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THE IMPACT OF OFFICE AUTOMATION ON THE SECRETARIAL AND CLERICAL OFFICE WORKER

Eric Levy

I. Introduction

If technology is ever to deliver...this "people component" of High Technology must be managed more effectively...It is now abundantly clear that it is people who make technology and it is people who make technology work.

Thomas McDonald, May, 1985

Before the 1970s computers were mainly used to automate large repetitive and routine tasks normally done by clerical workers. The mainframe was the standard vehicle by which electronic data processing (DP) departments developed, but only a few companies could justify its purchase. One problem with computer automation in the early years was bottlenecks in the DP departments. For example, one software program may have been needed to help produce data for all the reports. If there was a problem with the software, this created a shutdown of the whole DP department. The office still was heavily dependent on human power to feed information to the computer and then to retrieve and transfer information elsewhere. Computerization, at least in this early era, made few great strides.

Technological innovations in microelectronics in the 1970s led to size and cost reductions among computer equipment. This allowed for various new applications to office functions. Offices began to use word processors, optical character readers, dictation equipment and electronic typewriters. These new devices in turn helped increase the productivity of secretaries, typists and other clerical workers who were not previously affected by the mainframes.

Today in the 1980s it is the personal computer that is finding its niche in the office. Yet, in most of the current literature on computers and office automation, there is very little attention given to the difficulties that office workers encounter with these technologies every work day. Surely computers have certain benefits for a corporation, but how do they impact the worker?

What I intend to accomplish over these next few pages is to take a close look at office
automation and its effects on the office worker. My discussion will include an investigation of some structural constraints of office automation as well as an examination into the ergonomic and psychological implications of these new office technologies.

II. The Effects of New Technologies

A. The Office

Why automate the office? Some observers contend that the typical office today is undercapitalized. For example, the average office worker in the U.S. is provided with only $2,000 worth of equipment, while an industrial worker may be supported by 15 or 20 times this amount. Also, office workers have generally not kept pace with factory workers with respect to productivity growth. Between 1969 and 1979, for example, the productivity of industrial workers increased by 80% while office worker productivity rose by a meager 4% (Rada, 1980, p. 31). Another observer found that office salaries account for 50% of all business costs today (Leontief and Duchin, 1984, p. 5.7). With these figures in mind, it becomes apparent why there is such a need for new office technologies and productivity increases.

It is expected that office automation will have an impact upon all of the major information activities: the creation, processing, storage, and transmission of information. These activities currently employ a very large number of people. The U.S. Department of Commerce estimates that about half of the labor force in the United States is employed in information related activities (Werneke, 1983, p. 28). In the information sector a distinction should be made, however, between those who create and analyze—the managers and professionals—and those who simply manipulate data—the clerks and secretaries.

In this paper I will focus only on the secretarial and clerical occupations. These two occupations (both part of the information sector's less skilled half) appear to be the ones most affected by new office technologies.

B. Major Problems Clerks and Secretaries Face

The clerk's job has been under siege ever since the inception of office automation in the 1950's....

Doswell, 1983, p. 259

The secretarial role is the one which, after the clerical job, is next most popular on the automation "hit list."

Doswell, 1983, p. 261

1. Background

Before proceeding further, it might be helpful to discuss the experience with computer-caused displacement of labor in the past. In the early 1960s there was considerable fear that widespread unemployment would result from the computerization of many clerical functions. This fear was so great, in fact, that it prompted the formation of a presidential commission to study the possible effects of computers on employment. The conclusion reached by this group was that it is the general level of demand for goods and services which is by far the most important factor in determining how many persons become unemployed, how long they remain unemployed, and how difficult it is for new entrants to the labor market to find jobs. According to the commission, the truth is that "technology eliminates jobs, not work" (Mangum and Bowen, 1966, p. 10). This is, in fact, exactly what has happened in the U.S. economy over the last 15 years. As the demand for goods and services has risen, new jobs have been created, and more jobs have been created than have been lost.

On the other hand, to simply point to history and explain that the same adjustments will occur in the economy today is too complacent an attitude. This is due to the fact that there are at least two conditions concerning the impact of technology on employment today that are different than in the past. First, computer technologies are currently used by more companies than in the 1960s and 1970s. It is no longer the era of the mainframe, when only large companies could afford to automate. To-
day's inexpensive microcomputer and word processing technologies are within reach of even the smallest firms. This means that many more clerks and secretaries who were previously immune to the potential labor displacement effects of office automation will no longer be so. The new technologies have even automated bookkeeping and inventory functions (Leontief and Duchin, 1984, p. 5.44).

