
Making Connections: Computers Can Enhance Employee Commitment—At a Cost

*Lee Sproull and
Sara Kiesler*

Imagine a multinational organization in which employees from twelve different countries talk with each other on a daily basis about their experiences in manufacturing or selling their company's products. In this same organization, human resources professionals from eight different countries talk daily about work and family issues. Employees from six countries trade movie reviews and recipes and jokes. Almost none of these employees would recognize any of the others if they were in the same room, yet they all feel a sense of camaraderie and commitment to one another. New computer-based communication technology is making this imaginary scenario real, and human resources professionals need to understand its implications.

When networks connect computers together, either locally or across long distances, people can also be connected. Using computer-based communications software such as electronic mail or computer conferencing on these networked computers, people can send messages to one another and participate in group discussions independent of geography. Some organizations are already making extensive use of this technology so that all or most employees have an electronic mailbox and send and receive messages on a daily basis. It is quite common in well-established electronic mail communities for people to send and receive between 25 and 100 messages a day.

Electronic mail uses word-processing and communications software to provide a high-speed message-exchange service. The salient features of this technology are:

1. The exchange is quite fast, with messages traveling down the hall or around the world in seconds or minutes.
2. It is *asynchronous*. That is, people send messages at their convenience that are stored at the recipients' computers to be read at the recipients' convenience. Thus the scheduling constraints that give rise to telephone tag vanish.
3. Messages are text-based, relying on a typographic keyboard to enter the message contents. They do not include handwriting, pictures, or sound.¹ This means that many socially differentiating cues such as appearance or tone of voice are missing from these messages.

Lee Sproull, Ph.D., professor of management at Boston University, and *Sara Kiesler*, Ph.D., professor of social and decision sciences at Carnegie Mellon University, have been conducting research on the social and organizational implications of computer technology for the past ten years. They are co-authors of *Connections: New Ways of Working in the Networked Organization* (MIT Press, 1991), a chapter of which is the basis for this article.

4. Because computers can store lists of names and addresses, it is as easy to send a message to a group of people as it is to one person. The person simply types in the group name, and the computer automatically mails a copy of the message to everyone who belongs to the group.

This combination of features means that it is quite easy for large numbers of people to communicate frequently and openly across geographic boundaries.

Organizational policies determine whether this kind of communication will actually occur. Some organizations limit who can be on the network or who can send mail to whom or may charge to send each message. In these organizations, computer-based communication is not very interesting. In other organizations, everyone is on the network, anyone can send mail to anyone, and expenses are charged to overhead. In these organizations, communication flourishes not only across geographic boundaries but also across departmental, job, and social boundaries. It is for this reason that human resources personnel should be particularly interested in computer-based communication.

Peripheral employees may be in branch offices or in lower-level positions. This technology can reduce the isolation of such workers...

Peripheral employees may particularly benefit from open and extensive electronic communication. "Peripheral" does not mean "unimportant"; it simply means distant from the center of the organization. Peripheral employees may be in branch offices or in lower-level positions. This technology can reduce the isolation of such workers through increasing organizational participation and personal ties.

WINDOW ON THE CORPORATION

Receiving mail can affect employees' attitudes toward their organization by increasing their informational and emotional connections to other employees. This can be particularly true for peripheral employees who participate in large electronic distribution lists (DLs), bulletin boards, or conferences.

For one Fortune 500 firm, we noted several instances of these benefits. One secretary described several DLs to which she belonged by saying that she liked seeing what people (including "important people who would never talk to me in person") had to say on various topics. She said she would never send a message to any of these DLs, but they were her "window on the corporation." Another employee used the mail system to describe his feelings about his employer, which had recently sold one of its subsidiaries. In a message sent to a large DL, the sender explained that another employee had told him: "It's a firm policy that [the corporation] won't make anything that will hurt anyone; they're getting pretty close, and that's probably why

we're selling it [the subsidiary]." The sender then confided (to several hundred people), "That made me feel awfully good." In a third case, another secretary used the electronic mail system to organize a get well gift for an employee (**Exhibit 1**). Tokens of appreciation are common in many organizations. What made this one interesting is that the message went to 300 people, presumably most of whom had never before heard of Benny, the ailing employee. Probably most people paid little conscious attention to this message. But even with a quick scan and delete, the subliminal message was, "I work for a company with caring people."

Corporate communications offices and human resources offices are in the business of sending employees information designed to increase informational and emotional connections. How could ad hoc communications among employees be any more effective than professionally designed ones? Messages share several characteristics that distinguish them from professional communications and that may make them particularly potent. First, most are from voluntary or discretionary DLs. People choose to belong to these DLs and therefore perceive that they receive messages by their choice, not because they must do so. Second, because these DLs have widespread membership, they can reflect information and feelings from throughout the organization, not just from one communication office. Third, the overt contents of these messages pertain to a variety of topics and interests, not just to official company news or boosterism. These characteristics can make these messages more persuasive than professional ones because of a process psychologists call insufficient justification (Aronson 1966).

