The Destructive Potential of Electronic Communication Technologies in Organizations

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In spite of some controversy about net effects (Brynjolfsson, 1993), electronic communication and information technologies (ECITs) provide organizations and their members with tremendous benefits. Compared to more traditional means, contemporary technologies can carry more information, faster, at a lower cost, to more people, while also offering enhanced information search, processing, and recombinant capabilities (Beniger, 1996; Fulk & DeSanctis, 1995). Furthermore, the use of advanced electronic technologies in organizations is widespread and commonplace due to the development of a dependable technical infrastructure, decreasing technology costs, and in many cases, the achievement of a critical mass of users where relevant (Gurbaxani, 1990; Markus, 1990). Indeed, contemporary technologies can be major factors in achieving substantial organizational benefits, across interpersonal (e.g., Compton, White, & DeWine, 1991; Walther, 1995), group (e.g., DeSanctis & Poole, 1997; Lipnack & Stamps, 1997), and organizational outcomes (e.g., Davidow & Malone, 1992; Nohria & Berkley, 1994).

Yet, technologies enable outcomes more than they determine them (see Barley, 1986; Markus & Robey, 1988), making it difficult to predict social or organizational effects from technological artifacts. Therefore, the use of electronic technologies in organizations is best viewed as a complex process where social outcomes result from a mix of environmental conditions, technical tools, organizational factors, and individual motivations, capabilities, and efforts. In some instances, benefits from technology use are obvious and well-documented. In other cases, however, technology use is accompanied by considerable deficits, which have not received as much direct attention to date.

Even simple examples of organizational technology use illustrate this complexity. For instance, carbon copying ("cc'ing") colleagues on emails to keep them appropriately informed may also contribute to information overload, which can contribute to stress (Farhoomand & Drury, 2002). "Cyberloafing" (i.e., abusing Internet privileges at work by performing non-work related tasks), which is often perceived as negative (Lim, 2002),

can also serve as an important source of relaxation, thereby helping employees perform better in their work tasks. Moreover, the interpretation of destructive or beneficial outcomes of organizational technology use can vary by the perspective adopted. For instance, "whistle blowing," which can be enhanced by the anonymity potentially provided by e-mail and web technologies, can be used to call attention to illegal practices. Although this act can clearly yield positive outcomes for the organization, it may also be considered to be deceptive by some and, therefore, destructive.

This chapter considers how electronic technology use in organizations can contribute to destructive communication and outcomes. We propose that *destructive communication* consists of intentional or unintentional communication acts that are predominantly harmful to organizational members, groups within organizations, or organizations as a whole. Working from this definition, we examine the potentially destructive aspects of electronic technology use in organizations, by introducing five types of destructive activities. We elaborate on the various types of destructive communication behaviors within each category and, using an organizational case study, illustrate one example of how destructive communication acts may occur and discuss its consequences. We conclude by discussing processes for improving technology use within organizations and by offering suggestions on how to limit and prevent destructive communicative practices in the workplace.

Communication Technology Use and Destructive Organizational Activities

Organizational use of communication technology is widespread. Of the 77 million American workers who report using a computer on the job, 75% say they access the Internet or use e-mail (DOL, 2005). Many also report using instant messaging (IM) at work (AMA/ePolicy, 2006), with 90% of corporate users spending over 90 minutes a day actively using IM (AMA/ePolicy, 2004). Moreover, organizational members routinely use a wide range of technologies in their jobs. Communication technology common to organizations includes, but is not limited to, IM and other chat tools, electronic mail, Internet and web pages, video-conferencing tools, voicemail, mobile devices (i.e., cell phones and mobile Internet devices such as Treos, Centros, iPhones, and Blackberries), and personal data assistants. Our focus in this chapter is thus consistent with Culnan and Markus's (1987, p. 422) view of advanced communication and information technologies as "interactive, computer-mediated technologies that facilitate two-way interpersonal communication among several individuals" by means of "written text, recorded or synthesized voice messages, graphical representation of communicators or data, or moving images of

the communicators or message content." Technology users are often geographically dispersed and may use these tools either synchronously or asynchronously.

In spite of their ubiquity and remarkable benefits, there exist substantial obstacles to effective and productive organizational technology use, as well as directly destructive outcomes from their utilization. In fact, the very features and uses of electronic technologies that result in tremendous cost-savings, efficiency gains, and other benefits can also yield destructive communication behaviors in organizations. To explore these potentially destructive outcomes, we propose several types of destructive communication activities facilitated by contemporary technologies.