The second difference concerning the potential impact of technology on employment has to do with the state of the present-day economy. The United States no longer has the full employment economy today that it had in the 1960s to absorb the workers displaced by automation. Furthermore, if aggregate demand remains low, the number of new jobs that would otherwise be created when certain sectors of the economy are computerized will be correspondingly lower (Werneke, 1983, p. 20).

Since conditions today are different from the 1960s, history may be of little help in determining the magnitude of the possible labor displacement today. It is necessary, therefore, to examine more recent information on these labor displacement issues.

2. Labor Displacement Today: Word Processing

A technology widely used by secretaries and clerks currently is word processing, which has been shown to be a substantial time saver for offices. For example, the Logica consulting firm found that word processors typically produced increases in the volume of words typed on the order of 100% (Rada, 1980, p. 32). Leontief and Duchin found that one firm using word processing reduced the time required to prepare a report by 20%, a productivity gain which also reduced their labor requirements by 20% as well (Leontief and Duchin, 1984, p. 5.29).

Permanent labor displacement is not always the end result of the introduction of word processing into the office, however. For example, one researcher found that the labor displacement caused by word processing equipment is usually only temporary. Furthermore, word processing sometimes results in so much time saved that secretaries are now free to perform other tasks that could not be done before. (Leontief and Duchin, 1984, p. 5.29). Yet another researcher found that even with the increased use of word processors, secretaries are still one of the fastest growing occupational groups in the United States. It may be that secretaries are often seen as executive status symbols, and executives are simply unwilling to do without them (Werneke, 1983, p. 51).

The general consensus among the experts seems to be that word processing brings with it the potential for job displacement of clerks and secretaries. However, many experts claim further that word processing (and other office technologies as well) will only slow the growth of these occupations, not actually reduce the number of workers.

3. Enhancement or “Deskilling” of Jobs?

Aside from the issue of labor displacement, there are other effects which automation can have on clerical and secretarial occupations. There is currently a difference of opinion among most researchers regarding the impact of automation on the “quality of work” performed by workers. One group seems to feel that automation enhances these jobs by relieving the worker of the drudgery and boredom of routine or repetitive tasks. The other group contends that automation degrades jobs and “deskills” them. There is some evidence to support the claims of both sides. For instance, after Citibank introduced minicomputers, several enhanced “clerk” positions were created. One such clerk remarked that her duties before automation were limited to only a small portion of the process of security transfers. After automation, however, she became involved with more aspects of security transfers (Business Week, Aug. 3, 1981, p. 63). Also some secretaries agree that word processing makes typing so much faster that they now have time to do research and write reports. In fact, Bullen and Bennett found that advanced technology can have a “leveling effect” on secretaries and their superiors and break down traditional barriers. Secretaries can work on “non-clerical” projects when provided with ap-
appropriate tools to facilitate their work (Bullen and Bennett, 1983, p. 1). In other words, automation has freed secretaries to do work that is more meaningful than the usual repetitive, clerical tasks.

On the other hand, there are those who see automation of the office as having adverse effects on job content and job skill, even widening the gap between clerical/secretarial workers and managerial/professional workers. A contemporary example of this is the typical word processing pools that are becoming commonplace in corporations all over America. Clerks and secretaries who may previously have had jobs with several functions are in effect relegated to jobs in the word processing pool that are as boring and repetitive as data entry jobs. A. B. Chems shed some light on this issue in his research on trends in banking, insurance and government: “Many have introduced the computer; [but] most have used it in such a way as to fragment jobs and reduce the employee's autonomy....Word processing departments have centralized and devalued the secretary.” As Chems claims further, “I cannot report any instance of the computer being deliberately used to upgrade clerical jobs” (Chems, 1980, p. 710).