When people receive a message, they evaluate the sender's motivation so that they know how to interpret the message. If a recipient knows that the sender was paid for sending the message or was coerced into sending it, the recipient discounts the sender's sincerity. The recipient believes that the sender has "sufficient justification" for sending the message even without sincerely believing its contents. By contrast, if a sender lacks obvious external incentives for sending the message, the recipient does not discount the sender's sincerity. When unsolicited messages appear on large, discretionary distribution lists, readers have little reason to doubt their sincerity. Peripheral employees who frequently receive such messages build information connections over time to other employees of the corporation.

Reading messages gives employees the opportunity to make connections with other employees who would otherwise be invisible or unknown. Because electronic communication can be independent of geographic and organizational distance, these connections cut across conventional organization boundaries. In this way, employees can learn about people whose experiences are different from theirs be-

Reading messages gives employees the opportunity to make connections with other employees who would otherwise be invisible or unknown.

Exhibit 1

Date: 19 May 10:37 am PDT (Thursday)
From: Sandi Colman
Subject: Benny Schrinka
To: [All employees, about 300 people, working in one location]
cc:
Reply To: Sandi Colman

Benny Schrinka hurt his back last week and will be unable to work for at least 3-4 weeks or more.....depends on how he responds to physical therapy.

Several of his friends are putting together a surprise "goodie basket" for him, hoping to cheer him and ease his pain. We hope to include a ham, some wine, maybe a good book or two for him to read...suggestions welcome.

If you care to make a contribution toward the basket...I am collecting \$\$\$; John Devon has volunteered to coordinate getting the goodies and basket.

I am in "Area 2" of ABC Bldg. 10.....x1111; John Devon is in room 76, same building,

Thanks to you all.....Sandi

cause they have different jobs or work in different locations. They also can learn that, despite these differences, they have much in common. Such lessons are reinforced by the nature of the communication—the free exchange of unofficial information.

It is possible that people communicating electronically could become attached to specific other people or even to favorite bulletin boards or electronic groups without these positive attachments to the larger organization. No research directly tests the impact of "windows on the corporation" on attachment to the organization. If the process works as it has in other settings, then whether affiliation extends to the larger organization will depend on the orientation of the individuals' communications. If messages about the larger organization are mainly negative, recipients will increase their affiliation with the communicators but decrease it with the larger organization. If the communications are mainly positive toward the larger organization, recipients will increase both affiliations.

An experiment... demonstrated that peripheral people who communicated electronically became better integrated into the organization.

A VOICE FOR THE VOICELESS

Sending messages also can increase information and emotional connections. An experiment conducted by the Rand Corporation demonstrated that peripheral people who communicated electronically became better integrated into the organization (Eveland and Bikson 1988). Two corporation task forces were formed to investigate how employees make the transition to retirement and to develop a set of recommendations about preretirement planning. Each task force had forty members—half recently retired from the company and the other half still employed but eligible for retirement. The only difference between the two groups was that one of them was given

Halfway through the year's work, the retired members of the electronic communication group...knew more people, had more interactions, belonged to more subgroups, and felt more involved than their retired counterparts in the nonelectronic task force.

electronic communication technology and the other was not. At the outset, the retired people in both task forces were judged by themselves and others to be more peripheral to the group than their employed counterparts. On standard sociometric measures of recognition, knowing, and contact, retirees had lower scores than those who were still employed. Halfway through the year's work, the retired members of the electronic communication group had become intensely involved in the project by electronic mail. They knew more people, had more interactions, belonged to more subgroups, and felt more involved than their retired counterparts in the nonelectronic task force. They even decided to continue meeting after the year's work was completed and the task forces had been officially disbanded.

We found a similar story in a city government (Huff, Sproull, and Kiesler 1989). Over 90 percent of the city employees used electronic mail routinely. We discovered that the more they used it, the more committed they were to their employer—measured by how willing they were to work beyond the requirements and hours of their jobs, how attached they felt to the city government, and how strongly they planned to continue working for the city. The connection between electronic communication and commitment is not explained by employees' total amount of communication across all media, by their technical ability, or by their seniority and hierarchical status (although the latter two variables predicted commitment independently). One explanation of our findings is that using electronic mail caused commitment to increase. Another explanation is that already committed people used the modern, symbolically important technology of electronic mail. To compare these alternatives, we proposed that if communicating by electronic mail increased commitment, then the correlation between using electronic mail and commitment should be especially strong among shift workers who are routinely separated from the mainstream of work and decision making in the organization. We reasoned that the technology would be somewhat more useful to them than to employees in the mainstream. By contrast, if commitment caused people to use electronic mail, then shift work should have no differential effect. We found that the relationship between using electronic mail and commitment was much higher for shift workers than for other workers, supporting the idea that electronic mail can increase commitment among those who otherwise might feel somewhat peripheral in an organization.

