effects occur through intervening relationship variables. To this end, relationship quality has been found to be associated with perceived satisfaction but not with performance in a number of experimental contexts (Weisband, et. al., 1995; Graen & Schiemann, 1978; Vecchio & Gobdel, 1984). To the extent that distortion can cause incorrect information to be passed on in organizations (Fulk and Mani, 1986), we can consider distortion to be an indicator of performance. Thus while communicators perceptions' of their partners may mediate the relationship between media type and communicator satisfaction, it is not likely to mediate the relationship between media type and distortion:

H3: Partner relationship quality mediates the relation between media type and satisfaction, but not the relation between media type and information distortion.

Figure 2 below depicts hypothesized effects during delivery of negative information:

Place Figure 2 about here

The foregoing argument contrasts text-based computer-mediated communication with face-to-face communication. In the experiment described below we include telephone as an additional communication condition for exploratory purposes. We do not offer specific hypotheses about its effect on distortion and satisfaction, however, because the literature is contradictory depending on the theoretical stance taken. Note that this issue does not address deliverers' media choice strategies, but rather the mechanism by which cues about the communication partner are filtered by the media.

A growing body of research investigates factors affecting media choice by organizational members, and both rational and social theories have been identified as contributors to this area (Webster and Trevino, 1995; Markus, 1994). One of the many factors contributing to choice is the experience one has of the particular media, in terms of both richness and salience. From the rational perspective, media richness arguments place the telephone between face-to-face and computer-mediated communication on a continuum of information richness or social presence (Chapanis, 1972; Trevino, Daft & Lengel, 1990). Voice provides some information missing in text communication through tone, intonation, and para-vocalizations. But it cannot convey any of the visual information present in face-to-face communication. Because telephone increases the social salience of the recipient relative to text communication, information distortion and communication satisfaction for people delivering consequential information by telephone should fall between those for face-to-face delivery and computer-mediated communication delivery.

Alternatively, other researchers suggest that any physical reminder of the other person is enough to trigger social response (Geen & Gange, 1977; Guerin, 1986; Zajonc, 1965). In this view, the recipient's

voice provides a reminder of his or her physical presence that is sufficient to facilitate a social response (Perse, 1993; Rice, 1993). Because voice cues social response, information distortion and communication satisfaction for people delivering information by telephone should not differ from those for face-to-face delivery. To the extent that our results for voice delivery lie in between the results for face-to-face and text-based computer-mediated communications, our findings will lend additional support for the media richness perspective. Alternatively, if we find that voice communication more closely resembles face-to-face communication than computer-mediated communication, we will have evidence to support the social facilitation perspective.

Method

The study used a two (positive versus negative information) by three (communication medium) between-participants factorial design. Participants were randomly assigned to give positive or negative performance feedback to another "student" (confederate) via face-to-face conversation, telephone, or synchronous computer-mediated communication. Every participant was paired with a same-sex confederate, a standard practice in communication research (c.f. Ickes & Barnes, 1977; Miell & Le Voi, 1985; Wayne & Ferris, 1990) that serves to exclude additional interaction factors (such as attraction) that may be confounding, especially among young people.

Study Participants

Study participants were 73 male and 44 female undergraduates enrolled in an introductory information systems course at the Boston University School of Management. Participation was voluntary, and participants were assured of the confidentiality of their responses. Students received course credit for their participation. Demographic characteristics were reported by participants prior to the experimental treatment: Participants' mean age was 20; their mean typing speed was 3 (where 1 is very fast, and 5 is very slow); and their mean attitude toward computers was 2.12, where 1 is a positive attitude towards computers, and 7 is a negative attitude. This last measure was based on four items from Shamp (1991), with a reliability of $\alpha=.73$.

Task and Procedure

The task entailed delivering feedback to a "student" (who was actually one of three confederates) about his or her resume, which the "student" had supposedly submitted to the campus career counseling center for comments and recommendations.

Participants arrived individually at a designated office at a pre-arranged time and completed a pre-treatment questionnaire consisting of demographic items, a self-monitoring scale (Briggs, Cheek, & Buss, 1980), and measures of perceptions of computers (Shamp, 1991). Participants were then given

three documents to read: (1) a description of the task, (2) an annotated resume, and (3) a list of feedback items to be delivered. Participants were instructed to spend a few minutes getting to know their partner initially before they initiated feedback delivery, which was to consist of communicating all the items on the feedback list, in the order listed. Participants were instructed to refer to the annotated resume during the delivery process, using it to convey the items in the feedback list, but without reading them verbatim from the list. Any questions were answered. Then media condition was assigned randomly. In the face-to-face condition, the "student" (confederate whose resume the participant had read) was brought in and seated across a small table from the participant. In the telephone condition, the participant was told that the student was waiting for his or her phone call. He or she was given a number to call that rang in an office where the confederate was waiting. In the computer condition, the participant was told that the student was in another building and could not leave due to a work-study commitment, requiring communication via computer link. Thus a plausible rationale was provided for using the computer to communicate feedback. The experimenter then seated the participant at a computer where a real-time computer connection had already been established to the confederate, with one window for typing comments and another for reading the confederate's comments. The experimenter told participants that they had ten minutes to complete the task, answered any additional questions, and left the room.