4. Computer Monitoring of Workers

Another troublesome aspect of office automation from the secretarial/clerical perspective is that the new technologies have resulted in closer monitoring of work by supervisors. In some cases jobs must now be done according to standard procedures and within certain time periods. There is also less discretion on the part of the worker. In addition, closer monitoring has caused increased work loads for workers due to the reduction in slack time. Michael W. Miller, a reporter for the Wall Street Journal, found that typists in word processing pools often must generate reports that show how many pages they produce in a day and even how many keystrokes they produce in a minute. Supervisors can then scan these reports and tell how each worker is doing (Miller, 1985, p. 1). As one office worker articulated her frustrations and fears, “I used to love my work, but now I come in with a defeatist attitude. The computer has made everything impersonal....And the tube (VDU) is gonna tally what you've worked every minute. I like to feel that I have a chance but with the tubes you do not have a chance” (Zuboff, 1981, p. 23). Craig Brod, author of the book Technostress, cautions against this cold computer monitoring, “Unwittingly, we are adopting as our own the computer's standards. We have come to expect from people the perfection, accuracy and speed to which computers have made us accustomed....As we grow more and more impatient with human imperfection and variation, we move further and further away from the very essence of our humanity” (Oleatt, 1984, p. 9).

III. Physical Effects On The Worker

You can reap the rewards of PC use for only so long before you begin to notice the physical side effects. And it's not the machine that's coming down with the symptoms, it's you. That peculiar pain between your shoulder blades won't go away and stars are dancing before your eyes long after you've unglued yourself from your monitor. Add to this mortification of the flesh, a paper-cluttered work space, a desktop that's too high for typing, a neighbor who's too noisy, and a printer that won't stop clattering and the picture is grim indeed.

Jennifer de Jong, 1985, p. 161

A. Ergonomics

As computers become increasingly prevalent in the office environment, management must look beyond the hardware and software tools and focus on human factors. Human factors engineering, or “ergonomics,” is designed to fit the office to the person, rather than the person to the office. What sets ergonomics apart from other computer related issues, such as labor displacement or “deskilling,” is that it is based strictly on the body and its interaction with the hardware. For example, to remedy the situation described in the quote above, an ergonomist would outfit the unfortunate PC user with an adjustable-height padded chair to ease the back pain, reduced room lighting to eliminate some of the glare on the monitor's screen, and a lower desktop so that
typing is easier on the wrists. These are all improvements that would make a PC user feel more comfortable.

From an economic standpoint, ergonomics makes sense. An employee who is more comfortable may be more motivated and thus better able to do the job. A worker may also be more energetic and attentive, since there are fewer distractions. Increased comfort could even result in lower turnover in the office, which in turn could mean lower training and hiring costs (Henriques and LeGates, 1984, p. 65). In fact, a prominent computer magazine recently stated that operator comfort in the office work area tops the list of factors directly affecting productivity and efficiency (Data Management, February 1985, p. 12).

The following sections deal with some critical problem areas in the office for which ergonomics can offer solutions.

1. Posture When Seated

The major symptom here is back trouble. What is needed to ease the pain is a seating device which is adjustable not only in height, but also in degree of back support. The goal is to create a chair so that the sitting worker can assume a slightly stooped posture, which seems to be the least energy consuming position (Doswell, 1983, p. 156).

2. Screens

Visual Display Terminals (VDTs), the television-like devices used to communicate with computers, are becoming rather common in today’s office. These devices are also called Visual Display Units (VDUs) or Cathode Ray Tubes (CRTs). As these terminals have become widespread, questions have arisen concerning their safety. VDTs emit low levels of radiation, and some groups have expressed fear of possible health consequences, especially in the case of pregnant women. As an illustration of the reasons for such concern, between May 1979 and May 1980 there were seven deformed babies (out of a total of 14 pregnancies) born to women who worked on VDTs in the Toronto Star’s classified ads section. However, the Health Advocacy Unit concluded that the Toronto Star deformities were not caused by radiation emissions from VDTs (CBEMA, 1983).

In fact, while there have been other reports of clusters of adverse pregnancies among VDT users, the consensus among the experts so far is that VDTs pose no danger. As the U.S. National Institute for Occupational Safety and Health reported in 1981:

Radiation levels [from VDTs] are far below current standards and in most cases were not detectable....The visual display terminal does not present a radiation hazard to employees working at or near a terminal....Routine surveys of video display terminals are not warranted. (IBM, 1984, p. 15)

According to the Canadian Department of National Health and Welfare in 1983, “There is no reason for any person, male or female, young or old, pregnant or not, to be concerned about radiological health effects from VDTs” (IBM, 1984, p. 16).

3. Eyes

Eye problems are a major worry for long term users of VDTs, but the evidence so far does not reveal that VDT usage can cause visual impairment. Periodic eye exams, purchase of glasses and frequent breaks taken away from the terminals may be the solution (Doswell, 1983, p. 158). The Computer and Business Equipment Manufacturers Association (CBEMA) encourages those with tired eyes to look away from their work periodically, alternate computer work with other outside tasks, and to remember to blink when viewing the terminal, since people concentrating on close work tend to blink less frequently (Computer and Business Equipment Manufacturers Association, 1983, p. 3).