Types of Destructive Communication Activities

We have identified five types of destructive activities found in organizational settings: counterproductive activities, nonproductive activities, inappropriate activities, deceptive and equivocal activities, and intrusive activities. Although neither mutually exclusive nor unique to technology use, these destructive communication activities have in common that they are all tied in meaningful and compelling ways to the organizational use of ECITs. Consequently, articulating these destructive activities serves both to increase awareness of this relatively understudied outcome of organizational technology use, and to suggest potential remedies to such destructive organizational activities.

Counterproductive Activities

Counterproductive uses of organizational technologies are those behaviors that conflict with organizations' goals and place employers at risk either legally or financially (Mastrangelo, Everton, & Jolton, 2006). Examples include such activities as chatting in a sexual manner with someone at work, creating CDs at work from downloaded music, and using the Internet while at work to visit money-making sites (Mastrangelo et al.). Although typically low-frequency, these activities can be harmful both to the individual (e.g., addiction to online gambling) and to the work team or organization as well (e.g., loss of productivity).

Counterproductive activities stemming from technology use also include behaviors that compromise organizations' data security. Violations of data security include a range of various "attacks" or successful misuses of computer systems (Gordon, Loeb, Lucyshyn, & Richardson, 2005). Network attacks are actions directed against computer systems to disrupt equipment operations, change processing control, or corrupt stored data (Wilson, 2005). Attackers include, among others, hackers, terrorists, and professional criminals with objectives such as political

or financial gain, challenges to resource holders, or damaging organizations. The results of these attacks include information corruption and disclosure, and theft, and denial of service (Howard, 1997). Attacks can take many forms, including computer network, system, and information attacks, as well as the introduction of computer viruses and "malware." Computer network attacks usually involve malicious programming code that infects computers in order to exploit weaknesses of software, system configuration, or computer security practices. Such attacks can also occur when an attacker uses stolen information to enter a system. The result of a computer network attack is the disruption of integrity and authenticity of data.

Network attacks are relatively common. Howard's (1997) analysis of 4,299 security-related incidents between 1989 to 1995 concluded that a typical Internet domain was involved in about one security incident per year. Another study found that unauthorized use of computer systems occurred among 56% of respondents (Gordon et al., 2005). Moreover, unauthorized access to information occurred in over 30% of organizations in 2004 and cost over $31 million in losses in a sample of only 639 organizations (Gordon et al.). Virus attacks, however, are the greatest source of financial loss for organizations (Gordon et al.).

To avoid such attacks organizations may use anti-virus software, firewalls, intrusion detection systems, and instruction prevention systems (Gordon et al., 2005). In addition, organizations may utilize access control lists based on servers and data encryption. After intrusions occur, organizations use a number of strategies to prevent future intrusions, including hole patching (i.e., fixing vulnerabilities), reporting the intrusion to law enforcement, and informing legal counsel (Gordon et al.). When organizations do not report an intrusion to law enforcement it is typically due to fear of the negative publicity hurting public image or stock price. Other reasons for not reporting to law enforcement include concern that competitors could use the intrusion report to their advantage, the belief that a civil remedy is the best recourse, and simply being unaware that law enforcement is interested in such occurrences (Gordon et al.).

Nonproductive Activities

Nonproductive technology use at work includes those behaviors that are not directly productive for the organization and that often detract from accomplishing work tasks (Mastrangelo et al., 2006). Often, these behaviors involve social communication with others or engaging in personal tasks during work hours. Cyberloafing, cyberslacking, workplace Internet abuse, and online procrastination are types of personal, non-work-related uses of the Internet during working hours. Cyberloafing, for example, is

"any voluntary act of employees using their companies' Internet access during office hours to surf non-work-related Web sites for non-work purposes and access (including receiving and sending) non-work-related e-mail" (Lim, Teo, & Loo, 2002, p. 67).

Cyberloafing is quite common in the workplace. One study found that employees spend a third of their time online procrastinating from work tasks (Lavoie & Pychyl, 2001). Another study found that over a quarter of the time spent online at work was non-work-related (Wyatt & Phillips, 2005). In a survey of Internet use in the workplace, 37% of respondents admitted surfing non-work-related websites a few times a day, and 16% admitted surfing non-work-related websites constantly throughout the day (Vault.com, 2005). Another study found that employees with Internet access at work spent 2.6 hours online each day, often on non-work-related and general news sites (Lim et al., 2002).