Confederates were trained to respond to participants' comments and inquiries using a scripted interaction sequence. During the interaction, the confederate followed the same script for both positive and negative conditions. This consisted of prescribed sentences during the initial getting-to-know-you period, such as where they were from, how old they were, what their interests and major were, etc. Confederates were told to respond in a neutral tone according to the script with utterances such as "I see," "okay," and "uh huh." They were instructed not to read the script, but to appear as if communicating naturally. We were able to achieve participant-confederate interaction sequences that, while not precisely the same, were similar in structure and content. The three confederates each worked in all three media conditions. We have no evidence to suggest that their interaction sequences varied by media.

After they had completed the experimental task, participants completed a post-treatment questionnaire that included the measures of satisfaction and relationship. They were then debriefed to learn that the information they had provided was constructed solely for experimental purposes.

Manipulation

The same one-page resume was annotated in two different ways; one with negative comments and the other with positive comments. Two lists of feedback items to deliver, each of which corresponded to an annotation on the resume, were also constructed. One list contained seven positive annotations; for example, "you have used many strong adjectives well," and "your selection of the chronological style is a good one." The other contained seven negative annotations; for example, "use more powerful adjectives," and "you should be using a functional rather than a chronological style resume." Figure 3 displays two annotated resumes, one with negative comments and the other with positive comments. Materials given to female participants had a female name on the resume; materials given to male participants had a male name on the resume.

Place figure 3 about here

Participants communicating in the telephone condition used a regular push button phone. Participants communicating in the computer-mediated communication condition used the TALK program available on UNIX [trademark] computer systems. TALK allows two people to interact synchronously by typing information simultaneously into a split screen. Each person has ten lines of scrollable space on his or her half of the screen for typing text. Partners see text which the other has just typed on their half of the screen with little or no apparent time delay. This program therefore supports interactive, synchronous communication. While this type of electronic communication is used less than e-mail in organizations, it was selected for its ability to support synchronous communication. This allowed us to eliminate asynchronicity as an attribute of electronic communication with potentially confounding effects.

Dependent Measures

Distortion. Distortion was measured by asking the (hypothesis-blind) confederate to count the number of items on the feedback list that were presented more positively than they were written. Confederates were trained to listen for particular words included in each item for their negative connotation. Exclusion of these words by the participant was an indication of positive distortion. For example if the item said "you have a lot of wasted space in the upper right," and the participant said "you could use the space better in the upper right if you wanted to," that would be tallied as an instance of positive distortion, because the confederate had been instructed to listen for the words "wasted space." Confederates calculated a positive distortion score from 0 to 7 during the communication interaction, indicating the aggregate number of items (out of a possible 7) that he or she perceived the participant to positively distort. Multiple confederates were used to minimize confederate fatigue and the chance that confederates would learn the nature of the hypotheses under study. This approach also enabled a post-hoc assessment of inter-rater consistency.

Satisfaction. Participants' satisfaction with the interaction was measured using four seven-point semantic differentials that comprise the communication quality subscale of Bailey and Pearson's (1983) computer user satisfaction instrument. Participants were asked to rate the quality of the interaction on the dimensions of harmonious/dissonant, constructive/destructive, precise/vague, and meaningful/meaningless (Cronbach's $\alpha=.90$). We measured participants' comfort with the interaction with two seven-point Likert items (Schaffer et. al., 1982) asking how comfortable and relaxed the communicator felt during the interaction (Cronbach's $\alpha=.87$). In this way we assessed both participants' attitude toward the interaction (satisfaction as measured by perceived communication quality) as well as any affect (reported feelings of comfort) which may have been generated as a result of the interaction. Affect has long been considered one component of attitude (e.g. McGuire, 1985), with attitude and affect generally correlated (Breckler, 1984), which we found to be the case (Pearson correlation coefficient = .39, $p < .01$).

Partner Relationship. We asked participants to assess how friendly and personable their communication partner was using two seven-point Likert scales taken from a validated likability scale (Schaffer et. al., 1982). We reasoned that these measures would indicate the quality of the relationship that had developed during the interaction. Because the reliability of this scale is not high (Cronbach's $\alpha=.58$), results should be interpreted cautiously. Appendix 1 lists the measures used in this study.

