

March 1986

Journal of Sociology & Social Welfare Vol. 13, No. 1 (March 1986)

Follow this and additional works at: <https://scholarworks.wmich.edu/jssw>



Part of the Social Work Commons, and the Sociology Commons

Recommended Citation

(1986) "Journal of Sociology & Social Welfare Vol. 13, No. 1 (March 1986)," *The Journal of Sociology & Social Welfare*: Vol. 13: Iss. 1, Article 1.

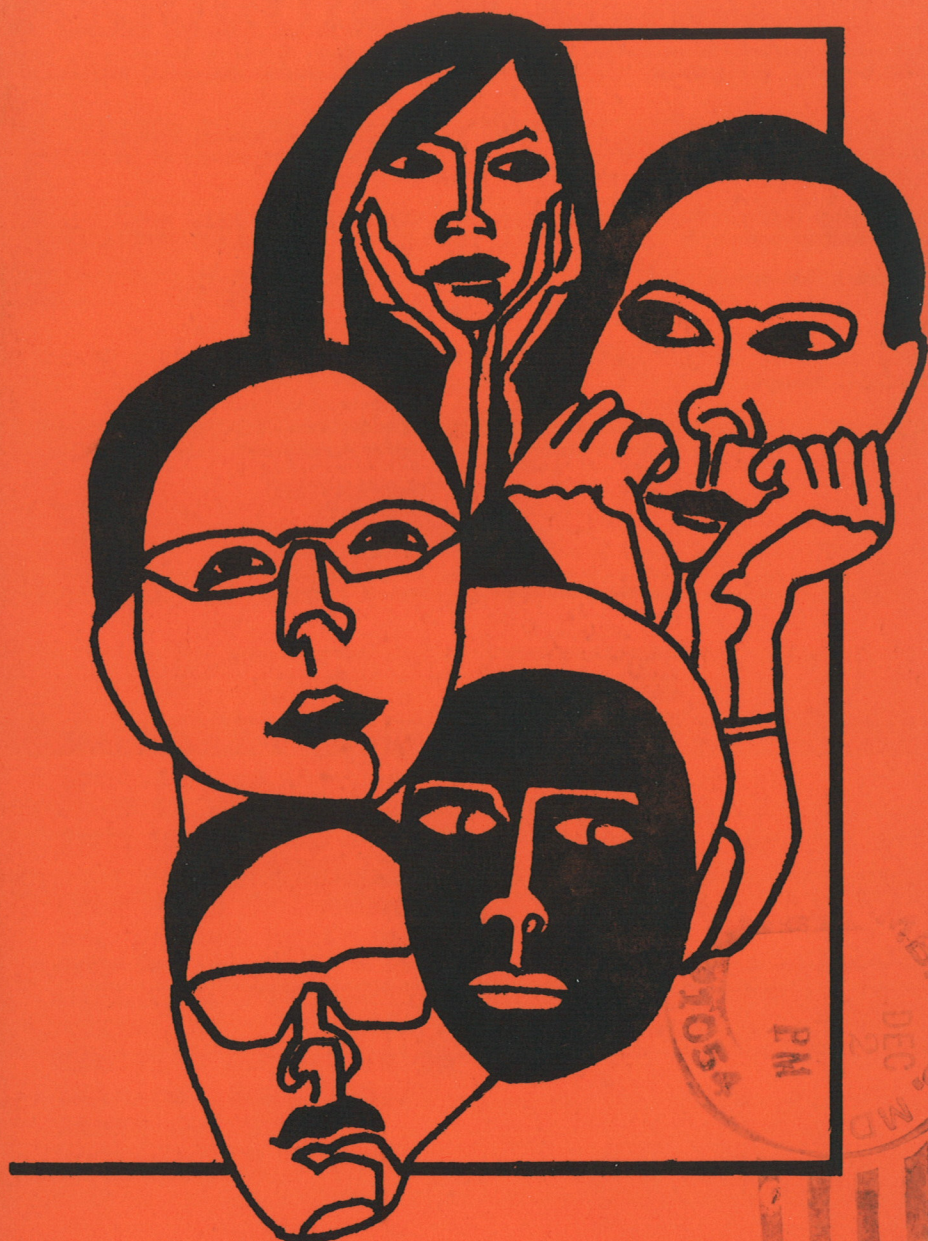
DOI: <https://doi.org/10.15453/0191-5096.1731>

Available at: <https://scholarworks.wmich.edu/jssw/vol13/iss1/1>

This Complete Issue is brought to you by the Western Michigan University School of Social Work. For more information, please contact wmu-scholarworks@wmich.edu.