Among 25 categories of inappropriate websites that employees are likely to visit while working are websites containing hate speech, gambling, gruesome content, and nudity (Johnson & Chalmers, 2007). Moreover, surveyed employees admit to using the Internet to shop online, play games, conduct personal bank transactions, and chat with others online during work hours (Mastrangelo et al., 2006). Griffiths (2003) identified six different subtypes of workplace Internet abuse including cybersexual Internet abuse (e.g., visiting adult websites), online friendship or relationship abuse (e.g., communicating with friends online), Internet activity abuse (e.g., online shopping or travel booking), online information abuse (e.g., use of search engines and databases), criminal Internet abuse (e.g., online sexual harassment), and miscellaneous Internet abuse (e.g., digital image manipulation). Research suggests that males, younger workers, those with faster Internet connections at work than at home, and more impulsive and less conscientious workers engage in more personal use of work computers (Everton, Mastrangelo, & Jolton, 2005; Mastrangelo et al., 2006).

Despite the loss to organizations that these behaviors represent, employees rationalize such behaviors in several ways (D'Abate, 2005). Some employees believe they are able to handle work-related and non-work-related tasks simultaneously. Others consider workplace Internet abuse a justified reward once they have completed a work project. Some simply feel compelled due to convenience, since access to their computer, e-mail, and the Internet is readily available. Regardless, cyberloafing clearly utilizes company resources and diminishes allotted work time.

Inappropriate Activities

Destructive communication attacks receivers' self-esteem or reputation, or reflects indifference towards others' basic values (Redding, 1996). We

expand this concept to include a range of "inappropriate" activities commonly facilitated by ECITs that can be deemed to be destructive. For example, sharing inappropriate jokes or confidential information via e-mail or "flaming" would be considered inappropriate activities. Inappropriate activities have in common a disregard for the appropriateness of communication content, form, and behaviors. As a consequence, these forms of communication can be harmful to individuals, groups, or the organization as a whole.

Flaming, or sending hostile and aggressive messages via text-based computer-mediated channels, is particularly destructive and can be shocking and deeply painful for those targeted. Several scholars have argued that specific characteristics of computer-mediated communication channels, including the potential for varying degrees of anonymity among users and the relative lack of accountability as compared to face-to-face interaction, contribute to high incidences of flaming in online interactions (Gurak, 2001; Kiesler, Siegel, & McGuire, 1984; Siegel, Dubrovsky, Kiesler, & McGuire, 1986; Sproull & Kiesler, 1991). Behaviors such as swearing, insults, name-calling, and the use of threats are typically considered evidence of flaming. In one study, 23% of flame-mail recipients reported receiving such destructive messages several times a week, and 48% said they receive them several times a month (Novell, 1997). Within an organization, such behaviors may occur in group discussion boards, online forums set up for organizational members, or in e-mail messages sent to others.

In spite of such potential, and accounts of flaming in organizations, some have questioned the prevalence of flaming (Lea, O'Shea, Fung, & Spears, 1992) and technologically deterministic explanations for it (O'Sullivan & Flanagin, 2003; Walther, Anderson, & Park, 1994). Moreover, alternative explanations for seemingly inappropriate online behavior have been offered that do not depend exclusively on channel characteristics (Postmes, Spears, & Lea, 2000). Consistent with Lea et al. (1992, p. 108), many argue that flaming should be viewed as "radically context-dependent" and recognized as group-specific and dependent on normative expectations, rather than as a feature of technologically-mediated communication (O'Sullivan & Flanagin, 2003). More than likely, flaming is only one aspect of a larger constellation comprised of aggressive or insulting messages (Crawford, 1999).

Sending or forwarding unsuitable e-mail jokes or messages is another form of inappropriate activity that is increasingly common due to the ease and speed of electronic communication channels. Inappropriate jokes containing sexist, sexual, or pornographic content are easily passed from one coworker to another. With e-mail programs' forward and carbon copy functions, large groups of people can be sent such inappropriate messages quickly, easily, and perhaps without sufficient consideration of the nature of the message or the full list of recipients.

Indeed, it appears that such transgressions are commonplace. Almost a quarter of surveyed users of instant messaging in the workplace reported sending jokes, gossip, rumors, and disparaging remarks, and 10% reported sharing pornographic, sexual, or romantic content (AMA/ePolicy, 2006). Harris Interactive found that nearly half their sample (48%) had sent or received joke emails, funny pictures/movies, or funny stories of a questionable tone (e.g., racy, sexual, or politically incorrect content) at work (Fortiva, 2005). The public e-mail archive from the Enron trial, for example, showed that one out of every 25 emails contained pornographic content, racially or ethnically offensive language, or dirty jokes or images (Matus, 2005).

A final type of inappropriate activity is the unauthorized transmission of confidential information, what Redding (1996) called using the "'truth' as a weapon [to...reveal] confidential information to unauthorized persons" (p. 28). This inappropriate use of communication channels also appears to be common. In one study, 23% of respondents admitted sending or receiving confidential company or client documents, and 20% admitted sending or receiving an e-mail that commented on confidential business (Fortiva, 2005). Another study found that 9% of users reported sharing confidential information about the company, a coworker, or a client via instant messaging (AMA/ePolicy, 2004).