Analyses

Analyses of all dependent measures were conducted at the individual level using a standard statistical package. With 19 participants per cell, we have 95% power to detect a 1.5 sigma difference between the maximum and minimum values of factor level means at an alpha level of .05. We have 90% power to detect 1.35 sigma differences, and 80% power to detect 1.2 sigma differences. Overall differences in

distortion were tested using one-way and two-way analysis of variance. MANOVA was used to assess media effects on satisfaction and comfort simultaneously. Mediation analysis (Baron & Kenny, 1986) was used to investigate the communication process as a mediator of the media-satisfaction relationship. An alpha level of .05 was used for all statistical tests.

Results

Background Variables and Preliminary Analyses

Preliminary analyses investigated the effect of background variables on our dependent variables of distortion, satisfaction, and relationship with communication partner. No significant effects were found for participant age, gender, grade point average, typing speed, or attitudes toward computers. ANOVA was used to test for the presence of a potential confederate effect. In a two-way ANOVA (confederate by condition) no significant differences were found between the means of distortion across the three confederates by condition, indicating confederate consistency on the distortion measure.

In a post-questionnaire measure of information direction (3-item 7-point Likert scale consisting of items such as: "In the conversation I just had, the feedback I delivered could be characterized as mostly [1] positive to [7] negative"), participants in the negative information condition scored significantly higher (M=3.36) than did participants in the positive information condition (M=1.59); (F[1,116]=57.38, p=.000), indicating that the information manipulation was successful. We note however that participants in the negative information condition did not characterize their feedback as substantially negative, an observation we return to in the discussion section. Confirmatory factor analysis with varimax rotation was performed to ensure that item indicators loaded onto their respective constructs with no overlap (see Table 1 below). Table 2 below displays correlations among the variables used in subsequent analyses.

place table 1 about here

place table 2 about here

Communication Effects on Distortion

As shown in Table 3, participants positively distorted negative information less in the computer-mediated communication condition (M=.63) than in the face-to-face condition

(M=2.55). This relationship was significant in a pair-wise comparison of these two media conditions for delivering negative information ($F(1,38)=7.08, p<.05$). There was essentially no negative distortion of positive information in any of the communication conditions. Taken together these two findings support our first hypothesis that participants interacting via computer-mediated communication will positively distort negative information less often than will participants interacting face-to-face but there will be no difference in the distortion of positive information. There is no significant difference in frequency of distortion of negative information between participants communicating face-to-face (M=2.55) and participants communicating via telephone (M=2.05). However, those using telephone (M=2.05) distort negative information significantly more than do those using computer-mediated communication (M=.63) in a pair-wise comparison, -- $F(1,37)=5.88, p < .05$. Figure 4 displays these results graphically.

Place table 3 about here

place figure 4 about here

Communication effects on satisfaction

We hypothesized that satisfaction should be higher for participants communicating bad news via computer than for those communicating face-to-face. Using MANOVA to compare face-to-face with CMC for delivering negative information, both satisfaction ($F(1,67)=12.45, p<.01$) and comfort ($F(1,67)=3.95, p=.05$) were reported to be significantly higher by CMC participants than by those in the face-to-face condition. Table 3 shows ANOVAs for all three media conditions for positive and negative information. Higher satisfaction was reported by the CMC participants (M=5.38) than by those interacting face-to-face (M=4.79) for delivering negative information. Comfort levels were also higher for CMC participants (M=5.39) than for face-to-face participants (M= 4.97). However, these differences are not statistically significant, so hypothesis 2a is not supported. As with distortion, there is no significant difference in satisfaction reported between participants communicating negative feedback face-to-face (M=4.79) and participants communicating via telephone (M=4.76). A pair-wise comparison of telephone (M=4.76) and CMC (M=5.38) media conditions for delivering negative information is not statistically significant -- $F(1,34)=3.08, p =.089$. This pattern is repeated for the comfort measure, since the difference in comfort reported between the telephone (M=4.10) and CMC (M=5.39) participants -- $F(1,38)=12.44, p < .01$ in a pairwise comparison -- is significantly larger than that reported between the face-to-face (M=4.97) and telephone (M=4.10) participants -- $F(1,39)=5.01, p < .05$. See Table 3 for means. For the delivery of

good news, and contrary to our hypothesis, participants using CMC (M=5.75) to communicate reported significantly higher satisfaction -- $F(1,33)=11.50$, $p < .01$ than those communicating face-to-face (M=4.45) in a pairwise comparison. Participants' typing speed and attitude toward computers were eliminated as factors potentially responsible for this as a novelty or halo effect, since neither was significant as a covariate. Planned comparisons between the telephone and other media conditions for delivering positive information are not significant with regard to satisfaction and comfort, except that satisfaction is significantly lower for face-to-face (M=4.45) participants than those using telephone (M=5.19) -- $F(1,35)=4.3$, $p < .05$.

