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Computers in Social Work and Social Welfare Issues and Perspective

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Abstract

This paper provides a general overview of the areas in which technology has had significant impact. These are specifically important for social workers, since technology poses many challenges for both society and the social work profession. Most important about modern technology is that it can either improve the human condition or destroy society. With this in mind, social workers must learn about technology, so that its benefits are understood and problems avoided. This will not occur, however, if technology is ignored or treated as something which is inherently bad because it disrupts the status quo.

Introduction

Picture an Indian pueblo on the slopes of a northern New Mexico mountain, the home of the Tiwa Indians. Taos Pueblo is a community committed to tradition: It has no running water, no electrical lighting, no central heating, and no plumbing (Anderson, 1985). Imagine another scene, a class of Soviet students hard at work studying science. It is difficult to imagine two societies with greater cultural and value differences. Yet they have something in common. Both are teaching their children how to use computers. Whether the Tiwa Indians and the Russians are caught up in a revolution in technology that will rank with the "revolutions initiated by Copernicus, Freud, and Darwin", (Greist, 1984), or whether the current worldwide enthusiasm for microcomputers is the product of massive media hype, (Zigli, 1985), it is clear that the widespread adoption of computers is sparking a great deal of controversy.

Nonetheless, an inevitable consequence of change is debate. The widespread adoption of computer technology has resulted in a flood of articles and books extolling the benefits of the computer or decrying the computer's undesirable consequences. In the following sections some of

the issues and concerns being raised about the computer revolution will be highlighted. The purpose is to acquaint the reader with some of the major issues that have relevance for both social work and social welfare.

The Impact of Computers on Employment

The impact of microcomputers and automation on employment patterns has received a great deal of attention in the press. Those who are concerned about the negative impact of computers on employment have a long list of concerns. Most important, as stated by Reed (1985), "We are witnessing a second industrial revolution, the automation of our factories...Researchers at the Robotics Institute of Carnegie-Mellon University in Pittsburgh reckon that 70 to 90 percent of America's 19 million industrial workers could eventually be displaced [by robots]," (Reed, 1985). However, Calhoun (1981) points out that while we tend to think of automation in terms of eliminating jobs, automation is also used in many non-job-related functions, such as controlling the modern automobile, which do not eliminate jobs but, by increasing the demand for electronics, may increase jobs.

A closely related issue is the type of jobs that will be available. Drs. Henry Levine and Russell Rumberger (1985) of Stanford University's Institute for Research on Educational Finance and Government have written "the proliferation of high technology industries is far more likely to reduce the skill requirements for jobs in the US economy than to upgrade them."

Microcomputers are also making employment available to groups that have found traditional employment difficult. Telecommuting, doing one's work at home and communicating with the employer via microcomputer, has opened up job opportunities for many people. Examples are the severely handicapped, single parents who have young children, and professionals who work at great distances from their employer's place of business (Roberts, 1984). There are many examples, cited in the professional computer journals, of programmers living in idyllic locations, such as the mountains of Colorado, while working for companies in California, Texas, or New York.

Although telecommuting is seen by some as a way to free workers from the tedium and rigidity of the workplace, it is not without its detractors. "The AFL-CIO, for instance, wants this kind of computerized

homework to be declared illegal on the grounds that the minimum wage, overtime, and child labor regulations cannot be enforced on dispersed, private worksites" (Porter, 1985). Another concern with the "so-called electronic cottage is that it would operate well without the human interaction that characterizes office work. These developments pare away the face-to-face contact that once provided buffers between individuals and organized power" (Winner, 1985). In this sense, collective action to redress grievances becomes obsolete, thus making the misuse of corporate power more likely.