Journal of Sociology and Social Welfare



Vol. XIII No. 1

March 1986

The JOURNAL OF SOCIOLOGY AND SOCIAL WELFARE is published by the Journal of Sociology and Social Welfare, Incorporated, University of Connecticut, School of Social Work, West Hartford, Connecticut. Copyright 1985, Journal of Sociology and Social Welfare, Inc.

Editor: Robert D. Leighninger, Jr., Center for Human Services, Western Michigan University. The editorial office is jointly sponsored by the Department of Sociology and the School of Social Work of Western Michigan University.

Book Review Editors: Shimon Gottschalk and Bruce Thyer, School of Social Work, Florida State University.

Editorial Consultants:

David Joslyn
Ronald Kramer
Nathaniel McCaslin

Lewis Walker
Marion Wijnberg

Associate Editors:

Mimi Abramovitz
Paul Adams
Thomas Briggs
John J. Cardwell
Ben Carniol
Harris Chaiklin
Susan Chandler
Pranab Chatterjee
Mary Jo Deegan
Alejandro Garcia
David G. Gil
Gale Goldberg
Shimon Gottschalk
Robert Green
Charles Guzzetta
Margaret Hartford
John Herrick
David Hollister
Joe Hudson
Elizabeth Huttman
Charles F. Jones
Terry Jones
Larry Jordan
Frank Kastelic
Stuart A. Kirk
Jordon Kosberg

Robert Kronick
Timothy Lause
Leslie Leighninger
Philip Lichtenberg
Murray Meld
Henry Meyer
Joe Miller
Kristine Nelson
Larry Northwood
Edward J. Pawlak
Dennis Peck
Felice Purlmutter
Jonathan Rabinowitz
Dan Rubenstein
Jennifer Shirmer
Elfriede Schlesinger
Ralph Segalman
Eunice Shatz
Arthur Shostak
David R. Simon
Bruce Thyer
Danny H. Thompson
John E. Tropman
John Williamson
James Wolk

The JOURNAL was originated by members of the Division of Sociology and Social Welfare, Society for the Study of Social Problems but has no official affiliation with that organization.

Cover: Charlotte Goroff

Journal of Sociology and Social Welfare

Volume XIII

March 1986

No.1

TABLE OF CONTENTS

THEMATIC SPECIAL ISSUE TECHNOLOGY AND SOCIAL SERVICE DELIVERY

Introduction to Thematic Special Issue

JOHN T. PARDECK

JOHN W. MURPHY

pp. 1

Computers in Social Work and Social Welfare: Issues and Perspective

WILLIAM H. BUTTERFIELD

pp. 5

Applying Computers to Clinical Social Work

JAMES GRIPTON

PAUL LICKER

pp. 27

The Implications of Computer Technology in the Delivery of Human Services NARVIAR C. BARKER	PP.	56
Assessing Child Maltreatment: The Role of Testing JOEL S. MILNER	PP.	64
Technology, Stress, and Family Violence: Some Issues in Teaching Social Work Practice SHIRLEY J. PORTER	pp.	77
Scientific Technology and The Human Condition VERNON R. WIEHE	pp.	88
Computer Technology - 1984 and Beyond TERRY HOLBROOK	pp.	98
The De-Skilling of Social Workers: An Examination of the Impact of the Industrial Model of Production on the Delivery of Social Services HOWARD JACOB KARGER	pp.	115
Medicine, Technology, and Genetic Engineering: Reflections From the Outside JEFFERY R. PITTMAN	pp.	130
Developing Social Work Interviewing Skills Through a Micro-Video Analysis Training Program PETER C. IVERSON	pp.	142