The addition of self-monitoring as a covariate did not increase the impact of media type on levels of satisfaction or comfort. (In an exploratory vein, we thought that perhaps high self-monitors would be less satisfied and comfortable with the computerized condition, since lack of the other's presence might prevent participants from detecting the informational cues they need for self-monitoring. Absence of significant findings in this area led us to eliminate any theoretical discussion of the issue.)

Relationship with communication partner as mediator of satisfaction

We hypothesized that the nature of the relationship the participant established with his or her communication partner might mediate the media effects on satisfaction but not on distortion. To investigate this possibility, communication medium was coded as a dummy variable (0=face-to-face; 1=cmc) and a mediation analysis was performed. Mediation is present if the following conditions are met in four regression equations (Baron & Kenny, 1986). First, the independent variable (communication medium) must affect the dependent variable (distortion or satisfaction). Second, the mediator (relationship quality) must also affect the dependent variable. Third, the independent variable must affect the mediator. Fourth, both the mediator and the independent variable must affect the dependent variable, with the coefficient of the independent variable reduced from its value in the first regression.

Table 4 summarizes the results of these analyses. Likability (our measure of relationship quality) did mediate the impact of media on satisfaction, as evidenced by an increase in the adjusted r-square from .14 in step 2 to .23 in step 4, as well as by the decrease in the coefficient for media from .40 to .33. In this way, media impacts both participants' experience of the relationship, as measured by ratings of the likability of the other, and the satisfaction with the communication interaction, but likability partially mediates this effect. Consistent with our hypothesis, likability did not significantly affect distortion, indicating that relationship with communication partner did not mediate the effect of communication medium on distortion.

place table 4 about here

Discussion

This study presents evidence that people using computer-mediated communication to deliver bad news distort it less, and are more comfortable and satisfied with the process, than people communicating face-to-face or by telephone. The quality of the partner relationship contributes to the effects of media type on satisfaction, but not to those on distortion. Individual differences such as age (within the narrow range investigated here), gender, and self-monitoring propensity do not affect peoples' satisfaction and performance using the various media for this task. When we include our voice-only findings, it appears that media richness does not predict the pattern of results as well as social facilitation does. Apparently a voice on the telephone is enough to trigger behaviors that resemble those of face-to-face communication, consonant with predictions from social facilitation, but not from media richness.

We were surprised to find that whereas information direction affected distortion as expected, it did not affect the relationship variables (satisfaction, comfort, and likability). Participants appeared to be nervous as they undertook the task, regardless of whether they were delivering good or bad news. Participants' nervousness may be attributable to their age relative to that of the confederates (they could infer information on their partner's age from the resume included in the task), and their inexperience with the task (participants were primarily sophomore undergraduates and many had not undertaken job searches or prepared resumes). Results should be interpreted with caution in light of this manipulation weakness.

Nor did we elicit a statistical interaction between information direction and medium. Initially we thought that the direction of the information delivered might interact with the media used to deliver it in producing satisfaction and comfort, but we did not find this to be the case. By changing the information delivery task, future researchers should be able to elicit a main effect for direction of information and explore the possibility of interaction effects.

This study exhibits the conventional strengths and weaknesses of experimental research, sacrificing external validity for internal control. Participants had no on-going relationship with the recipients of their feedback; thus this study may be of limited generalizability to the context of ongoing relationships. However, delivery of bad news occurs often in organizations outside the context of ongoing relationships, such as in large organizations during change initiatives, reengineering and restructuring, when new people take on new positions, and wherever negative information must be delivered across functional divisions and global subsidiaries. An additional limitation is the use of undergraduates as participants. This also limits the generalizability of our findings, and suggests the use of organizational practitioners in future research.

We acknowledge the limitation of the distortion measure, based as it is on the assessment of three individual confederates. While we found no systematic differences across the three

confederates, use of multiple raters with an inter-rater reliability assessment would have provided a stronger measure of this factor. The results of the mediation analysis must also be interpreted with caution, as the alpha for the relationship measure was quite low. Finally, participants rated the negative feedback as only moderately negative (M=3.36), thus we cannot generalize our findings to the delivery of extremely negative information. Clearly it is difficult or even unethical to deliver extremely bad news within a laboratory study, so future research in this area will likely take a field-based approach.

This study has focused only on the deliverer of information. While this is consistent with much of the literature in this area (e.g., Maynard, 1996), future research should also investigate the impact of media type on how bad news is received. Computer-mediated communication of bad news may engender more or less comprehension accuracy and defensiveness on the part of the recipient. While it certainly is true that recipients vary, and negative information may be more helpful to some than others, in general the information value of negative information is inversely related to usage of politeness strategies (Lee, 1993). And whether positive or negative politeness strategies are used may affect the information value of the news delivered, as follows:

There is clearly more to human behavior than cybernetic control theory can model (Bandura, 1986). However, such systems do play a significant role in self-regulation (Campion & Lord, 1982; Carver & Scheier, 1981; Powers, 1973). And in these models, it is the *discrepancy* between internal standards and external information about achievement of these standards that causes behavioral change, not the information per se. When information is presented in a way that minimizes its negativity, the receiver may be less likely to perceive a discrepancy between this information and her internal standard. Or, the perceived discrepancy may be smaller than it would have been had the information not been presented in this way. In such cases the manner of presentation has affected the value of the information to the receiver, and perhaps even the likelihood that the information will engender behavioral change. Future investigations into the recipient perspective will shed light on the extent to which this phenomenon occurs in organizations.