Several other opinions have been expressed about the impact of the computer on the workers. Some have predicted optimistically that the computer will alleviate many of the social problems related to the work place, but others have just as strongly pointed out that the computer has a great potential for harm as well. Schoech (1982), for example, has shown that, "the increased ability to control and monitor subordinates can dramatically change how people perform their work. The behavioral and moral problems sometimes associated with this capacity, however, can result in worse rather than better performance by subordinates." Others have expressed similar concerns. "We are seeing the emergence of electronic sweatshops, where people are measured very rigidly on their correct keystrokes per hour and things like that" (Dunteman, 1985). Thus the emotional side of work is subordinated to objective measurements, which may be extremely dehumanizing. For many writers contend that computers, for example, cannot adequately assess the work performance of human beings.

Impact of Computers on Education

Another area where writers are expressing a great deal of concern and optimism about the impact of computers is education. The concerns in this area differ little from the issues that have been raised about previous educational innovations. They include:

1. The use of computers in education distorts the types of learning that are available to students.

The controversy over the use of computers in education does not pertain to whether they can teach, but rather what they teach and how they transform the social relations in the classroom. Students learning on computers, which by design operate on the basis of quantifiable,

rational processes, will learn this model of problem solving to the exclusion of others. As Mander (1985) writes, information "is increasingly defined in terms of what can be collected and processed through machines. That computers are opaque to many kinds of information -- sensory information, moods, feelings, meaning, context, among many others -- is given little note or importance...That we don't take such consequences seriously means we accept an information hierarchy with objective data at the top and subjective data at the bottom." (Mander, 1985). He is also concerned that the certainty of computer programs will replace the subtlety of human student-teacher interactions. And "that as computer programs replace teachers, a great degree of uniformity will likely emerge." (Mander, 1985). Calhoun (1981), on the other hand, claims that computers do not necessarily have to be depersonalizing, since they can free teachers from routine tasks, so that more time can be devoted to students.

2. Social equity will be harmed by the use of computers in education.

Some authors are less concerned about what computers teach and more concerned with its impact on certain segments of society. The first issue these authors highlight is who will have access to computers. They ask, will all social levels of society have equal access to computers and to teachers who know how to use them? Will the children of the poor have the skills and the parental support necessary to maximize their utilization of the computer? (Lepper, 1985). For example, the 12,000 most affluent schools are four times more likely to have personal computers than the 12,000 poorest ones (Quality Education Data report, 1983).

A second issue is the gender issue. "There is growing evidence of a significant gender gap in the ranks of computer users - males far outnumbering females. A *USA Today* poll of 1,242 people found that men are almost three times more likely than women to be the major user of a computer in the home. The same ratio holds true among boys and girls." (Manning, 1984).

A third set of issues involves what might be called the social-developmental effects of computer technology. Marian Kester, writing in the Toronto Globe and Mail, recently asked "If children are separated from their parents by hours of TV, from their playmates by video games, and from their teachers by teaching machines, where are

they supposed to learn to be human?" (Mander, 1985). In this sense, computerized learning may stifle a child's social growth.

Impact of Computers on Health and Health Care Delivery

Most important seems to be the effects of the radio frequency radiation that emanates from the screen of the video monitors that are used by the majority of computers. Some studies have shown that after prolonged exposure there is an increased probability of computer users developing cataracts. (Mander, 1985). High rates of miscarriages and other reproductive problems, loss of hair, asthma and disorders related to the handling of toxic chemicals and gases by the workers that manufacture computers have also been reported. (Mander, 1985).

On the positive side, medicine is making extensive use of computers in treatment. Such devices as the Computer Assisted Tomography (CAT) scanner and the Nuclear Magnetic Resonance (NMR) scanner would not be possible without the computer. Computers are being used to help people walk, to help them talk and write, and in literally thousands of diagnostic devices. The availability of computers may also revolutionize medical record keeping. Blue Cross and Blue Shield of Maryland announced recently that it would give its subscribers membership cards that could store up to 800 pages of benefit and medical data on each subscriber. There is every reason to anticipate that the use of this type of card, sometimes known as the "smart card", will increase rapidly outside of medicine, so that up-to-date information can be obtained on welfare clients, for example.