This type of destructive electronic communication is not without risks. One study reported that more than 60% of surveyed companies disciplined employees for inappropriate use of the Internet, and more than 30% terminated employees for inappropriate Internet use (Greenfield & Davis, 2002). For example, in 2002 Hewlett-Packard fired two employees and suspended 150 more for sharing pornography via the company e-mail system (Conlin, 2002).

Deceptive and Equivocal Activities

The ubiquity of ECITs in contemporary organizations suggests they are also implicated in deceptive communication. Deceptive communication includes communication that is dishonest, involves lying, or is unfair (Redding, 1996), or that entails messages and information knowingly transmitted to create a false conclusion (Buller & Burgoon, 1996) by virtue of evasive or deliberately misleading messages, as well as euphemisms designed to cover up defects, conceal embarrassment, or make things appear better than they are. In nearly all cases, deceptive communication can be considered destructive for organizations.

Several features of computer-mediated communication (CMC) are relevant for both the production and detection of deception. As Carlson and colleagues (2004, p. 12) note, the "predominant form of electronic media is text, so that many but not all cues about status, position, and situational

norms are missing ....This attenuation of cues ... may actually provide a fertile arena for norm breaking behaviors such as deception." For instance, symbol or language variety, which extends the options senders have when constructing messages, increases the likelihood of successful deception and reduces the likelihood of detecting deception (Carlson et al.). Moreover, messages from deceptive senders using CMC usually have a higher number of verbs, modifiers, and noun phrases than messages from truthful senders, although they also exhibit less lexical and content diversity (Zhou, Twitchell, Qin, Burgoon, & Nunamaker, 2003). And, individuals are more likely to give deceptive, though positive, portrayals of themselves to a communication partner thought to be physically distant from themselves (Bradner & Mark, 2002), potentially by virtue of electronic communication tools enabling misrepresentation.

Other CMC message features that increase the likelihood of successful deception and reduce deception detection include tailorability, reprocessability, rehearseability, and cue multiplicity (Carlson et al., 2004). Tailorability, or the customization of messages for particular recipients, can potentially enhance persuasion and thus deception. Low levels of reprocessability, or receivers' opportunity to revisit or reanalyze messages in the future in light of subsequent events, can similarly enhance deception. Rehearseability, or opportunities to plan and edit messages in order to portray content in a very specific manner, can also contribute to successful online deception. The hyperpersonal perspective (Walther, 1996), for example, argues that many forms of CMC provide opportunities to achieve specific self-presentation that might be particularly intentional and persuasive (Walther, 2007), and which can, in turn, contribute to successful online deception.

Cue multiplicity, or the number of channels supported by a medium, is also argued to affect deception via computer-mediated communication (Carlson et al., 2004). Indeed, research shows that modality can influence believability. Audio cues appear to enhance individuals' ability to detect deceit, particularly when compared to text-based communication where deceivers were actually judged as more truthful than those being honest (Burgoon, Stoner, Bonito, & Dunbar, 2003). Accordingly, receivers trying to detect deception place greater value on media with more channels (Carlson & George, 2004).

Electronic technologies have also been widely implicated in various instances of identity deception. Online identity deception includes category deception, impersonation, and identity concealment (Donath, 1999). Category deception is the intentional misrepresentation of identifying demographics (e.g., sex, age, status), and is often used in bulletin board systems or chat rooms. Impersonation, when one person pretends to be another, can be extremely destructive in organizations. For example, an employee may impersonate a high-level executive by sending an e-mail message from the executive's e-mail address. This, in turn, may damage

the executive's reputation by spreading inaccurate information or causing unwarranted distress for receivers.

Identity concealment includes pure anonymity and pseudonymity. In a purely anonymous message, there is no link to any persona, thus few impressions can be formed about the actual sender. Anonymity implies a lack of identifiability, which could enable workers to engage in destructive activities without others knowing (Joinson, 2003). Nonetheless, purely anonymous technology use in organizational settings is rather rare. Based on an individual's e-mail address, username, a shared address book, or intranet directory, employees usually know with whom they are communicating.