Future research should also investigate the dynamics of the information delivery process as it unfolds over time. The measures of relationship and distortion that we used are summary measures, which do not measure temporal effects of media use for this task. Walther (1995) suggests that, whereas initial dynamics may vary between electronic and non-electronic information delivery, long-term steady-state dynamics may not. Future research utilizing a repeated measures design within a longitudinal field experiment would address this limitation.

Our results may help to improve our understanding of flaming. "Flaming" is defined as speaking "incessantly and/or rabidly on some relatively uninteresting subject or with a patently ridiculous attitude" (Steele, 1983:65). Flaming has been cited as evidence that computer-mediated communication may "cause" hostile communication behavior (George, Easton, Nunamaker & Northcraft, 1990; Siegel, Dubrovsky, Kiesler & McGuire, 1986). This study suggests an alternative explanation. If electronic communication reduces the positive

distortion of negative information, it may serve to increase straight talk about negative information and stimulate honesty that is repressed during communication using media that reveal more cues about the recipient. People seem to do less cushioning of the blow of negative information when they use computer-mediated communication. Since people use negative politeness strategies to repress straight talk in face-to-face interaction (Brown & Levinson, 1987), communication partners may find the lack of such niceties in computer-mediated communication to be unexpected or discomfiting. These partners may interpret straight talk as offensive talk and may, in turn, respond defensively. Such an interaction sequence could indeed escalate to hostility. But the opening move would have been one of honesty rather than hostility. Rather than "causing" flaming, perhaps electronic communication "causes" honesty in delivering negative information.

This study suggests interesting implications for practitioners involved in unpleasant communication tasks such as delivering negative information. Cultural norms in organizations today favor delivering bad news in person. Personal delivery is a signal that the news is important and that the deliverer cares about both the news and the recipient. Delivering bad news electronically in order to increase accuracy and honesty would fly in the face of those norms. Thus the recipient might discount the news or the deliverer might not take the process so seriously. However, the increasingly widespread use of electronic media for organizational communication may alter these norms over time, especially in instances where face to face interaction is not possible due to geographic separation. It is for such instances that research into the effects of electronic delivery of bad news is called for, and for which this study makes some initial headway.

An additional implication is related to upward information delivery. Subordinates are frequently the first to learn of bad news, but are often loathe to convey it to their superiors. Electronic information delivery might be particularly useful in upward communication situations, where negative information is often distorted (Fulk and Mani, 1986). Again, it would be necessary to insure that the recipient did not discount the information because it had been delivered electronically.

As electronic communication becomes more pervasive in organizations, practice is outpacing research. People are using the technology for many more kinds of tasks and situations than the stylized brainstorming and decision-making tasks of laboratory research. Customer service, marketing campaigns, capital budgeting, employment interviews, all and more are routinely occurring via electronic communication in at least some organizations today. We need to understand the interaction dynamics and consequences of many different kinds of communication situations -- including unpleasant communication tasks such as the delivery of bad news.

References

Applegate, L. M., Konsynski, B. R., & Nunamaker, J. F., "A group decision support system for idea generation and issue analysis in organization planning," In H. Krasner & I. Greif (Eds.), *Proceedings of the First Conference on Computer*

Supported Cooperative Work, ACM Press, Austin, TX (1986), 16-34.

Baron, R. M. & Kenny, D. A., "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, 51, (1986), 1173-1182.

Bailey, J. & Pearson, S. W., "Development of a tool for measuring and analyzing computer user satisfaction," *Management Science*, 29, (1983), 530-545.

Bandura, A. Social Foundations of Thought and Action: A Social Cognitive Theory. Prentice Hall, Englewood Cliffs, NJ. 1986.

Bond, C. F. Jr. & Anderson, E. L., "The reluctance to transmit bad news: Private discomfort or public display?," *Journal of Experimental Social Psychology*, 23, (1987), 176-187.

Breckler, S. J., "Empirical validation of affect, behavior and cognition as distinct components of attitude," *Journal of Personality and Social Psychology*, 47, (1984), 1191-1205.

Briggs, S. R., Cheek, M., & Buss, A. H., "An analysis of the self-monitoring scale," *Journal of Personality and Social Psychology*, 38, (1980), 679-686.

Brown, P. & Levinson, S., *Politeness: Some Universals in Language Usage*, Cambridge University Press, Cambridge, U.K., 1987.