Impact of Computers on Sensory and Perceptual Processes

Several authors have expressed concerns about how computers alter the way in which information is transmitted and perceived. Kleiner has written "computers encourage impatience because they work at a different pace than I do...As I bounce between pausing and rushing, my sense of time changes. My mind wants to be stimulated or to be numb. I can think with deliberation, but when I've been computing steadily, I don't feel any reason to." (Kleiner, 1985). Another concern is that "the computer has sped up the information cycle for institutional activity....I suspect we may be producing a generation of people too sped-up to attune themselves to the slower natural rhythms." (Mander, 1985). Still another concern is that computers shield people from directly viewing

and experiencing the consequences of their acts. For example, Mander points out that modern, computerized warfare can be carried on without direct visual contact between opposing forces.

Impact of Computers on Service Delivery

Human service professionals work at many different levels. On the one hand are the practitioners who have direct contact with the individual or who work with communities to develop service systems. On the other are the practitioners who administer agencies and who are responsible for planning, for the allocation of resources, and for accounting for the use of those resources. The impact of computers on service delivery at these various levels has clearly not been equal.

a. Administrative Impact

As Schoech has pointed out, the infusion of computer technology into an organization tends to follow a fairly set pattern. The first uses are "single unrelated applications...and [involve] the automation of routine repetitive clerical tasks. Later the development of separate data bases and programs to monitor and control many organizational functions [become common]....[Still later] the necessity for integrating these diverse data bases into an organizational data base [becomes] evident." Finally "organizations move into what has been called an information environment, where information management is the central function tying the organization together." (Schoech, 1982). The development of computer systems in social service agencies is following a similar course. Most social agencies have payroll and accounting functions computerized, while many have begun to use work processing equipment. Furthermore, separate data bases have been developed for specific departments, in addition to integrated systems for organizing this information.

Administrators are facing increasing demands from diverse directions. They must manage and account for funds from many sources, which means that they must operate complex record keeping systems to keep track of the services provided clients and the funds due for the services. (Schoech, 1982). Federal funding sources want detailed financial and service delivery information, so that they can compare various agencies providing similar services to similar clients. The federal government is not alone in its interest in quantifying services. State and local governments, along with umbrella agencies such as United

Way, are also demanding more information. For example, the St. Aemilian child care center in Milwaukee, Wisconsin, decided to start using a computer when staff members found that the demand for individualized treatment plans made time between the collection of treatment data and the availability of it for treatment planning too long. (Practice Digest, 1983b). Pruger reports on still another type of pressure that forces agencies to consider the use of computers. Many county welfare departments in the state of California have had a great deal of difficulty in containing the costs of their In-Home Supportive Services (IHSS) program, and thus have tried to remedy this condition with the use of micro-computers (Pruget, forthcoming). This maneuver promoted consistency and efficiency, which are essential for saving money.

b. Community Impact

As is the case at the administrative level, community services have often been duplicated. Computerized information and referral systems have been the most common solution for this problem. A somewhat expanded version of these systems are client tracking systems, such as those in Broward County, Florida and Kansas City, Missouri. (Practice Digest, 1983c) These systems allow for client-related information to be shared, on an area-wide basis, and have the potential for insuring that scarce resources are utilized most effectively.

Another major trend is the use of computers to network people and agencies. Networking, or telecommunication, can be thought of loosely as the computer equivalent of telephoning. The difference is that the written word is the medium of communication. Generally computer networking is done either by calling an individual directly and leaving a message for a specific person or, in some cases, leaving a message that anyone may read and answer.

Human services are beginning to network. A national adoption data base has been established by The National Adoption Exchange of Washington DC. "NAE puts its entire centralized bank of information on children and prospective parents on-line for adoption agencies around the country to tie into." (Personal Computing, 1984). Another example is an on-line newsletter offered by the information utility Delphi. This interactive newsletter explores all dimensions of sexual health. Services include reviews of sex education from the viewpoint of parents and

teachers, conferences about sexual issues, and concerns and occasional interviews with distinguished people in the field of sexology.(Gerk, 1984). Many similar networks are springing up and it is reasonable to expect that networking will be a major force for innovation within the human services for the next few years. Most important is the agencies can be directly linked.

c. Direct Service Impact

The use of microcomputers in direct service is growing rapidly. Schoech (1982) has provided a framework which, with modifications and additions, can be used to organize the information in this area.