Once we knew that total volume of an employee's electronic mail predicted that person's level of commitment, we wondered whether receiving mail or sending it (or both) contributed to feelings of commitment. It might be that receiving more mail would cause people to feel more informed, as was the case with the large corporation, and therefore more committed. We found, however, that neither the

amount of electronic mail received nor a person's reporting that he or she felt "in the know about what is going on in the city" predicted commitment. Rather, the amount of electronic mail a person sent predicted commitment. In this city government, computer communication seems to have increased commitment primarily because it allowed employees to participate actively in the life of the organization by sending messages that they would not otherwise have sent, not primarily because it increased the amount of information they received. One police officer wrote to us, "Working the night shift, it used to be that I would hear about promotions after they happened though I had a right to be included in the discussion. Now I have a say in the decision making." Electronic communication gave peripheral employees the chance to have a voice.

Face-to-face groups consistently show a positive relationship between how much a person talks and how satisfied that person is with the group and how committed he or she is to it (McGrath 1984; Forsyth 1983). Yet air time in meetings is an extremely limited commodity—only one person can talk at a time—and total meeting size is physically constrained. With electronic communication, air time and meeting size are less constrained resources, and so more people can enjoy the benefits of active participation. These benefits may especially accrue to those who, by virtue of geographic or organizational position, would otherwise be peripheral contributors.

...managers often don't hear new news...and lower-level employees may feel that no one listens to them.

TALKING TO THE BOSS

Most managers talk more than they listen and issue more directives, make more organizational announcements, and promulgate more policy statements than do lower-level employees. When managers do listen, it's mostly to people close to them. Most talking and listening occurs among people who are physically and hierarchically close to each other. This means managers often don't hear new news; they may be ignorant of information they need that is in the heads or on the desks of lower-level or distant employees—and lower-level employees may feel that no one listens to them.

Giving people a voice is a strong value in our culture. Its embodiment ranges from constitutional principles of freedom of speech and assembly and parliamentary rules of order to public opinion polls, Dale Carnegie's rules for success, and radio call-in shows. Although work organizations are not democracies and free speech does not prevail, giving peripheral people a voice is an important means of binding them to the organization, and it may yield information important for performance.

Managers face three kinds of problems in giving people a voice. One is straightforward logistics problems. By definition, peripheral people are far from the center. Physically collecting their opinions can

be time-consuming and expensive. This is one reason that conventional participation mechanisms usually rely on representation rather than direct participation; collecting information from employee representatives is easier than listening to all employees. A second problem is motivational. Although peripheral employees may have a lot to say, they may be reticent or distrustful or fear recrimination. A third problem is also motivational—but on the receiving end rather than the sending end. Central management may not want to hear what peripheral employees have to say. Given the cultural value we put on being good listeners, this reluctance is not likely to be expressed publicly. Instead it is more likely to be expressed as confidence in the existing ways of hearing from employees and a need to avoid information overload. Management reluctance may actually stem from confusing a commitment to listen to employees with a commitment to act on what they say.

Electronic communication offers the possibility of increasing the amount of communication from lower to higher levels of the hierarchy and solving the logistics problems of collecting information from distant employees. Workers can send messages at their convenience, without having to wait for an appointment or to catch the manager in the hall. It also can alleviate employee reluctance to talk. Workers feel less intimidated about talking to the boss electronically than they do about talking to him or her face to face, particularly if what the worker wants to say is in any way negative. Because there are few reminders of status differences, the fear of evaluation or criticism declines.

In one corporation we studied, people who used electronic communication extensively reported that they preferred this form when communicating up the hierarchy to negotiate or solve problems (Sproull and Kiesler 1986). Exhibit 2 displays an example of a message from a first-level manager to a vice president located four levels above him in the hierarchy. This message illustrates how status imbalance can be reduced in computer communication both in the style of communication from subordinate to superior and in the behavior about which the subordinate is complaining. Although both had offices in the same building, the sender almost never talked with the vice president directly; most of the occasions on which they were in the same room were formal or ceremonial ones in which the vice president was making a speech or conducting a large meeting. Yet the sender felt he could send this frank complaint electronically. Notice that the topic of the message is electronic mail behavior. The sender liked the vice president's electronic open-door policy but did not like what he saw as an electronic endorsement policy.