Campion, M.A. & Lord, R.G. "A control-systems conceptualization of the goal-setting and changing process". *Organizational Behavior and Human Performance*, 30, (1982), 265-287.

Carver, C.S. & Scheier, M.F. *Attention and Self-regulation: A Control Theory Approach to Human Behavior*. Springer-Verlag, New York and Berlin, 1981.

Chapanis, A., "Studies in interactive communication: The effects of four communications modes on the behavior of teams during cooperative problem-solving," *Human Factors*, 14, (1972), 487-509.

Connolly, T., Jessup, L. M. & Valacich, J. S., "Effects of anonymity and evaluation tone on idea generation in computer-mediated groups," *Management Science*, 36, (1990), 689-703.

Daft, R. L. & Lengel, R. H., "A proposed integration among organizational information requirements, media richness, and structural design," *Management Science*, 23, (1986), 554-571.

Dennis, A. R. & Valacich, J. S., "Computer brainstorm: More heads are better than one," *Journal of Applied Psychology*, 78, (1993), 531-537.

Fisher, C.D. "Transmission of positive and negative feedback to subordinates: A laboratory investigation," *Journal of Applied Psychology*, 64, (1979), 533-540.

Fulk, J. and Mani, S., "Distortion of communication in hierarchical relationships," in M. McLaughlin, (Ed.), *Communication Yearbook 9*, Sage, Newbury Park, CA, 1986.

Gallupe, R. B., Dennis, A. R., Cooper, W. H., Valacich, J. S., Nunamaker, J. F. Jr. & Bastianutti, L., "Electronic brainstorming and group size," *Academy of Management Journal*, 35, (1992), 350-369.

Geen, R. G. & Gange, J. J., "Drive theory of social facilitation: Twelve years of theory and research," *Psychological Bulletin*, 15, (1977), 1267-1288.

George, J. F., Easton, G. K., Nunamaker, J. F. Jr., & Northcraft, G. B., "A study of collaborative group work with and without computer-based support," *Information Systems Research*, 1, (1990), 394-415.

Giddens, A., *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*, University of California Press, Berkeley, 1979.

Graen, G. & Schiemann, W., "Leader-member agreement: A vertical dyad linkage approach," *Journal of Applied Psychology*, 63, (1978), 206-212.

Greist, J. H., Klein, M. H., & VanCura, L. J. "A computer interview by psychiatric patient target symptoms," *American Psychologist*, 39, (1973), 1123-1134.

Guerin, B. "Mere presence effects in humans: A review," *Journal of Experimental Social Psychology*, 22, (1986), 38-77.

Hiltz, S. R., Johnson, K. & Turoff, M., "Experiments in group decision making," *Human Communication Research*, 13, (1986), 225-252.

Ickes, W. & Barnes, R. D., "The role of sex and self-monitoring in unstructured dyadic interactions," *Journal of Personality and Social Psychology*, 35, (1977), 315-330.

Ilgen, D. R. & Knowlton, W., "Performance attributional effects on feedback from superiors. *Organizational Behavior and Human Performance*," 25, (1980), 441-456.

Kiesler, S. & Sproull, L., "Response effects in the electronic survey," *Public*

Opinion Quarterly, 50, (1986), 402-413.

Kiesler, S. & Sproull, L., "Group decision making and communication technology," *Organizational Behavior and Human Decision Processes*, 52, (1992), 96-123.

Kiesler, S., Zubrow, D., Moses, A. M. & Geller, V., "Affect in computer-mediated communication: An experiment in synchronous terminal-to-terminal discussion," *Human Computer Interaction*, 1, (1985), 77-104.

Kivlighan, D. M., "Feedback in group psychotherapy: Review and implications," *Small Group Behavior*, 16, (1985), 373-385.

Larson, J. R., "Supervisors' performance feedback to subordinates: The impact of subordinate performance valence and outcome dependence," *Organizational Behavior and Human Decision Processes*, 37, (1986), 391-408.

Lave, J., "The practice of learning", in *Understanding Practice: Perspectives on Activity and Context*, S. Chaiken and J. Lave, (Eds.), 1993.

Lave J. & Wenger, E., *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press, Cambridge, 1991.

Lazarus, R.S., *Psychological Stress and the Coping Process*, New York, McGraw Hill, 1966.

Lee, F., "Being polite and keeping MUM: How bad news is communicated in organizational hierarchies," *Journal of Applied Psychology*, 23, (1993), 1124-1149.

Markus, M.L., "Electronic mail as the medium of managerial choice," *Organization Science*, 5:4, (1994), 502-527.

Martin, C. L. & Nagao, D. H., "Some effects of computerized interviewing on job applicant responses," *Journal of Applied Psychology*, 74, (1989), 72-80.

Maynard, D. W., "On "realization" in everyday life: The forecasting of bad news as a social relation," *American Sociological Review*, 61, (1996), 109-131.