1. Automated interviews. Computers are being used by many practitioners to gather clinical information. The use of computerized interviewing in Medicine, Psychiatry, and Psychology is extensive and growing. In the social services this use of computers has only begun. Computers appear to be an effective tool for interviewing. For example, computers do not forget to ask questions or misinterpret data. Furthermore, this technology is consistent, objective, and unaffected by situational contingencies. Yet some writers contend that this style of objectivity may be alienating to clients.

When patients were asked how they felt about being interviewed by a computer, "only 13% of patients found this to be a negative overall experience. Four-fifths of patients accepted the computers' asking 'personal questions,' two-thirds preferred a computer interview to a human one, and more patients felt they could be more truthful with the computer than they could with a human interviewer" (Schwartz, 1984). Some professionals question whether the use of such interviews should be rejected on ethical and moral grounds. "Weizenbaum, the early developer of Eliza...a program that simulates a psychotherapeutic interview..., has now concluded that computerized psychotherapy is immoral and obscene. These conclusions are made by Weizenbaum because the computer cannot provide interpersonal respect and understanding, not because it is technically incapable of functioning as an effective psychotherapist." (Pardeck & Murphy, Forthcoming).

2. Administration and interpretation of tests. The use of computerized versions of psychological tests is becoming widespread. This allows tests to be scored more quickly and accurately than ever

before. (Schoech, 1982). The use of computerized tests is not, however, problem free. Pournelle has highlighted several major problems. He points out that the issues of the validity (and even the reliability) of most psychological tests and inventories is open to question. Most problematic is that untrained persons or "lazy" professionals are able to use tests which should be used only by highly trained and sensitive clinicians. Computerization, in this sense, makes testing "too easy", thus obscuring the clinical judgment which provides a test with its validity. Not only are inadequately trained persons using tests in ways never intended, several companies are offering self-help software which allegedly allows one to diagnose oneself or others. More will be said about these tests in the discussion of self-help software.

3. Automated assessment diagnosis. The use of computers to perform a diagnosis is a logical extension of its ability to interview. There have been some notable examples of the success of diagnostic programs in medicine. At present however, even in this area, such programs are seen as experimental and best used as an aid in pointing out problem areas highly associated with the pattern of symptoms exhibited by a client (Schoech, 1982). The accuracy and the comprehensiveness of these programs continues to grow, and in some limited areas of medicine they are already as accurate as human experts. The development of programs to aid in the diagnosis of social and psychological problems is moving ahead rapidly, and it will only be a matter of time until such diagnostic devices are available for use by human service practitioners. Recent work by Greist and others at the University of Wisconsin, for example, seems to show that computers can do a better job of predicting suicide risk than professionals. Some writers are, however, concerned that, even if such programs are shown to be effective, they will not produce socially appropriate diagnoses. For people make judgments based on non-rational issues. "If these judgments are overlooked, socially insensitive diagnoses are likely to result." (Murphy and Pardeck, Forthcoming).

4. Self-help. The bookstores are full of self-help books aimed at helping a person self-diagnose and treat a wide variety of medical and psychological problems. It did not take long to recognize the possibility of the computer being used to deliver similar services. (Antonoff, 1985 & Dubroff, 1985). A few examples are: "Healthaide which helps you coordinate a comprehensive plan of diet and exercise to fit your own personal needs and goals...Compute-A -Life delves into your physical,

psychological, social, legal, and moral history. It then calculates your life expectancy, lists your top 10 potential causes of death, and makes appropriate recommendations to change your lifestyle and prolong your life" (Lener, 1985). Of course such programs are highly suspect. As Pournelle points out, the real danger in some computer programs "comes when the machine persuades you that it has expertise when it doesn't...These computer programs claim to do what people can't do." (Pournelle, 1984).