Pseudonymity is communicating under a screen name (i.e., sending an e-mail to coworkers from a non-work e-mail account to mask identity) or using avatars (i.e., models, icons, or pictures) to represent one's identity. Research suggests that when using text-only online chat, those deceiving their partners experienced higher anxiety levels than those who were truthful, but using an avatar-supported chat environment reduced this anxiety (Galanxhi & Nah, 2007). Moreover, those who deceived their partners online tended to select avatars more unlike their real selves, suggesting potential benefits to masking one's true identity when being deceptive online (Galanxhi & Nah). Group Support Systems (GSS) leverage the potential openness of pseudonymity by allowing participants to partially conceal their identity in order to increase participation among group members (Postmes & Lea, 2000). Although pseudonymity can be a positive aspect of GSS by allowing group members the freedom to discuss and vote, group members can also communicate in hurtful, destructive ways, since they are not often fully identifiable.

In addition to deception, ECITs are particularly prone to increased equivocality and ambiguity that encourage multiple, often conflicting, interpretations (Daft & Lengel, 1986; Daft & Weick, 1984). Technologies both help and hinder organizational members' efforts to reduce equivocality and achieve shared understanding. In contrast to messages that intentionally and explicitly misrepresent information, equivocal messages are not false, but rather are unclear (Bavelas, Black, Chovil, & Mullett, 1990). Equivocation deviates from truthful communication in at least one of four ways: (a) the sender tries to deny ownership of the statement, (b) the message content is unclear, (c) the receiver is not addressed in the situation, or (d) the context is not directly answered by the reply (Bavelas, et al.). Technology choice and use can increase equivocality or fail to resolve it effectively. For example, when complex organizational tasks are mismatched with "lean" communication technology, underspecification (i.e., overly lean media are used to resolve complex tasks) or over-complication (i.e., overly rich media are used to resolve simple tasks) can result.

Users can also employ technologies to create ambiguity intentionally, especially when they use ambiguity to accomplish goals (Eisenberg, 1984) and encourage divergent interpretations to coexist (Eisenberg & Witten, 1987). Strategic ambiguity serves four functions: it promotes unified diversity, preserves privileged positions, provides plausible deniability, and facilitates organizational change (Eisenberg & Goodall, 2005). Although in and of themselves these functions are not inherently destructive, plausible deniability, for example, can mask responsible parties' errors and contribute to deception, which can be destructive (Deetz, 1992).

Intrusive Activities

Intrusive activities include communication events that interrupt work tasks or workers' cognitive concentration and are, consequently, burdensome or destructive. Such activities cause a temporary cessation of the current flow of work, resulting in shifting focus from primary work activities to some secondary diversion (Van den Berg, Roe, Zijlstra, & Krediet, 1996). These distractions force employees to interrupt their planned activities (Solingen, Berghout, & Latum, 1998). Up to 20% of some employees' daily effort is spent dealing with interruptions (Solingen et al.), a phenomenon that results in considerable lost productivity for organizations and lost time for workers when switching tasks (Rubinstein, Meyer, & Evans, 2001). Several types of intrusive activities are associated with electronic technologies, including increased work interruptions, multitasking, information overload, work–life imbalance, and surveillance.

Although electronic communication and information tools are indispensable in helping workers perform critical tasks, they also present a major source of work interruption. Such interruptions include personal visits, telephone calls, and e-mail (Solingen et al., 1998), which in some studies account for nearly half of employees reporting distraction from their work (Burgess, Jackson, & Edwards, 2005). Indeed, surveys show that 81% of respondents reported that their e-mail program was always open (Williams & Williams, 2006), 70% of emails are viewed within six seconds of reception—faster than three telephone rings—(Jackson, Dawson, & Wilson, 2003), and 55% of those surveyed opened emails immediately or shortly after they arrived, regardless of what they were working on (Wallis & Steptoe, 2006). The loss of productive time due to e-mail interruptions can be significant. Up to 20% of an individual employee's daily effort is spent dealing with interruptions, often spending 15 to 20 minutes per interrupt (Solingen et al., 1998), and employees can spend over a minute recovering from each e-mail interruption in their efforts to refocus on previous tasks (Jackson et al.).

Instant messaging can also be highly intrusive, and some employees perceive instant messaging as negative and encroaching on time to complete their work (Herbsleb, Atkins, Boyer, Handel, & Finholt, 2002). Although instant messaging has not yet been studied extensively as an interrupt, interruptions are more likely in a virtual space than in a face-to-face environment (Fish, Kraut, Root, & Rice, 1993). Yet, instant messaging may be perceived as less of an interruption than a richer medium because an employee may negotiate his or her availability through instant messaging tools themselves (Nardi, Whittaker, & Bradner, 2000). The potentially destructive nature of e-mail, instant messaging, and other technologically-enabled interruptions is obvious, given the substantial work demands that must be met within limited periods of time.