Social Service Delivery
Systems: The Impact of
Technology and Organizational
Structure

LOUELLA MANN

pp. 157

Technology, Corporate
Mobility, and a Decline in
Urban Services

MARCUS D. POHLMANN

pp. 171

Technology and Social Service Delivery

Introduction to Thematic Special Issue

Currently technology is proliferating at a rate never before imagined. As a result, every facet of society has changed because of technological developments, including the delivery of social services. Although there is much debate over whether or not these changes are good or bad, they cannot be denied (Murphy and Pardeck, forthcoming). In fact, Jacques Ellul (1964: 127) has referred to modern society as a technological civilization. What he means by this designation is not only that society is dependent upon technology for its survival, but, more importantly, technological rationality has come to determine how persons view themselves and their environment. Due to the ubiquitous nature of this style of thinking, definitions of reality, sickness, and social competence have assumed a technological hue. Accordingly, those who are involved with the delivery of social services must understand how technology focuses their attention on techniques, thereby possibly obscuring the social nature of a client's problem. And if his type of insight is not fostered, no-one may benefit from the introduction of technology into social service programs.

The contributors to this issue define technology in a broad manner. However, two key characteristics can be distilled from their analyses. First, technology refers to new devices, both hardware and software, which are used to automate various aspects of social life. And second, the mode of reasoning which supports these techniques is also identified as a part of technology. This "underside" of technology includes such factors as the logic, conception of human nature, and management styles which make a "high-tech" society possible. Using this type of broad definition may not be as precise as some readers might like, yet it provides a novel view of technology and its possible social impact. In fact, the usual conception of technology which equates it with machinery is no longer considered viable by most scholars.

The aim of this thematic issue of the Journal of Sociology and Social Welfare is fourfold. First, the impact of technology on social service

delivery is examined from a variety of perspectives. A multi-disciplinary approach is essential in order to reveal the complex character of technology. With this in mind, papers by sociologists, psychologists, economists, political scientists, and social workers are included in this volume. It is hoped that this type of representation will expose the controversy surrounding the use of technology by social practitioners. Certainly contrasting opinions help illustrate the key arguments pertaining to this issue.

Second, macro and micro analyses are offered, as technology alters both the social system and social service programs. For example, as technology affects the nature of the workplace and other aspects of economic life, the type of problems present in a society may change. And in order to meet these emerging needs effectively, new methods for delivering social services may have to be devised. Additionally, when technology is adopted to plan and organize services, a practitioner's job description is affected. Articles were selected in a manner to insure that the impact technology has on both society and social service programs is addressed.

Third, technology is discussed in terms of both its "hard" and "soft" components. Most often persons equate technology with computers and their accompanying software packages. Nonetheless, it must be recognized that technology is underpinned by a philosophical position, sometimes called a "world-view," which regularly goes unnoticed, but which shapes a person's perception of reality. Specifically, technology is sustained by three ideas which form the cornerstone of technological rationality. These are: (a) empirical or objective characteristics are sufficient for defining a phenomenon; (b) mathematics (or quantification) is most appropriate for describing these traits; and (c) the laws of physics regulate all events (Murphy and Pardeck, 1985). These three tenets comprise the "soft" side of technology, and can transform the delivery of social services as much as the installation of a computer. Actually, this "underside" of technology may be more disruptive to a program than computerization, since the technological world-view is not well understood by most practitioners and mostly overlooked. Yet before the social impact of technology can be fully assessed, both its soft and hard aspects must be reviewed.

And fourth, the development of a "socially responsible" technology is discussed (Murphy and Pilotta, 1984). Usually critiques of technology

culminate in calling for its elimination, which is an alternative that is neither feasible nor appealing. The contributors to this volume, instead, offer various suggestions for placing technology in the service of humankind, thus making it socially responsible. These include philosophical, logistical, managerial, and political gambits which will enable technology to improve, instead of destroy, the human condition. Technology has the potential for facilitating the delivery of social services, yet this may never occur if practitioners do not examine the context in which it is used.