McGuire, T. W., Kiesler, S., & Siegel, J., "Group and computer mediated discussion effects in risk decision making," *Journal of Personality and Social Psychology*, 52, (1987), 917-930.

McGuire, W. J., "Attitudes and attitude change," in G. Lindzey & E. Aronson (Eds.), *Handbook of Social Psychology 2*, Random House, New York, 1985.

Miell, D. & Le Voi, M., "Self-monitoring and control in dyadic interactions,"

Journal of Personality and Social Psychology, 49, (1985), 1652-1661.

O'Neal, E., Levine, D., and Frank, J. "Reluctance to transmit bad news when the recipient is unknown: Experiments in five nations. *Social Behavior and Personality, 7,1, (1979), 39-47.*

O'Reilly, C. and Roberts, K., "Information filtering in organizations: Three experiments," *Academy of Management Journal, 17, (1974), 205-215.*

Perse, E., "Normative images of communication media: Mass and interpersonal channels in the new media environment," *Human Communication Research, 19, (1993), 485-503.*

Powers, W.T. *Behavior: The Control of Perception.* Aldine, Chicago, 1973.

Rice, R. E., "Media appropriateness: Using social presence theory to compare traditional and new organizational media," *Human Communication Research, 19, (1993), 451-484.*

Rice, K. and Warner, N., "Breaking the bad news: What do psychiatrists tell patients with dementia about their illness?," *International Journal of Geriatric Psychiatry, 9, 6, (1994), 467-471.*

Rosen, S., Grandison, R. J., & Stewart, J. E., "Discriminatory buckpassing: Delegating transmission of bad news," *Organizational Behavior and Human Performance, 12, (1974), 249-263.*

Rosen, S. & Tesser, A., "On the reluctance to communicate undesirable information: The Mum effect," *Sociometry, 33, (1970), 253-263.*

Schaffer, D. R., Smith, J. E., & Tomarelli, M., "Self-monitoring as a determinant of self-disclosure reciprocity during the acquaintanceship process," *Journal of Personality Psychology, 43, (1982), 163-175.*

Seale, C., "Communication and awareness about death: A study of a random sample of dying people," *Social Science and Medicine, 32, 8, (1991), 943-952.*

Shamp, S. A., "Mechanomorphism in perception of computer communication partners," *Computers in Human Behavior, 7, (1991), 147-161.*

Siegel, J., Dubrovsky, V., Kiesler, S. & McGuire, T., "Group processes in computer-mediated communication," *Organizational Behavior and Human Decision Processes, 37, (1986), 157-187.*

Sproull, L. & Kiesler, S., "Reducing social context cues: Electronic mail in

organizational communication," *Management Science*, 32, (1986), 1492-1512.

Steele, G.L., *The Hackers Dictionary*, Harper & Row, New York, 1983.

Tesser, A., & Rosen, S., "The reluctance to transmit bad news," In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* 8, Academic Press, New York, 1975.

Tesser, A., Rosen, S. & Batchelor, T., "Some message variables and the Mum effect," *Journal of Communication*, 22, (1975), 239-256.

Tesser, A., Rosen, S. & Tesser, M., "On the reluctance to communicate undesirable messages (the Mum effect): A field study," *Psychological reports*, 29, (1971), 651-654.

Trevino, L. K., Daft, R. L., & Lengel, R. H., "Understanding managers media choices: A symbolic interactionist perspective," In J. Fulk and C. Steinfield (Eds.), *Organizations and Communications Technology*, Sage Publications, Newbury Park, CA, 1990.

Valacich, J. S., Dennis, A. R. & Connolly, T., "Idea generation in computer-based groups: a new ending to an old story," *Organizational Behavior and Human Decision Processes*, 57, (1994), 448-467.

Vecchio, R. P. & Gobdel, B. C., "The vertical dyad linkage model of leadership: Problems and prospects," *Organizational behavior and human decision processes*, 34, (1984), 5-20.

Waitzkin, H., "Doctor-patient communication: Clinical implications of social scientific research," *Journal of the American Medical Association*, 252, (1984), 2441-2446.

Walther, J. B., "Relational aspects of computer-mediated communication: Experimental observations over time," *Organization Science*, 6, (1995), 186-203.

Waterton, J. J. & Duffy, J. C., "A comparison of computer interviewing techniques and traditional methods in the collection of self-report alcohol consumption data in a field study," *International Statistical Review*, 52, (1984), 173-182.

Wayne, S. J. & Ferris, G. R., "Influence tactics, affect, and exchange quality in supervisor-subordinate interactions: A laboratory experiment and a field study," *Journal of Applied Psychology*, 75, (1990), 487-499.

Webster, J. & Trevino, L. K., "Rational and social theories as complementary explanations of communication media choices: Two policy-capturing studies,"

Academy of Management Journal, 38, 6, (1995), 1544-1572.