Another intrusive activity is "multitasking," or the performance of several tasks simultaneously, which is increasingly more common with greater use of electronic technologies (Davenport & Beck, 2002; Zhang, Goonetilleke, Plocher, & Liang, 2005). Although workers often multitask to deal with work overload, this approach to work can be highly intrusive. Multicommunication, a form of multitasking, is engaging in more than one activity at one time or treating unplanned interruptions as equally important to planned activities (e.g., Bluedorn, 2002; Bluedorn, Kaufman, & Lane, 1992). Employees frequently participate in multiple, simultaneous interactions at work (Cameron & Webster, 2005), and research suggests that multiple conversations (using instant messaging) are common and possible. These became significantly less satisfying, however, as the number of multiple conversations in which one is engaged increases (Flanagin, 2005).

Multitasking may even be a norm for communication within some organizations that value the potential efficiencies created by accomplishing more than one interaction task at once (Turner, Grube, Tinsley, Lee, & O'Pell, 2006). For example, Joe Maggio, a senior executive at Raytheon, reportedly drives while conducting simultaneous telephone meetings and sending emails at red lights. Maggio, however, describes himself as not "all there" (Jackson, 2004), a state that can have dire consequences for his organization, and even worse consequences for his (and others') health. Maggio's comment illustrates the idea that "people imagine they can multitask, but sometimes people overestimate the extent to which they can do it" (Richtel, 2003, p. 1). Certainly there is also a public safety concern related to this type of multitasking; driving while using a mobile phone can reduce both reflex time and attention to driving (Salvucci, Chavez, & Lee, 2004). In fact, talking on a cell phone while driving is illegal in many states.

Information overload is also linked to ECIT use and occurs "when the information processing demands on time to perform interactions and internal calculations exceed the supply or capacity of time available for such processing" (Schick, Gordon, & Haka, 1990, p. 206). Put simply,

information overload is receiving *too much* information. "Information technology and its use and misuse are a major reason why information overload has become a critical issue in many organizations in the 1980s and 1990s" (Eppler & Mengis, 2004, p. 331). The causes are a function of the information itself (i.e., quantity, frequency, quality); the person receiving, processing, or communicating the information; the individual, group, or organizational task that needs to be completed; the organizational structure (e.g., formal or informal work structures); and the information technology used in the organization (Eppler & Mengis).

A major cause of information overload includes new technologies such as groupware, the Internet, and intranets (Bawden, 2001). The same technologies that increase interruptions (e.g., IM, e-mail, mobile Internet devices) contribute to information overload. E-mail is particularly pernicious due to the proliferation of spam—unsolicited e-mail typically with commercial intent. Indeed, nearly 8% of emails sent worldwide are spam. In the United States, 75% of Internet users report receiving spam on a daily basis, and the estimated productivity loss associated with reviewing and deleting spam is $22 billion annually (Swartz, 2005). Moreover, even if employees avoid reading spam messages, they fill up inboxes and reduce system capacity.

Given the ubiquitous nature of ECITs in organizations, information overload will probably become more problematic with increased use. For example, over a third of an international sample of managers reported information overload on a daily basis (Farhoomand & Drury, 2002), a phenomenon that negatively affects performance as information levels increase (Eppler & Mengis, 2004). The destructive potential for information overload extends into many areas of work and can result in extended decision making time (Iselin, 1988) and reduced decision effectiveness (Ashton, 1974). Information overload negatively affects work by reducing both efficiency and productivity (Farhoomand & Drury) and is not without personal cost to employees. The increasing level of information via electronic media is often a source of stress, confusion, pressure, anxiety, and even reduced motivation, as one becomes increasingly overwhelmed (Eppler & Mengis, 2004).

Another negative effect of information overload is the encroachment on non-work life. Teleworking (or telecommuting)—working from home or outside the traditional workplace using a computer or telephone connection—connects workers to their jobs far beyond 40-hour work weeks and tips the scales of work/non-work balance away from personal lives. What is more, most employees are electronically tethered to their jobs not because of family commitments but because of employers' demands (Tremblay, Paquet, & Najem, 2006). With the increased availability of smaller mobile communication devices, these boundaries are further blurred. Indeed, 70% of mobile professionals are expected to use mobile e-mail by the end of this year (Visto, 2007), signaling further erosion of time exclusively set aside for workers' families and personal lives.

There are other negative effects associated with "taking your work home." For example, compulsive checking of e-mail and an inability to disengage from work can result from being electronically connected, which implies an expectation of availability and thus, immediate responsiveness (Mazmanian, Yates, & Orlikowski, 2006). Indeed, mobile e-mail users are expected to, and do, respond more quickly to e-mail than people who do not have access to a mobile device (Mazmanian et al.). What is more, some telecommuters display characteristics of "workaholism"—working compulsively at the expense of other pursuits (Olson & Primps, 1984).