Managers notice that the nature of the conversation often changes when they walk in the room.² One manager calls this the "social Heisenberg effect." "With electronic communication people can

...status imbalance can be reduced in computer communication both in the style of communication from subordinate to superior and in the behavior about which the subordinate is complaining.

Exhibit 2

DATE: 20 May 89 07:29:24
FROM: Sam.South
SUBJECT: Messages from on high
TO: Bill.North John.East
CC: Don.Dulane, Bob.Bilk, Sam.South

This is to inform you of some small personnel problems you have been causing at lower levels of the organization. I hope that being informed, you will do the right thing in the future. I have made a suggestion at the end.

I like your (electronic) open-door policy; anyone can send you a message on anything, and you will read (and maybe respond to) it. I hope that we do not misuse this policy by sending you so many messages that you will have to close the door, and I would ask that you not misuse this policy by running the organization with it.

There are many good ideas floating around this organization. We do not have enough resources to work on all of them, so managers have to allocate their resources to the most important one (which sometimes are not the most ingenious ones). When a person has a good idea, and it is not worked on, that person tends to be disappointed. Usually, he understands the situation, and respects the decision of his boss(es). Sometimes when he thinks a mistake is being made, or when he is just plain angry, he uses your open-door policy to sell his good idea. This is just what the policy is for, and I see no harm done.

The problems arise when you, with all your weight and authority, endorse the good idea to the point where the originator believes he now has your blessing to start work on it. He believes that you have/will overrule his boss, and [the organization] will implement his idea because you think it is so good.

SUGGESTION

When someone sends you an idea, and you are willing/want to respond, please continue to give your opinion (for/against) of the idea, but please make sure that you indicate that the decision to work on the idea will be made by the normal processes in the organization (like release planning or chain of command). I am not suggesting that you stop responding altogether.

Thank you.

forget that I'm their manager when they talk to me," he told us. The manager did not mean this literally, but, in our terms, many cues to status differences disappear with electronic communication. For this manager, that produced benefits. The cliché is that the boss is always the last to hear the bad news. Electronic communication may convey it sooner.

Why should managers want to encourage more communication from their subordinates, particularly if it's likely to be bad news, negative opinions, or complaints? Obviously, smart managers may prefer to know sooner, rather than later, that all is not well. That justification assumes a view of managers as problem finders and problem solvers. Another view of managers as involvement increasers also suggests benefits from encouraging more communication from lower-level employees. In this view, managers elicit communication

...smart managers may prefer to know sooner, rather than later, that all is not well.

It may turn out that what is most important is letting people talk, not acting on what they say.

because they believe it increases involvement and improves morale. High morale may be sought for its own sake, because it has some direct link with performance, or both. It may turn out that what is most important is letting people talk, not acting on what they say. In the city government we described, we have no evidence that anyone acted on the messages sent by the shift workers, but the electronic communication gave peripheral employees the opportunity to communicate more actively with the boss.

ELECTRONIC DISCUSSION GROUPS

Electronic discussion groups offer the opportunity to consolidate and magnify the effects of passive and active electronic participation. Most employees belong to few groups at work—a primary work group, perhaps a committee or two, and perhaps a social group. (Group membership is positively associated with hierarchical position; high-level managers belong to many more groups than do lower-level employees.) Except for committee assignments, these memberships are relatively stable and enduring, and they lead to important benefits for their members. Electronic group communication makes it possible for more people to belong to many groups and to tailor their group memberships to their changing interests. The groups are not constrained by physical location or fixed-length meetings and can enroll anyone who wants to participate, either actively or passively.

Employees in one Fortune 500 firm received an average of 21 DL messages a day from over 700 DLs (Finholt and Sproull 1990). The majority of the average person's DL mail came from strangers (company employees unknown to the recipient), and a high percentage came from remote locations. Thus DLs represented a way for people to receive information and make connections that otherwise would have been difficult or impossible. About half the DLs were required ones: an employee's name was placed on a required DL as a function of his or her job or work location. The employee had no choice about belonging to required DLs, which ranged from 10-person DLs for subunit groups to 600-person site lists for all employees working in a particular city. The discretionary DLs, which people joined by choice, covered a wide spectrum of topics, some about work and some extracurricular. They ranged from the exotic to the mundane: Enologists for wine fanciers, NetSpecs for computer network designers, GoPlayers for students of the Japanese strategy game Go, Classifieds for selling things, and ChildCare for locating babysitters.

Some discretionary DLs, such as Classifieds and ChildCare, merely served as a convenient way to broadcast information; others functioned as interacting discussion groups. The discretionary discussion groups were large and geographically dispersed, averaging 260 members located in seven different cities, and they interacted regu-

larly. Four days out of five, messages went to these groups, week after week—an average of four messages a day. Messages were sent by an average of forty-one different people in each discussion group over a two-week to one-month period. Although most of these members were not personally known to one another and had no common tasks, most messages were not simply disconnected broadcasts unrelated to one another but explicit replies to previous messages. These groups sustained involving discussions over distance and time among strangers. Each discretionary group also worked at being a group. They sent messages discussing the purpose and procedures of the group and membership criteria for it. Although group members were not visible or known to one another, the groups took on personalities and lives of their own.