4. Lighting

It is generally concluded that intense general lighting can cause severe eye strain due to glare reflecting from the terminal’s glass surface. What offices need, therefore, is not general lighting, but low-level, low-angle background lighting which is aided by small task lighting (such as desk lamps). When working on the VDT, workers can turn off the task
lighting and adjust the screen to reduce glare problems.

5. Noise

As impact printers become more widespread, the problem of noise becomes increasingly important. Office sound levels are unlikely to reach danger levels such that permanent hearing damage can occur (85-90 decibels); however, precautions should be taken to insure that noise is not an impediment to workers, especially to those who frequently converse on the telephone. Printers should be placed at a sufficient distance from workers so as to minimize this noise problem (Doswell, 1983, p. 159).

6. Furniture

In the automated office, it is important that most furniture either be adjustable or detachable. This will give the office worker flexibility as well as added comfort and convenience. VDTs should have adjustable screens. Arms on chairs should be detachable in case a particular worker feels cramped by the chair. Keyboards should also be removable so that workers can rest them anywhere on the desk or even in their laps.

B. Management and Ergonomics

In a recent survey in the Comp-U-Fax Computer Trend Newsletter, 91% of those managers surveyed said that ergonomic considerations are important and deserve more corporate recognition. Unfortunately for the worker, 84% of those same managers admitted ergonomic guidelines are not part of the corporate policy in their organizations today (Ashmore, 1985, p. 78).

One of the reasons for the lack of action by management may be the absence of persuasive research indicating that ergonomics is really cost-justified. Common sense says that greater worker comfort certainly can't hurt productivity; however, there has been very little research undertaken on the question. Management lethargy in this area may also be due to the lack of pressure from unions, since there are very few unions in the information sector. Also, the specially designed furniture and other assorted accessories are expensive. This is especially troublesome to small businesses that cannot take advantage of economies of scale that larger companies enjoy when purchasing this equipment. Interior designer Bruce Burbick currently markets executive workstations that cost $4,000 apiece. His contention is that when one pays an executive $60,000 a year to work at the desk for 1,500 hours, the $4,000 workstation is an investment in the company's most valuable resource, the minds of its best people (de Jong, 1985, p. 163). Burbick may be right, but what about the case of secretaries being paid $21,000 per year? Are they to receive cheaper equipment? How much cheaper? Where does one draw the line?

A further problem concerns the implementation of ergonomic solutions. What sometimes transpires is that expensive furniture is bought but simply not utilized to its full advantage. For example, a Canadian utility company recently asked its employees if they actually adjust their adjustable chairs. Incredibly, only 5% said that they did. This company had made what it had thought would be a worthwhile investment, but the employees' use of the furniture made it turn out otherwise (Henriques, 1985, p. 63).

IV. Psychological Effects of Office Technologies on the Worker

Office technology is less a technical innovation than a social one. The risks involved are not technical but social. The stakes in the game are people.

Peter Keen, 1982, p. 4

The overall purpose of office automation is to create more productive information systems. High productivity can only be achieved by making the most efficient use of resources. It would be foolish to improve one resource at the expense of another. Thus, no matter what computer system is chosen and no matter how great the increase in efficiency and productivity, the overall system will only be as productive as the people using it. People are very often the ignored resource in a firm's struggle for productivity gains. Keen cautions about this problem, but from a slightly different perspective. He fears that companies today may relive the
mistakes of the data processing/mainframe era all over again with today's more advanced technologies. He notes, "It took the data processing field almost thirty years to discover elementary facts about the nature of change and to recognize that technology is not an independent, neutral artifact that can be casually dropped into an organization by outsiders" (Keen, 1982, p. 3).

A. The "TechnoAcceptance Cycle"

Thomas McDonald of Transition Associates, a California based management consulting firm which specializes in linking people and technology, offers some interesting insights on the modern day office employee's psychological interaction with technology. He calls it the "TechnoAcceptance Cycle," and says that it is predicated on a series of fairly stable emotional and psychological responses to automation. In the past it was naively believed that automation was simply limited to acquiring powerful computer systems with software and putting them to work as quickly as possible. Now today some are beginning to realize that the worker's reaction is important as well.