5. Therapy. In spite of what the popular press has led many to believe, the use of the computer as the therapist for clients seeking help has not progressed very far. Programs, such as "Eliza", cannot carry on an intelligent conversation with a client, let alone provide useful counselling. (Gorman, 1985). The task of developing effective therapy programs has turned out to be more difficult than anticipated. Yet some programs are operating on an experimental basis. Typical of these programs are those under development at the University of Wisconsin for the treatment of depression and the modification of other behavior problems. (Winn, Unpubl.).

The picture is quite different, however, for using the computer as an adjunct to treatment. Here the use of microcomputers is rapidly growing. A major area of growth is in the use of computers to aid the handicapped. Computers can talk for the mute, can take the very limited movements or sounds of the severely handicapped and do all sorts of things - open doors, answer telephones, control the heat in a house, and control other household devices. Some severely handicapped are also able to work at home through the magic of telecommuting (Practice Digest, 1983b).

Another use of computers is to keep offenders out of jail who might otherwise be incarcerated. "Probationers in Palm Beach County, Florida, are actually being held prisoner in their own homes by an IBM PC. A 3-ounce, waterproof transmitter is strapped onto a leg of each misdemeanor offender who agrees to be monitored by a company called Pride, Inc....Probationers volunteer for this program and pay a fee to install the computerized shackles that might allow them to continue working at their regular jobs during the day while fulfilling their sentences at night and on weekends." (Langdell, 1985).

Still another use of computers is emerging--counselling via a computer network. A typical example is TelePsych. "TelePsych is a new

computer telecommunication service that provides consultation with a clinical psychologist. Timothy Miller, Ph.D., a licensed clinical psychologist, makes consultation available 24 hours a day to anyone with a personal computer and a modem" (Tug inc., 1984). A similar service is being provided by a social worker in Ohio who provides family counselling services via a computer network (Zientra, 1983).

Social Impact of Computers

The focus of this paper is on the impact of computers on the society and human interaction. In this section two topics are discussed: 1) the impact of computers on social interaction, and 2) social policy and human rights issues. Much information has already been covered that might be placed in these categories, but which was more conveniently handled elsewhere. So, in this section, issues that were not previously covered are assessed.

1. Social Interaction Effects. Many thoughtful authors are concerned about the impact of the computer on social relations. Their concerns include:

a. Computers foster obsessions. Anyone who has watched the back of a mate or a child bent before a computer for hours can tell you: These machines hold a person's attention like no other. "When a computer comes into a human life and obsesses it, those around will observe...It is as if the person has become addicted to a new drug. The computer junkie falls away from old social relations and becomes immured with a small glowing screen...All his thoughts and dealings seem to circle around this new spirit, in the center of a closed city." (Walsh, 1985). More intense than television because of the intellectual engagement created by interaction, some computer users tend to withdraw into isolation for long periods of time.

b. Computers cause a social isolation. In part, this is an extension of the concern about the obsessional qualities of the computer, but extends beyond that to a concern that children and adults who are interacting with machines will not adequately learn how to interact with each other or will be isolated from other social influences. As Shatz (1985) recently put it, "Personal computers will, one day, enable us to work, bank, and shop from home. How will we then make contact with people different from ourselves whom we now encounter in grocery lines, shopping malls, and

on the streets of our cities?"

c. Computers displace other more valuable activities. This concern is a further extension of the first two. The issue here is that if people spend all their time interacting with machines, when will they have time to read a good book, to contemplate, to enjoy nature, or to get involved in the important social issues of the day?

d. Computers depersonalize relations between humans. Several authors have expressed concern that people who interact with computers rather than real live clients will come to see clients as objects rather than as people. Put in another way a computer separates people from the consequences of their actions. (Mander, 1985).