Membership in any group confers informational and emotional benefits to the member, including increased information resources, emotional resources, and the opportunity to take on different roles and identities. These processes are so powerful that people's mental-health status is positively associated with the number of groups they belong to (Thoits 1983). It is plausible, although only a hypothesis at this point, that membership in multiple electronic groups has similar beneficial effects, particularly for people who belong to few face-to-face groups. For those who belong to a great many face-to-face groups, we would expect much less effect; the costs in demands on their time and energy might well outweigh the benefits.

...people's mental-health status is positively associated with the number of groups they belong to.

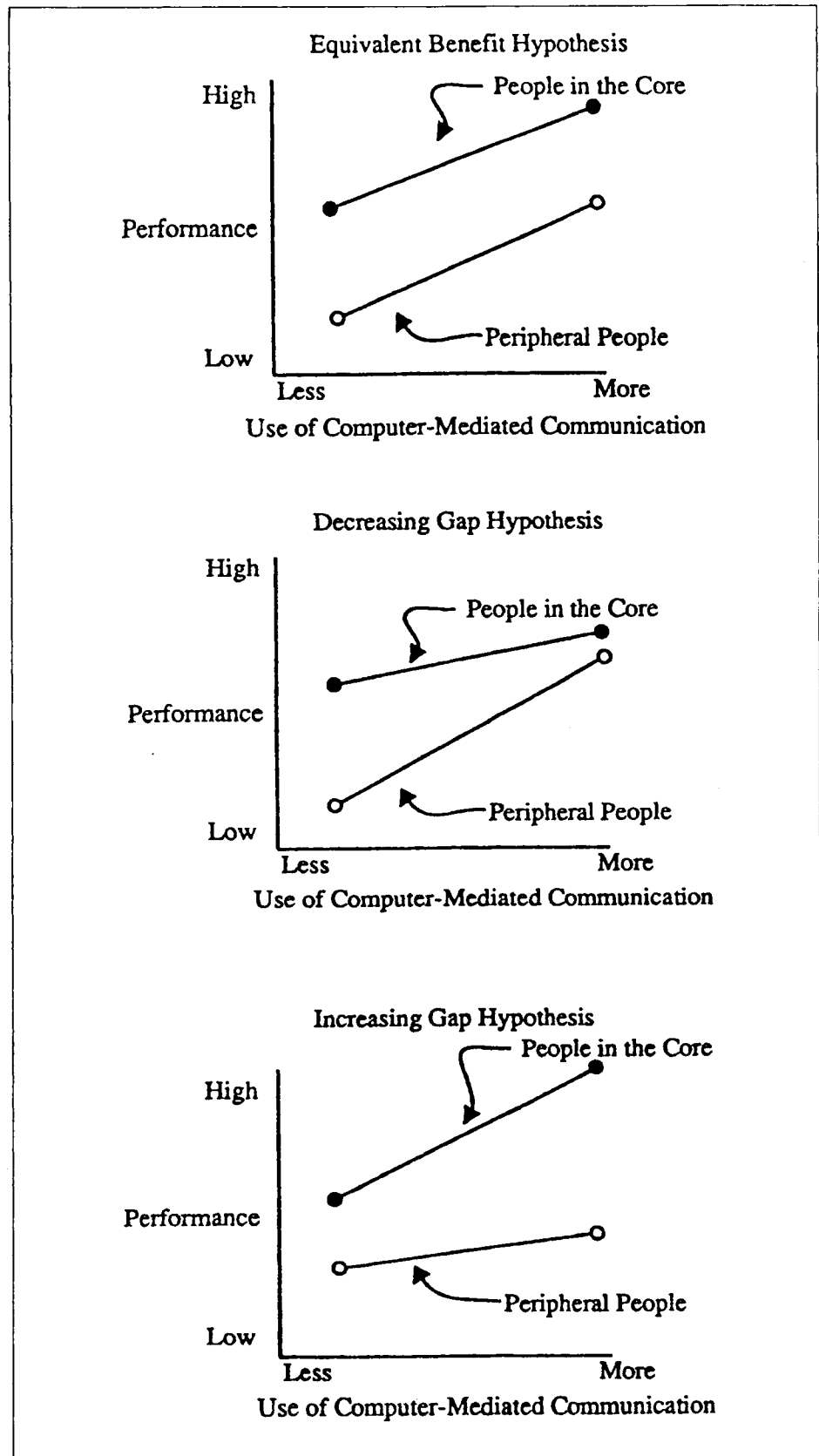
PERFORMANCE IMPLICATIONS

We have emphasized the information and motivation benefits of increasing peripheral employee participation through electronic communication. Do these connections also differentially benefit the performance of peripheral workers? There are almost no data to help us answer this question; we can only lay out the basic reasoning underlying why we might expect to see a differential benefit and report some tantalizing bits of evidence.