McDonald states that when automation first appears, it presents a formidable assault on the people and the organizations involved. Phase I of the TechnoAcceptance Cycle, the "feeling phase," is characterized by a mode of behavior which is predominantly emotional and marked by considerable employee apprehension. This apprehension can arise from the fear of job loss unless the employee in question can adapt well enough to the automated environment. Very often it is the case that automation has been forced on the employee, and consequently there is a sense of not being in control of one's own fate. This lack of control can cause considerable dissatisfaction. Those who are less confident of their abilities may even be overwhelmed and angered by the whole process.

In phase II, the "thinking phase," the atmosphere is less emotionally charged. In this phase workers usually begin to show interest in learning. This interest may arise because employees see professional advantages to learning about automation systems, or perhaps because they fear losing their jobs. Even though the motivational reasons underlying the interest may be different, this phase is still the most productive training period of the cycle. However, frustration may also develop in this phase as workers encounter problems in the process of hands-on training. Also, the unrealistic expectations sometimes put forth by vendors in their marketing "hype" very often cannot be achieved.

Phase III, the "behavior phase" of McDonald's cycle, has three possible paths that can be taken. One path is that taken by those office employees who have achieved success with their computers. These people become excited and enthusiastic, and ultimately accept the computers as tools for their work. A second path is that followed by those who achieve only mild success with their computers. This is because of poor training, little motivation, or a combination of both. The third path is followed by that group which has no success, and this in turn can lead to disappointment, anger, and hostility. This group has rejected their computers, and it is a decision which very often may cost them their jobs.

According to McDonald, one way to achieve greater success with office automation and to increase the number of people following the first path is to put less emphasis on "getting office automation in and up [and] working fast" and to put more emphasis on training (McDonald, 1985, p. 29). This is especially important in the interest period which takes place early in the thinking phase. Questions such as, "What does automation mean to me?" and "How will computers change my job?" have to be dealt with and answered before any learning or training can begin (McDonald, 1985, pp. 26-29).

The "TechnoAcceptance Cycle" presents a broad view of some of the psychological aspects of office automation's effect on office employees. There are still other more specific topics that deserve attention. These include stress, alienation, and communication.

B. Stress

Although today's society is filled with stress from many sources—jobs, the environment,
schoolwork, expectations, etc.—automation has brought with it yet a new source of stress, dubbed “technostress.” It is an affliction that originates from the way in which people react to computer technology. Social psychologist Shoshana Zuboff of the Harvard Business School has found that many new office jobs are increasingly characterized by abstraction. The center of gravity has shifted from one of physical involvement (e.g., a bill collector manually keeping track of accounts or a linotype operator manually adjusting cold-type) to one of cerebral involvement, coupled with intense work on VDTs. Yet, there has not been a corresponding increase in the degree to which these jobs are interesting or challenging. According to Zuboff, “We are accustomed to thinking of brain jobs as challenging and rewarding. What will be the effect if a vast range of [these] jobs are characterized by abstraction, focused attention, and routinization?” (Zuboff, 1981, p. 13). She notes also that evidence is beginning to emerge which suggests that stress is “built-in” to some routine computer related jobs. Swedish researchers are finding that office workers who spend most of their day at VDTs show significantly more physiological symptoms of stress, including high blood pressure and high stress hormone levels, than employees who do not interact continuously with computer systems (Zuboff, 1981, p. 13). Studies in the United States have shown that workers in clerical occupations experience higher rates of stress on the job than workers in most other occupations. In fact, according to one recent study, secretaries had the second highest incidence of stress related diseases among all workers studied (Werneke, 1983, pp. 67-68). Psychologist Craig Brod discusses computer-induced stress in his book, Technostress. Brod states that “technostress” becomes apparent in two rather extreme ways. First, there are those who, in their concentrated attempt to accept computer technology, overidentify with the technology. The primary symptom of this group is the loss of capacity to relate to others. A second group develops anxiety with the technology because of ambivalence, reluctance, or fear of computers. It is crucial to note here that what is needed is a healthy balance between these two extremes. As Brod states further:

We must transfer from machine-centered objectives to person-centered objectives, which support the development of emotional life, the expansion of meaningful knowledge, and the building of creative work. The computer is one part of this process, not the totality of it. A humanistic approach is the key to positive growth, and all growth—personal, corporate, or national—depends on achieving goals through a balanced relationship with technology. (Oleatt, 1984, p. 9)

C. Alienation

There are two views regarding the role of jobs and work in the information sector. One view sees work only as a means to obtain money to live. “Living,” according to this view, is concerned with family activities and other creative projects. The other view sees work as a valuable means through which a person can realize his potential and express himself. If an employee is forced to view himself only as a machine selling his labor (as may be the case with jobs in data-entry or word processing pools), then he can quickly become alienated from one’s work (Doswell, 1983, p. 152). Researchers have identified job alienation as a major consequence of VDT use in clerical work and have found alienation to be strongly associated with fatigue, monotony, stress, and job insecurity (Werneke, 1983, p. 68). Zuboff found significant evidence that workers felt their jobs were losing meaning in her study of airline pilots, bill collectors, and data analysts (Zuboff, 1981, p. 12).