2. Social Policy and Human Rights. Many authors have expressed concerns about computers threatening human rights. "The ubiquity and power of the computer blur the distinction between public and private information. Our revolution will not be in gathering data - don't look for TV cameras in your bedroom - but in analyzing the information that is already willingly shared...Without any conspiratorial snooping or big brother antics, we may find our action, our lifestyles, and even our beliefs under increasing public scrutiny as we move into the information age...." (Walsh, 1985). Because the information on computers is thought to be "public," much personal data is suddenly placed at the disposal of anyone who has access to this technology. Information that was formerly private because it was "on paper" is now open for public scrutiny.

Implications for Social Work

Thus far, some of the concerns and dreams of the authors writing about the computer revolution have been detailed. Yet what this means for the social work profession has not been addressed.

Social work has a long history of concern with most of the issues discussed thus far. Working conditions and employment policy, as well as health and mental health are all issues that social work considers within its purview. So it is appropriate that the implications of computers for the social work profession and social work practice be discussed.

When one examines the issues related to employment, a major concern that emerges is the potential of the computer for altering the

nature and type of employment of the clients served by social workers, as well as altering the jobs of social workers. A major policy issue for the profession should be how to deal with the impact of automation. It is already clear that automation will produce profound changes in the lives of many workers, their families, and communities. There is little doubt that automation will occur and the best guesses are that it will occur rapidly. While it is unlikely that jobs within social welfare will be as seriously affected, they will not be immune. William Garrett, Assistant Vice-President of the United Way of Tri-State New York, New York, recently commented "job security and fear of failure are very real...The widespread use of self-aid programs may erode the service base for professionals." (Garrett, Forthcoming).

Perhaps even a greater threat to traditional roles is the work exemplified by Pruger which, if widely emulated and implemented as a cost control measure and as a means for improving service, could lead to the elimination or substantial alteration of many traditional social work positions. The threat to social work jobs, while real, however, is not immediate. It will be some time before the wide scale automation of social welfare activities is witnessed. Nonetheless, the nub of the issue is "at the highest levels, we have so far utterly failed in modern capitalist (and I think pretty much existing socialist) societies to find a way of humanely and productively dealing with technological obsolescence. Obsolescence is something that, taking society as a whole, we both fear deeply and seek to constantly create...."(Calhoun, 1981).

The issues related to industrial automation should become a major agenda item for the profession and for the schools of social work that are now educating the next generation of social workers. But if the profession is to have an impact, it must mount a concerted and focused effort. The time for planning and mounting such an effort is uncomfortably short.

Unlike automation, which is largely a product of the computer revolution, the other issues related to employment are not really issues caused by the introduction of computers. These issues include: 1) the impact of moving toward a service based economy; 2) the impact of telecommuting on the nature of work and on social relations in the home; 3) the impact of telecommuting on workers' ability to influence management to provide a just and humane environment and the workers' ability to deal with office politics in order to ensure job advancement; and 4) employers' efforts to quantify job performance and evaluation.

In one sense, the fact that the use of computers has caused these issues to be seen in bold relief may actually facilitate their resolution. Because computers make distributed work economical, as workers' performances can be closely monitored and evaluated by the employer, practitioners are forced to face the issue of work degradation. The use of the computer has increased the public awareness of the potential for harm, but the potential has been there for a long time. One need only look at the problems home textile workers or traveling salesmen have had in dealing with their employers to realize that the issues related to telecommuting are not new. They are basic to employee-employer relationships. Work degradation is not a matter of computers vs. no computers, and it is in this way that this issue should be viewed.

A similar argument can be made on the use of computers in education. To be sure, the issues of access by minorities and by the poor to good educations and the very pronounced gender differences between males and females using computers should be of substantial concern to a profession that believes strongly in empowering the disadvantaged.

But before social workers get concerned about computer illiteracy creating new and distressing societal divisions, they ought to worry a lot more about the old fashioned kind of illiteracy. As Pournelle (1985b) notes, being unable to read is much worse than being unable to operate a computer--and anyway, you'll never learn much about using computers until you read."