In sum, social practitioners must recognize that technology is not going to disappear, and thus must develop strategies for using it profitably. Furthermore, integrating technology into the delivery of social services is not simply a technical matter. In fact, technology may not be able to correct the problems which it creates, without assistance from non-technical sources. Accordingly, a context must be established which allows technology to unburden workers from having to perform mundane tasks, while fostering creativity and innovation. If this occurs, both practitioners and clients will benefit. Yet before the fruits of technology will ever be truly realized, difficult philosophical, political, and economic questions must be addressed, so that a proper social-technical interface can be constructed. This type of rapprochement is essential if technology is to enhance the planning and deployment of social service programs. Hopefully, the discussion inaugurated with this special issue will promote the proper utilization of technology.

John T. Pardeck
Coordinator, Social Work
Program
Arkansas State University

John W. Murphy
Assistant Professor of
Sociology
Arkansas State University

References

- Ellul, Jacques, The Technological Society, New York: Random House, 1964.
- Murphy, John W. and Pardeck, John T., "Technologically Mediated Therapy: A Critique," Social Casework (forthcoming).
- Murphy, John W., and Pardeck, John T., "The Technological World-View

and the Responsible Use of Computers in the Classroom," Journal of Education, 167 (2), 1985, pp. 98-108.

Murphy, John W., and Pilotta, Joseph J., "Community Based Research: A New Strategy for Policy Analysis, Humboldt Journal of Social Relations 11 (2), 1984, pp. 17-27.

Computers in Social Work and Social Welfare Issues and Perspective

William H. Butterfield
Washington University

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" (Duntzman, 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.

REFERENCES

- Alexander, Charles P. "Playing Computer Catch-up." Time 125: 84-85, April, 1985.
- Anderson, Kim. "Adobe-school Computers." Popular Computing 9: 25-26, May, 1985.
- Antonoff, Michael. "New Software for Self-help" Personal Computing 9: 95-101, 1985.
- Barron, I., R. Curnow. The Future of Microelectronics. New York: Nichols, 1979.
- Boyer, Ernest L. "Education's New Challenge." Personal Computing, 8: 81-85, September, 1984.
- Brod, Craig. Technostress: The Human Cost of the Computer Revolution. Reading, Mass.: Addison-Wessley, 1984.
- Calhoun, Craig. "Democracy, Autocracy and Intermediate Associations in Organizations: Flexibility or Unrestrained Change." Sociology 14: 345-364, 1980.
- Calhoun, Craig. "The Microcomputer Revolution." Sociological Methods and Research 9: 397-437, May, 1981.
- Dubroff, Bobbie. "PC psychologist: The Doctor is In" PC Magazine 4: 184-189, April, 1985.
- Duntemann, J. In B. Lemley "Other Voices Other Futures." PC Magazine 4: 133-138.
- Garrett, William J. "Information Technology in Direct Service to Clients." in Gunter Geis & Narayan Viswanthan (eds.) Information and Social Work. New York: Haworth, forthcoming.
- Gerk, Barbara. "Communiques." InfoWorld 5: 42, November, 1984.
- Gorman, James. "My Fair Software." Discover. 64-64, February,

1985.

Greist, John H. "Conservative Radicalism: An Approach to Computers in Mental Health." pp. 191-194 in Mark D. Schwartz (ed.), Using Computers in Clinical Practice. New York: Haworth, 1984.

Kleiner, Art. "The Ambivalent Miseries of Personal Computing." Whole Earth Review 44: 6-9, January, 1985.

Langdell, J. "Digital Detention for Prisoners of Pcs." PC Magazine. 4: 44, 1985.

Lemley B. "Other Voices Other Futures." PC Magazine. 4: 133-138, January, 1985.

Lener, Jeffrey. "Take Two Disks and Call Me in the Morning." PC Magazine 4: 57-58, January 22, 1985.

Lepper, Mark R. "Microcomputers in Education." American Psychologist 40: 1-18, 1985.