Performance Benefits for Peripheral Employees

The basic argument suggests that peripheral employees have more to gain from electronic communication than do more central employees. We assume that peripheral employees start out at an information disadvantage. In principle, both groups of employees could benefit equally (illustrated as "equivalent benefits" in Exhibit 3), but central employees are likely to experience ceiling effects on their communication. That is, each new communication benefits them relatively less because they already know a great deal and are already active contributors. Peripheral employees, by contrast, derive more benefit from each additional communication both because they

Exhibit 3



...peripheral employees' performance increases more than central employees' performance does, closing the gap between the two groups.

know less and because they have fewer other opportunities to participate actively. This relationship is illustrated as the "Decreasing-Gap Hypothesis" in Exhibit 3: peripheral employees' performance increases more than central employees' performance does, closing the gap between the two groups. Of course, there could be other relationships as well. Both groups could be equivalently harmed by electronic communication. This outcome could be produced by a simple information overload process in which each new communication distracts attention or confuses the recipient. Or central employees could benefit much more than peripheral employees. This "Increasing-Gap Hypothesis" benefit (shown at the bottom of Exhibit 3) could most plausibly occur if central employees had better access to computer-based information resources, or if they communicated only with one another or communicated entirely different kinds of information. We believe, however, that when access is open, the effects are mainly positive, with more benefit to peripheral workers.

We have found evidence of greater benefit to peripheral workers in an investigation of how oceanographers use computer networks (Hesse et al. 1990). We examined how the use of electronic communication affected the relationship between age and professional recognition (scientific awards, appointment to editorial boards, professional committees, and advisory committees). In this kind of analysis, younger scientists are considered more peripheral than older scientists. We found that while older scientists generally received more professional recognition than younger scientists (and scientists who used electronic communication more received more professional recognition), electronic communication benefited younger scientists more than it did older scientists in receiving professional recognition.

John Earls (1990) has discovered a similar pattern of advantage for people with physical handicaps. He directed a multiyear program for participants in a rehabilitation program designed to teach confidence and positive attitudes toward the disabled among both disabled people and human service professionals. He compared a control group with an equivalent experimental group that used a computer bulletin board for communication over several years. Each group had thirty members: ten disabled people, ten therapists, and ten university students. The experimental group did not differ from the control after six months in the program, but after two years there were highly significant differences. By then the experimental group was more positive in its attitudes about disability and the disabled than the control group was. The disabled members were even more positive in their attitudes than other experimental group members were. Also, the disabled people in the experimental group participated more actively.

Short-Term vs. Long-Term Implications

Even if increasing affiliation and commitment through increasing electronic connections is feasible, the direct link between increased commitment and increased performance has not been demonstrated. Happy workers are not necessarily more productive workers.³ Nor are more informed workers necessarily more productive workers. Charles O'Reilly (1980) looked at the relationship between employees' attitudes toward and use of information and the quality of their job performance as rated by their supervisors. He found a positive association between how much information people had to do their jobs and their satisfaction with the amount of information they had. That is, people who reported they had more information were also more satisfied with the amount of information they had. But he also found a negative association between how much information people had to do their jobs and the quality of their actual performance. The more information people had, the worse was their performance. These findings are consonant with the view of economists who point out that people often overinvest in information; they acquire more information or more costly information than they need to do their work. In this view, any strategy that seeks to increase information and motivation connections among employees should be viewed with suspicion. This view is typically characterized by an extremely short-term perspective that considers the relationship between performance and amount of information or amount of satisfaction at only one time. Companies or managers that have primarily a short-term orientation can use similar reasoning to forbid or minimize widespread use of a computer-based communication system.

Companies and managers with a longer view...may think of increasing employee participation by electronic communication as a capacity-building strategy with implications for long-term performance.

Companies and managers with a longer view, however, may think of increasing employee participation by electronic communication as a capacity-building strategy with implications for long-term performance. They might consider three components of such a strategy: creating connections among employees, building new skills, and increasing employees' ability to absorb new ideas. Increasing employee participation increases links among employees. Although most of the time these links are irrelevant to routine performance, they are available when needed, in times of crisis or opportunity. A case from Manufacturer's Hanover Trust (MHT) illustrates the point.