Still another set of issues relates how computers alter the humans who use them. A basic issue is, does the computer alter the information its users value or how its users process those data? The authors cited thus far seem to assert that the computer alters persons' perception. Their assertions include: Computers 1) alter the tempo of work and minimize the time available to make rational decisions, 2) separate people from the consequences of their actions, 3) depersonalize relationships, 4) violate one's right to privacy, 5) alter social relationships and foster social isolation, 6) displace other more valuable activities, and 7) foster obsessional behavior.

The attempt will not be made to provide definitive responses to these assertions. Each of them have some validity and are worthy of further examination. Some of the issues may be amenable to technical solutions. Kleiners' (1985) concern about computers fostering impatience, for

example, may simply be an indicator of the current state of computer technology. Peter Norton, a well known computer expert, recently commented, "response time is increasingly important. On the surface, it is possible to think there is not a big difference between response time of two seconds and one-fourth of a second, but the point is that a two-second pause disrupts a person's work rhythm and cognition. Thus, this is a significant problem. As microcomputers become more sophisticated, concerns about the computer disrupting one's natural time cycle will disappear. Particularly, as humans cease to use keyboards to interact with computers and begin to communicate with them by talking into a microphone, a smooth computer/human interface may be established.

Another concern is that computers are not facile in their ability to process different kinds of information. "Computers are opaque to many kinds of information - sensory information, moods, feelings, meaning, context, among many others is given little note or importance..." (Mander, 1985). While Mander is correct about the computer's ability to process information this technology is no different than a book in terms of transmitting information. Clearly a computer is superior to a book in its ability to link information that might be missed when searching through massive amounts of written data. However, commentators feel that the ability to move around quickly and skip from one place to another in a document is not a benefit, but a liability. They argue that not being forced to read a whole document eliminates the contextual information that is important. Maybe the major danger that the naive user may face is to believe that the computer has a superior ability to interpret information. While the computer's ability to process information and to make judgments based on rational problem-solving models is very good, its ability to draw on past experience and to process information that does not fit into its problem-solving model or which requires the assessment of non-rational factors in decision making is not particularly good. Humans can still do a better job in these areas.

But with advancements in technology it is possible that other types of information may be detected and processed by the computer. And even more to the point, one cannot be sure that the computer's dependence on data that can be objectified will not, in the long run, be of more help to understanding the human condition than machines that process subjective information. There are certainly many examples in the behavioral psychology literature where objective approaches to analysis have provided an understanding of human behavior that had previously resisted

all attempts at analysis.

Computer technology is in its infancy. To call for its abolishment because it is not a fully developed technology is short-sighted. However, some concerns about the computer cannot be dismissed as due to lack of technological development. The most distressing problem is the compression of time for decision making. "Microelectronics capability is the key to modern military power," (Barron, 1979), and its adoption has limited the capability of high level officials to make reasoned decisions. Decision making times are so short that, for all practical purposes, decisions will have to be left to computers or military leaders. There will be no time to question their judgments. This is an issue of frightening dimensions, and one for which there does not appear to be any immediate solution.

A close analysis of the remaining problems, however, reveals that most are not really problems caused by the computer at all, but rather are variations on age-old problems of human relations. Violations of privacy may be more difficult to detect and more likely in a computerized world, because computers can process more information. It is possible to anticipate, for example, that community-wide information systems like those in Kansas City and Florida have the potential for high levels of intrusiveness into clients' lives, and may encourage the violation of the present rules of confidentiality (Practice Digest, 1983c). Considering this, one cannot help but wonder if service will be denied or delayed for clients who refuse to sign release of information forms.

Smart cards pose still other problems. If they are widely accepted, their adoption will foster many new problems. Issues of confidentiality, e.g., who owns the data on the card and who can access it, will have to be solved. The problems of how to guarantee that the information has not been altered and that it is accurate will also demand attention, as will the need to ensure that accurate backup information is available when the inevitable loss of a card occurs. The need to maintain a centralized, computerized data base to ensure that backup information is available will also bring with it the potential of a nationwide information system.