Surveillance, or the use of technology to monitor employees, can also be seen as intrusive by employees (Allen, Coopman, Hart, & Walker, 2007). Surveillance is linked to increased stress, incidents of aggression, and destructive workplace conflicts (Liefooghe & MacKenzie-Davey, 2001). Moreover, it is widespread. In reports from a sample of organizations, 60% use software to monitor external incoming and outgoing e-mail, 27% monitor internal e-mail, and 11% use IM gateway or management software to monitor, purge, retain, and control IM risks and use (AMA/ePolicy, 2006). Although typically used as a mechanism of control and oversight, surveillance is also used for employee feedback and suggestions for improvement (Allen et al.).

Monitoring for control allows employers to gain compliance with rules and regulations (Urbaczewski & Jessup, 2002). Employees who are aware of electronic monitoring are more focused on their tasks, however they also report being less satisfied than employees unaware of electronic monitoring (Urbaczewski & Jessup). Employees view electronic monitoring systems not only as an invasion of privacy but also as unfair (Alge, 2001), and fairness plays a key role in attitude toward organizational processes (Ambrose & Alder, 2000). Even video conferencing has a surveillance connotation; some employees are reluctant to participate due to concerns about privacy invasion and the potential use of such systems for employee monitoring (Lee, Schlueter, & Girgensohn, 1997; Zweig & Webster, 2002). Overall, surveillance through electronic tools has the potential to be destructive if perceived as overly or inappropriately intrusive by employees.

Case Study Example

Saetre and Sornes' (2006) case study illustrates many aspects of the destructive communication behaviors described in this chapter and details employees' technology use at Dossier Solutions, a Norwegian high-tech company. Employees are young college graduates, largely working as computer programmers, whose first work experience is at Dossier. Employees are active users of the Internet, SMS (i.e., text) messaging, and

ICQ (i.e., chat), who are issued with high-end cell phones in order to conduct work tasks and communicate with one another.

In spite of their utility, the technologies Dossier Solutions uses are employed in a variety of destructive ways. For example, employees tend to cyberloaf by sending non-work-related SMS messages using their cell phones, as well as engage in non-work-related ICQ discussions during working hours. Each of these contributes to nonproductive technology use in the organization. In addition, the distribution of cell phones allows Dossier to keep employees constantly "on call" at all hours, thus blurring the boundary between work and time off.

Moreover, technologies are a constant source of interruption, thereby contributing to extensive and multiple intrusions into organizational activities. For example, employees are frequently interrupted by chat sessions and text messages. Saetre and Sornes (2006) recount:

The use, and abuse of, these communication technologies interrupts the workday for people who sit and program relatively complex code. When they are interrupted every 15 minutes by an incoming e-mail or SMS, it has some consequences for how effective they are ... there's an incredible amount of hours wasted on ICQ and SMS every week at Dossier. (p. 78)

To illustrate, Kristian Mjoen, one of the company's co-founders, recalls a programmer at the company who was constantly interrupted by ICQ messages, on some days as often as every 30 seconds. Not only "did these constant interruptions consume time and disrupt her work process, but they also led her machine to crash quite frequently when she was chatting on ICQ" (p. 78). E-mail was another source of frequent interruptions at Dossier:

Because everyone uses e-mail and tends to answer messages throughout the day, it ... interrupts work .... As people fail to take advantage of e-mail's asynchronicity, and continuously respond, e-mail becomes a distraction .... If you fall for the temptation of responding to all your emails as you receive them, then you are down to relatively short periods of effective work. (Saetre & Sornes, p. 79)

Kristian noted that these practices negatively affected the company's productivity. In fact, some of the tools enabled him to quantify the actual damage. The distribution of company cell phones, for example, allowed Kristian to monitor employee phone usage. Cell phone bills provided the quantifiable measures for employee time spent talking on the phone and sending SMS messages. In addition, Kristian could estimate that for each message sent, an equal number were likely returned. These measures

allowed him to calculate how much work time may have been lost during the work day.

To address these destructive activities, Kristian took several actions. For example, he implemented a new policy asking employees to close their e-mail programs for periods of the day to limit the number of interruptions. In addition, he acknowledged that the company should show a greater respect for employees' personal time off and changed the cellphone policy accordingly. In the end, his recognition of the destructive activities facilitated by ECITs enabled him to at least partially resolve them.

Preventing, Mitigating, or Resolving Destructive Organizational Technology Use

Despite their tremendous value, ECITs also have destructive potentials in organizations. They can facilitate counterproductive, nonproductive, inappropriate, deceptive and equivocal, and intrusive activities and potentially prompt or exacerbate destructive organizational outcomes. Yet, there are specific strategies that organizations can use to decrease the harmful possibilities of communication technologies.