Several years ago, MHT launched a new financial product in the Far East under extremely tight time restrictions governed by impending regulatory changes. MHT lawyers in Washington, corporate officers in New York, and marketing personnel in California used the MHT electronic mail system to coordinate their activities with one another and with the Hong Kong office to bring out the product under

the deadline. Employees told us this story to illustrate how much they depend on their mail system. It also illustrates a capacity-building strategy. At the time of this opportunity, MHT personnel already “knew” many employees through communicating with them electronically. They could use these connections because they already existed.

Research on teaching and learning shows that people don’t learn new ideas or skills just by being exposed to them.⁴ Learners must be prepared to learn; they must have the mental scaffolding and requisite skills to understand and master new ideas (Cohen and Levinthal 1990). Listening to network discussions may help produce this “absorptive capacity” in employees, both old-timers and newcomers. It is easier to join and be socialized to electronic groups than to face-to-face ones (Moreland and Levine 1982). When group members are not physically visible, as is true with electronic interaction, the high salience and potential stress associated with the newcomer identity decline. Putting new employees on the mail system, especially if they can join large discretionary distribution lists, can help bring them quickly up to speed on how and what their fellow employees are thinking. It can get them more oriented toward the organization.

Putting new employees on the mail system...can help bring them quickly up to speed on how and what their fellow employees are thinking. It can get them more oriented toward the organization.

What About Extracurricular Mail?

Although some companies discourage any electronic discussions, many permit or encourage discussions related to company business for the reasons noted. Extracurricular messages and groups are a more difficult issue. It is easy to dismiss them as a waste of company resources—both network resources and employee time. The question of extracurricular mail is not one to be settled in a vacuum. It is simply an instance of a much more general view of human resources management. Some companies subsidize extracurricular benefits for their employees. Exercise facilities, discount entertainment tickets, office celebrations, softball teams—all could be viewed as a waste of resources. Companies that invest in them do so as a way of building employee enthusiasm, loyalty, or commitment. A recent study of employees in a high-technology service sector firm showed that “socializing with coworkers and supervisors, either on or off the job or both” was correlated with positive organizational attitudes (Kaufman et al. 1988). Allowing extracurricular messages and groups may serve a similar function. Where we have systematic data, lower-level employees rather than managers more often send and receive extracurricular messages and participate in extracurricular electronic groups.

Allowing extracurricular mail also can contribute to a capacity-building strategy. A steely-eyed controller might frown on a company DL called *ChocolateLovers*. Yet that DL might be just the means to get peripheral employees motivated to increase their network connec-

tions and skills. In the accounting department of one large organization, a new employee was enrolled in a ChocolateLovers DL by another employee as a friendly orientation gesture. (She was also enrolled in all of the DLs required for her job and location.) After reading ChocolateLovers for a month or so, the new employee decided she wanted to print out some recipes she had read, so she had to learn various commands for manipulating and printing text. She then decided that she would compile recipes from the DL into a book to give as a Christmas present. To illustrate the book, she learned desktop color graphics by experimenting during her lunch hour. Over an eighteen-month period, this accounts-payable supervisor became the office guru on desktop publishing and color graphics because she had joined ChocolateLovers. These skills were not directly applicable to accounts-payable supervision, but they represented an increase in her skill repertoire and an increase in the skill capacity of the entire office.

CONCLUSION

It may seem paradoxical that computers, stereotyped as cold and impersonal, can be used to increase personal connections and affiliation. Electronic communication is not a substitute for face-to-face relationships, but for many peripheral employees, satisfying face-to-face relationships are hard to come by in the workplace. Electronic communication can increase the informational and emotional connections of these employees. The benefits to individual employees are immediate. The organization can additionally benefit by increasing employee capacity to work beyond the letter of the employment contract.

From the organization's perspective, giving a voice to the voiceless and opening a window on the corporation can produce negative effects as well as good ones. If the previously voiceless employees use the mail system to complain or to mobilize protest, managers might prefer that they had remained mute. And even if increasing participation by electronic means does not lead to riot or revolution, it still costs money. Some managers may be unwilling to support communication services that are not directly tied to task performance even if they do increase employee motivation and commitment. That decision, however, is one that should be taken in the light of more general human resources strategies. ♦

Notes

1. Eventually, it will be possible to include pictures and sound in electronic mail (Borenstein and Thyberg in press).
2. See Jablin (1987) for a review of research supporting this observation. Managers tend to dominate the conversation, and subordinates expect them to. Further, subordinates are

The organization can...benefit by increasing employee capacity to work beyond the letter of the employment contract.

reluctant to convey bad news or negative information to their bosses (Rosen and Tesser 1970; O'Reilly and Roberts 1974, Linde 1988).