These problems are not new. There have always been stresses between those who want control for their own purposes, or in the name of the collective societal good, and those who place individual autonomy and freedom at the head of their list of human rights. The issue is not whether

computers should be used, but rather what kind of legal restrictions should be put on the use of the information that is collected. Perhaps David Burnham, author of The Rise of The Computer State, was right when he recently commented "I'm not a Luddite--Computers are here to stay. What we've got to do is to pass restricting legislation, or else organizations like the National Security Agency and the Internal Revenue Service and the big credit reporting companies will be wielding so much power that they will really strangle individual initiative and representative democracy in general."

Burnham was not concerned with the impact of the computer on social services. Nonetheless, the abuses he fears can and most likely will occur in social agencies, as well as other governmental agencies. The profession needs to begin to develop policies and standards for computerized data bases in social agencies.

Concerns about depersonalization, altering social relationships, fostering obsessional behavior, and displacement of other valuable activities are also not unique to people who interact with computers. For example, Shatz's concern that psychotherapists are seeing "spouses or partners who cling like barnacles to machines, staring for hours at the screen, withdrawn, unresponsive, uncommunicative," could just as easily, with minor revisions, have been written about "television junkies," "sports junkies," "sports car buffs," or even bird watchers. The computer is not the cause, but rather it only serves as a means to highlight already existing social and interpersonal problems.

The issue of the computer being used to deliver questionable services also needs to be addressed. The use of the computer to administer, score, and interpret tests should be of serious concern to the profession. In many cases those using these tests treat computer generated results as highly valid and reliable because a machine, rather than a human, administered the tests. In fact, the results computerized tests yield are no better than those obtained with similar paper-and-pencil instruments, and are just as much in need of informed and cautious interpretation. Actually, any use of computers for therapy requires serious investigation.

The issue of how to use computers in professional education is an important one. There has been little discussion of what role computers should play in the education of a social work professional. What kind of

computer knowledge should be included in the social work curriculum? It may be visionary to hope that some common understanding can be developed about the content that should be included on computers. But, if the effort is not made there will be little uniformity of content, and the result will be a lack of competency in an area which is likely to be important to students in their professional careers.

Obviously, social workers have a full professional agenda before them. Yet the lessons learned from other technological revolutions must be kept in mind. Accordingly several predictions can be made. Briefly they are:

1) The introduction of computer technology will produce strong reactions pro and con. Its supporters will assert that its use will undo many millenniums of social inequities. Its critics will be equally certain that the impact of this technology will be decidedly negative and, if they could, would like to "stuff the genie back in the bottle." (Pournelle, 1985a).

2) As computer technology is introduced and is assimilated into a culture, its introduction will produce unintended and unanticipated consequences which may, in the long run, alter the fabric of society. As Lepper has pointed out, "the social consequences of technological advances occur on many different levels. The introduction of the steam engine did not simply reduce the reliance on manual labor, it was the precursor of the factory system," (Lepper, 1985). This led to profound shifts in the distribution of populations, wealth, and political power. It also changed the way people worked, the way they lived, and the way they played and related to each other.

3) Most of the prophets of the good and the bad effects of computer technology will be wrong. Neither the promised benefits or the feared problems will all occur. Societies have survived past technological revolutions relatively intact as a people. Severe problems have resulted from the introduction of new technology, but few persons would willingly trade their current status for a pre-technological society. Factories, automobiles, and television have become an integral part of the world's social fabric. It is likely that those who fear the new computer technology will not be any more successful in preventing its growth than the critics of earlier technological revolutions. At best citizens must determine how technology is used. That, by itself, is an important task. The computer revolution must be shaped in a manner that celebrates humanity rather than demeans the human race. The focus must be on maximizing the positive aspects and minimizing the negative potential of the revolution.

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