Doswell urges employers to be more attentive to this problem of alienation; for if alienation exists, then some workers are probably not performing their work as well as possible. Zuboff warns further that workers who are unable to express their grievances concerning computer monitoring (a cause of stress as well as a cause of alienation) may even seek covert ways to sabotage work activities.

D. Communication

Communicating through the computer is another office technology that is becoming
more popular of late. Both local area networks and larger long distance networks are currently proliferating at an unprecedented rate. In addition to such long distance networks as the Department of Defense's ARPANET and GTE's TELENET, there are many other new systems: IBM's PC Network, ATT's StarLan, Apple's Appletalk, 3Com's EtherSeries local area network, and Corvus's Omninet to name just a few (Rubin, 1985, p. 70–75). Networks may alter communication to some degree but there may be problems. Speaking with colleagues somewhere across the room through a computer terminal is much different in a social and psychological sense than speaking in person. For example, since persons communicating through a computer link-up cannot see one another, there is a tendency for the messages to be stronger and more expressive. Kiesler found that in university and business networks alike there is a tendency to use language appropriate for boardrooms and ballfields interchangeably. Messages become depersonalized, inviting stronger and more uninhibited text (Kiesler et al., 1984, p. 1125–1126). There also occurs the phenomenon known as "flaming," which is "computerese" for an unseemly outburst. These outbursts are messages which someone would not normally convey in person. An oft-cited example of "flaming" and its detrimental effects occurred at IBM. When the company set up its own network, it became a "gripenet" through which employees complained about the company. This, in turn, eventually led IBM to close it down (Goleman, 1983, p. 42).

However, network communication also has its positive effects as well. Kiesler found in experiments at Carnegie-Mellon University that individuals solving problems via a network communication system often fared better in finding solutions than people who stood face to face. The explanation offered by Kiesler was that those in the network communication groups were able to have an equal voice in problem-solving attempts. Oftentimes in a face-to-face situation some persons tend to dominate the group, while others with very good ideas simply stay quiet. Although the language is often fierce and uninhibited in network communication groups, there tend to be higher levels of communication efficiency, participation, interpersonal behavior and decision making (Kiesler et al., 1984, p. 1128).

Still, networks are not a panacea for corporations seeking to link up for conferences and thereby save on time and travel fares. Writes Nicholas Negroponte, "While information exchange, narrowly conceived, may still occur, communicative nuances are lost...It is surely the case that any system will not be used for meetings by serious high-level people unless that system conveys presence, and conveys it well." Valerie Geller, a social psychologist at Bell Labs, states, "They'll use it [the network] for minor or routine information, but they just don't trust it for important information" (Goleman, 1983, p. 42).

V. Conclusions

Certainly no one can deny the heights of efficiency, speed, capacity and ease which the computer has brought to the business person and to the common man alike. However, the problems that computers bring to the office worker's environment cannot be ignored. At the very least office automation threatens to drastically reduce the rate of job growth in the information sector—a sector which currently employs half of the labor force in the United States (Werneke, 1983, p. 28). The introduction of word processing pools at major corporations has brought with it charges of degradation and "deskilling" as many secretaries and clerks are being relegated to repetitious and tedious work on VDTs. Employees in offices have expressed concern about the new forms of computer monitoring of worker output and the subsequent pressures and stresses that accompany this new technology.

A bright spot for office workers has emerged in the area of ergonomics, however. Ergonomics provides office workers with a chance to eliminate the physical discomfort which often accompanies work with computers. The increasing attention paid to ergonomics is a promising sign. Most important, however, may be the psychological implications of these
new office technologies. Stress, alienation, and problems with computer communication are all symptoms not to be taken lightly.

Considered together, all these problems emphatically indicate that management cannot lose sight of its most important resource, its employees. Their views and needs are critically important in today’s new high technology office.

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