Levine, Henry & Russell W. Rumberger. "In Jerry Mander "Six Grave Doubts About Computers." Whole Earth Review, 44: 11-20, January 1985.

Mander, Jerry. "Six Grave Doubts about Computers" Whole Earth Review 44: 11-20, January, 1985.

Manning, Anita. "Why Aren't Women Hacking It?" USA Today Section D: 3, October 16, 1984.

Norris, Kim. "Hollywood's 2010: An On-line Odyssey." Popular Computing 9: 37, April, 1985.

Pardeck, John T. & John W. Murphy. "Micro Computers Technology, In Clinical Practice: Arctic, Forthcoming.

Pardeck, John T. & John W. Murphy. "Technologically Mediated Therapy: A Critique." Social Casework, Forthcoming.

Personal Computing. "Computerizing the Adoption Search." Personal

- Computing 8: 37-41, October, 1984.
- Popular Computing. "Read Any Good Minds Lately?" Popular Computing 9: no page number, November, 1984.
- Porter, Martin. "Home Work Increasing Despite Union Opposition." PC Magazine 4: 42, January, 1985.
- Pournelle, Jerry. "Artificial Experts." Popular Computing. 9: 59-62, November, 1984.
- Pournelle, Jerry. "The Literacy Game." Popular Computing. 9: 49, May 1985a.
- Pournelle, Jerry. "The New Technophobia." Popular Computing, 9: 49-53, April, 1985b.
- Practice Digest. "Computers Chart Boys' Progress." 6: 14-15, Winter 1983a.
- Practice Digest. "Computer to Enhance Mentally Retarded Clients' Lives." 6:31, Winter, 1983b.
- Practice Digest. "A Computerized Tracking System for Deinstitutionalized Clients." 6: 24-25, Winter, 1983c.
- Pruger, Robert. "Information Technology in Support of Service Delivery Decisions." in Gunter Geis & Narayan Viswanthan (eds.) Information and Social Work. New York: Haworth, forthcoming.
- Reed, David. "Robots March on U.S. Industry." Readers Digest, 188-192, April 1985.
- Roberts, Steven. "Valley Nurtures Software Ideas: Computing across America" USA Today Section b: 3, October 18, 1984.
- Rubin, Charles. "Blossoming Productivity Linked to Micros" InfoWorld 7: 31-42, 1985.
- Schoech, Dick. Computer Use in the Human Services. New York: Human Science Press, 1982.

- Shatz, Eunice O. Untitled speech given at the Council on Social Work Annual Program Meeting in Washington D.C. February 18, 1985, unpubl.
- Shaw, Bill. "Aryan Nations Sow Hate with Religious Zeal." St. Louis Post Dispatch Section B: 1, May 1, 1985.
- Schwartz, Mark D. "Review of Assessment of Psychiatric Patients by Computer Interview." pp. 205-207 in Mark D. Schwartz (ed.), Using Computers in Clinical Practice. New York: Haworth, 1984 (a).
- Schwartz, Mark D. "Review of 'A probabilistic system for identifying suicide attemptors'." pp. 213-214 in Mark D. Scharzt (ed.), Using Computers in Clinical Practice. New York: Haworth, 1984 (b)
- Tug Inc. "Counseling by Telecom." Users Guide. 2: 74, 1984
- Turkel, Sherry. The Second Self: Computers and the Human Spirit. New York: Simon and Schuster, 1984.
- Walsh, Birrell. "The Monkey Trap or the Mystical Engine." Whole Earth Review 44: 0-1, January, 1985.
- Winn, Wanda W. "Advanced psychiatric computing: an introduction and interview in outline form." Madison, Wisconsin: The Department of Psychiatry, The University of Wisconsin, unpubl.
- Winner, Langdon. "Mythinformation." Whole Earth Review 44: 22-28, January, 1985.
- Zientra, Peggy. "Compuserve Offers On-line Family Counselling Service" InfoWorld 4: 30, October 5, 1983.
- Zigli, Barbara. "Strong Arguments Against Children's Learning by Computer" USA Today Section D: 4, July 19, 1985.