3. Research reviews for the past thirty years have failed to find a consistent positive relationship between job satisfaction and performance (Brayfield and Crockett 1955; Vroom 1964; Petty, McGee, and Cavender 1984; Iaffaldano and Muchinsky 1985; Podsakoff and Williams 1986).

4. See, for instance, Mayer and Greeno (1972), Chi and Glaser (1984), Rouse and Morris (1986).

REFERENCES

- Aronson, E. (1966). The psychology of insufficient justification: An analysis of some conflicting data. In S. Feldman (ed.), *Cognitive consistency*. New York: Academic Press, 115-133.
- Borenstein, N., and Thyberg, C. (in press). Power, ease of use, and cooperative work in a practical multimedia message system. *The International Journal of Man Machine Studies: Special Issue on Computer-Supported Cooperative Work and Groupware*.
- Brayfield, A.H., and Crockett, W.H. (1955). Employee attitudes and employee performance. *Psychological Bulletin*, 52:396-424.
- Chi, M. T. M., and Glaser, R. (1984). Problem-solving abilities. In R. Steinberg (ed.), *Human abilities: An information processing approach*. San Francisco: Freeman, Cooper & Co., 227-248.
- Cohen, W., and Levinthal, D.A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly* 35:128-152.
- Earls, J. (1990). *Social integration by people with physical disabilities: The development of an information technology model based on personal growth and achievement*. Unpublished doctoral dissertation, The University of Wollongong, Wollongong, Australia.
- Eveland, J.D., and Bikson, T.K. (1988). Work group structures and computer support: A field experiment. *Transactions on Office Information Systems* 6(4): 354-379.
- Forsyth, D.R. (1983). *An introduction to group dynamics*. Monterey, CA: Brooks/Cole Publishing Co.
- Finholt, T., and Sproull, L. (1990). Electronic groups at work. *Organization Science* 1(1): 41-64.

- Hesse, B., Sproull, L., Kiesler, S., and Walsh, J. (1990). *Computer network support for science: The case of oceanography*. Unpublished manuscript, Carnegie Mellon University, Pittsburgh.
- Huff, C., Sproull L., and Kiesler, S. (1989). Computer communication and organizational commitment: Tracing the relationship in city government. *Journal of Applied Social Psychology*, 19: 1371-1391.
- Iaffaldano, M.T., and Muchinsky, P.M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin* 97: 251-273.
- Jablin, F.M. (1987). Formal organization structure. In F.M. Jablin, L.L. Putnam, K.H. Roberts and L.W. Porter (eds.), *Handbook of organizational communication*. Newbury Park, CA: Sage, 389-419.
- Kaufman, R.L., Parcel, T.L., Wallace, M., and Form, W. (1988). Looking forward: Responses to organizational and technological change in an ultra-high technology firm. In I. H. Simpson and R. L. Simpson (eds.), *Research in the sociology of work 4*: 31-67. Greenwich, CT: JAI Press.
- Linde, C. (1988). The quantitative study of communicative success: Politeness and accidents in aviation discourse. *Language and Society*, 17: 375-399.
- McGrath, J.E. (1984). *Groups: Interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Mayer, R.E., and Greeno, J.G. (1972). Structural differences between learning outcomes produced by different instructional methods. *Journal of Educational Psychology*, 63: 165-173.
- Moreland, R.L., and Levine, J.M. (1982). Socialization in small groups: Temporal changes in individual-group relations. *Advances in Experimental Social Psychology* 15: 137-192.
- O'Reilly, C. (1980). Individuals and information overload in organizations: Is more necessarily better? *Academy of Management Journal* 23: 684-696.
- O'Reilly, C., and Roberts, K. (1974). Information filtration in organizations: Three experiments. *Organizational Behavior and Human Performance* 11: 253-265.

- Petty, M.M., McGee, G.W., and Cavender, J.W. (1984). A meta-analysis of the relationships between individual job satisfaction and individual performance. *Academy of Management Review* 9: 712-721.
- Podsakoff, P.M., and Williams, L.J. (1986). The relationship between job performance and job satisfaction. In E. A. Locke (ed.), *Generalizing from laboratory to field settings*. Lexington, MA: Lexington Books, 207-253.
- Rosen, S., and Tesser, A. (1970). On reluctance to communicate undesirable information: The MUM effect. *Sociometry*, 33: 253-264.
- Rouse, W.B., and Morris, N.M. (1986). On looking into the black box: Prospects and limits in the search for mental models. *Psychological Bulletin* 100: 349-363.
- Sproull, L., and Kiesler, S. (1986). Reducing social context cues: Electronic mail in organizational communication. *Management Science* 32(11): 1492-1512.
- Thoits, P. (1983). Multiple identities and psychological well-being. *American Sociological Review*, 48: 174-187.
- Vroom, V.H. (1964). *Work and motivation*. New York: John Wiley & Sons.