Weisband, S. P., "Group discussion and first advocacy effects in computer-mediated and face-to-face decision making groups," *Organizational Behavior and Human Decision Processes*, 53, (1992), 352-380.

Weisband, S.P. and Kiesler, S., "Self-disclosure on computer forms: Meta-Analysis and Implications", in *Proceedings of the 1996 Conference on Computers and Human Interaction*, ACM Press, New York, (1996), 3-10.

Weisband, S. P., Schneider, S. K., & Connolly, T., "Electronic communication and social information: Status salience and status differences," *Academy of Management Journal*, 38:4, (1995), 1124-1151.

Zajonc, R. B., "Social facilitation," *Science*, 149, (1965), 269-274.

Table 1

Rotated factor matrix from factor analysis of the dependent variables

Factor 1 Factor 2 Factor 3

Satisfaction

Pair19 .87078

Pair20 .86375

Pair18 .78461

Pair17 .64544

Comfort

Self2 .93298

Self1 .89598

Likability

Oth2 .83078

Oth1 .81068

Table 2

Means, standard deviations, and intercorrelations among dependent and process measures

1. 2. 3. 4.

Distortion 1 -.0214 .0912 .0505

M=1.02 SD= 2.0

Satisfaction 1 .3893** .3595**

M=5.07 SD=1.10

Comfort 1 .2422**

M=4.80 SD=1.44

Likability 1

M=5.26 SD=1.10

** $p < .01$

Table 3

The effects of medium and information direction on information distortion and relationship quality

FTF Phone CMC F Medium F Direction

Pos. Neg. Pos. Neg. Pos. Neg.

Measure (n=19) (n=20) (n=20) (n=19) (n=19) (n=19)

Distortion

M 0.37 2.55 0.21 2.05 0.26 0.63 3.24* 19.22**

SD 1.61 2.86 0.92 2.17 1.15 1.34

Satisfaction

M 4.45 4.79 5.19 4.76 5.75 5.38 7.24* 0.51

SD 1.23 1.03 0.89 0.90 1.0 1.17

Comfort

M 4.63 4.97 4.43 4.10 5.24 5.39 5.86** 0.03

SD 1.67 1.31 1.54 1.15 1.49 1.14

Likability

M 5.0 5.12 5.45 4.78 5.66 5.47 2.93 1.79

SD 1.13 1.16 1.05 1.18 0.88 1.06

* $p < .05$, ** $p < .01$ Note: No interaction F was significant

Table 4.

Mediation analysis for Satisfaction and Distortion -- Face-to-face versus CMC only.

Outcome Step_a Adj. r-square F *df* Predictor b *t*

Satisfaction 1 .14 12.45 1,67 Media .40 3.53**

2 .14 12.02 1,67 Likability .39 3.47**

Likability 3 .04 4.37 1,75 Media .23 2.09*

Satisfaction 4 .23 11.31 2,66 Media .33 3.02**

Likability .32 2.96**

Distortion 2 .0003 1.02 1,75 Likability .12 1.01

a Step 1 tests the effect of media type on outcome. Step 2 tests the effect of the mediator Likability on the outcome. Step 3 tests the effect of media type on the mediator. Step 4 tests the whole model, ie. the effect of media type and the mediator on outcome.

* $p < .05$ two-tailed, ** $p < .01$ two-tailed.

Figure 1. An asymmetric communication task



Figure 2. Hypothesized relationships during delivery of negative information.



Figure 3. Annotated resume used for information delivery task

Figure 4. Distortion means by condition



Appendix 1. Questionnaire Items.

Satisfaction: Bailey and Pearson, 1982

Please rate the quality of the communication you just had during your feedback delivery according to the following adjectives:

Dissonant Neutral Harmonious

1.....2.....3.....4.....5.....6.....7

Destructive Neutral Constructive

1.....2.....3.....4.....5.....6.....7

Vague Neutral Precise

1.....2.....3.....4.....5.....6.....7

Meaningless Neutral Meaningful

1.....2.....3.....4.....5.....6.....7

Comfort: Schaffer et.al., 1982.

Please circle a number that corresponds to how you felt, while you were delivering feedback:

How comfortable did **you** feel?

Very uncomfortable Neutral Very Comfortable

1.....2.....3.....4.....5.....6.....7

How relaxed did **you** feel?

Very Tense Neutral Very Relaxed

1.....2.....3.....4.....5.....6.....7

Relationship: Schaffer et.al., 1982.

Please circle a number which corresponds to how you think the person you were delivering feedback to felt while you were delivering the feedback:

How friendly did the **other** person seem?

Very Unfriendly Neutral Very Friendly

1.....2.....3.....4.....5.....6.....7

How personable was the **other** person?

Very Unpersonable Neutral Very Personable

1.....2.....3.....4.....5.....6.....7