Farhoomand and Drury (2002) propose several solutions to information overload at personal, technological, and organizational levels. Personal solutions include information filtering (i.e., selecting the appropriate information or consulting with coworkers), eliminating sources of extraneous information, delegating to subordinates, and prioritizing information and tasks. Accordingly, practical advice such as assigning oneself a "time out" from the mobile device in order to spend time with family or friends has become common (Cass, 2006).

Technological solutions involve using technology to reduce the amount of information encountered. For example, "push" technology, which works by alerting users to new and updated information based on preselected information sources (Edmunds & Morris, 2000), can reduce information overload. Another technological solution is the use of "intelligent agents," which can scan and comprehend text, and then summarize the information sent to users. Organizational solutions consist of devising new work processes and operations, consulting top management, and getting assistance from the information technology department. Employee training can significantly reduce the amount of e-mail defects, improve use of the e-mail subject line, and result in e-mail content that is clearer, more direct and to the point, and easier to read (Burgess et al., 2005).

Williams and Williams (2006) even suggest that companies require e-mail training before granting e-mail accounts and "create an 'e-charter,' a formal, companywide set of policies, rules and guidelines about

e-mail use" (p. 40). They also recommend that senders (a) indicate in messages whether action is needed or if the message is informational only; (b) eliminate distribution lists containing more than five names; and, (c) if sending short messages, write the entire message in the subject line followed by "EOM" (end of message). Another possible solution is simply *ignoring* the information contributing to overload (Farhoomand & Drury, 2002).

To reduce destructive equivocality, managers should select communication technologies based on a match between the "richness" (versus leanness) of particular communication media and the complexity of organizational tasks (Daft & Lengel, 1984, 1986). Ideally, highly complex tasks should be matched with correspondingly rich media—those with high language variety (e.g., written, graphical, and verbal expression), immediate feedback ability, multiplicity of cues (e.g., body posture, facial expression), and capability for tailoring messages to personal circumstances.

Another approach to more constructive organizing around ECITs is developing technology-specific policies that can decrease several variants of destructive communication (Martin, 1999). Policies such as an e-charter, Internet Acceptable Use Policy, and other formal guidelines can reduce destructive electronic communication practices by specifying acceptable behavior, unacceptable behavior, and appropriate technology use. Additional remedies to reduce inappropriate technology include adjusting ongoing formal and informal socialization, coaching to improve communication skills, and crafting new employee orientation to explicitly address normative and acceptable communication behavior (O'Sullivan & Flanagin, 2003).

Training can reduce some of the destructive outcomes from technology use and has the potential to do so in a number of areas. First, training increases the workforce's awareness of appropriate communication technology use and associated organizational policies. Second, training briefs employees about the possible outcomes of technology use—both positive and negative. Third, education informs employees about their options regarding technology use in order to adhere to policy. Fourth, training enhances knowledge about resources to address or mitigate problems when they arise (e.g., counseling to help achieve work–life balance, technical solutions for decreasing spam emails). Finally, particularly for newer employees, group training and education enhance organizational socialization efforts, which can improve individuals' satisfaction within organizations, contributions to them, and commitment to the organization and its members (Jablin, 2001). Technologies themselves can even be used to advantage in this regard (Flanagin & Waldeck, 2004).

Creating a culture that allows for open communication is also important for ameliorating the destructive potential for communication

technology abuses. Allowing for frank and open discussion of work–life balance issues, feelings of information overload, and other relevant issues can decrease negative possibilities. Overall, organizations can encourage a culture in which people are able to acknowledge, recognize, and address destructive technology use practices, ideally before they contribute to personal or professional problems.

Conclusion

Although the benefits of contemporary technologies in organizations are considerable, there also exist substantial destructive outcomes, which have received significantly less attention. In this chapter we have identified five types of destructive organizational activities—counterproductive activities, nonproductive activities, inappropriate activities, deceptive and equivocal activities, and intrusive activities—potentially connected to the use of communication technologies. We have elaborated on these in order to understand their causes, correlates, and prevalence. In addition, we have suggested ways for improving organizational technology use, thereby limiting their destructive potential.

As ECITs permeate ever greater proportions and aspects of our personal and professional lives, understanding the negative outcomes of these tools is increasingly important. Several groups of people are implicated in this endeavor, including researchers, managers, workers, and technology designers. The best solutions will almost certainly result from all of these groups working collectively to identify problems stemming from, and potentially even resolved by, the use of technologies.

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