Applying Computers to Clinical Social Work

James Gripton and Paul Licker
The University of Calgary
Leo de Groot
Alberta Children's Hospital

Abstract

This paper discusses the application of computer technology to clinical social work. It is based on a three-year research and demonstration project on microcomputer applications to clinical social work. The paper reviews the use of computers in social work, contrasting the developments in this field with those that have occurred in psychiatry and clinical psychology. It then describes the two major components of the integrated software package for supporting clinical social work that has been developed and is currently being tested. The paper concludes with a discussion of the misconceptions and realities of introducing computer technology to a clinical social work agency.

Applying Computers to Clinical Social Work

This paper describes the development of an integrated software package designed to provide microcomputer support to clinical social work practice. This software is the principal product of the Digital Social Worker, a three-year research and demonstration project being conducted in the Family Therapy Program, Alberta Children's Hospital, Calgary, Canada. The goal of the project is to demonstrate the contribution that microcomputers can make to clinical social work practice, especially in relation to semi-structured decisions regarding eligibility, referral, treatment planning, intervention, and evaluation.

The Project Rationale

The project has a tripartite rationale. The first part relates to the history of computer applications to social work and social welfare. Until the mid-seventies, applications were almost exclusively mainframe-based data processing operations designed to serve administrative and management functions rather than clinicians' needs. Data of interest to clinicians were either not stored or, if included in the

system data base, were likely to be of poor quality or not accessible to clinicians (Dery, 1981). The negligible benefits to clinicians from such applications did not offset the significant costs of data entry and the threat of closer surveillance and deprofessionalization of practice (Gripton, 1981).

The second part of the rationale relates to the contrast that existed in 1981, when the project was being planned, between the limited application of computers to clinical social work and the numerous applications to the related disciplines of psychiatry and clinical psychology (Schwartz, 1984). Gripton (1983) has attributed this difference to four conditions that facilitated applications to psychiatry and clinical psychology:

- 1) the low cost, flexibility, and appropriate capacity of microcomputers that make use feasible for the private practitioner;
- 2) the control exercised by the private practitioner over the application of the computer to his or her practice;
- 3) the high proportion of psychologists and psychiatrists engaged in private practice; and
- 4) the commitment of psychiatry and psychology to science and the traditional use of psychometrics and other quantitative measurements [by these occupations]. (p. 17)

There is evidence that these differences in computer utilization are diminishing (Schoech, 1983).

The third argument for the project was that certain developments in social work itself seemed likely to override social workers' misgivings about computers. Demands for accountability and integration of services have stimulated the installation of computerized service information systems, even in small agencies. Methods for clinician self-evaluation of practice have been developed that involve the use of standardized psychosocial measures and other procedures that generate quantitative clinical data (Bloom & Fischer, 1982). Clinical interventions that require more systematic and efficient clinical records, such as behavior modification (Fischer & Gochros, 1975) and task-centered casework (Reid & Epstein, 1977), have become more practiced.

Main Parameters of the Project

In light of the history of computer applications to social work and the recent trends described above, the Digital Social Worker project was

based on four parameters. First, microcomputers were used because they are better suited than the mainframe computer to the development of a flexible, "user friendly" system, than one that was autonomous of the host organization's computer system.

Second, the applications developed were to be exclusively oriented to the needs of clinical practitioners. Clinicians were to participate in all decisions relating to the development and installation of the system.

Third, clinicians were to be fully supported in the development and use of the system. State-of-the-art hardware and software were to be made available. The project programmer/analyst was hired as much on the basis of her ability to work with clinicians as on her technical qualifications. A data entry clerk was hired to assist clinicians with this task.

Fourth, software development was to be oriented primarily to support clinical decision-making. A major activity of the start-up phase of the project was an analysis of the information requirements of family therapists. What clinical data did they collect? How did they store, organize, manipulate, retrieve and dispose of this knowledge? It was concluded from this analysis that the system should be designed primarily as a decision support system (DSS). Its principal function would be to support important semi-structured clinical decisions related to eligibility, referral, assessment, treatment planning, intervention, and evaluation of practice. Some characteristics of semi-structured decisions are: they are made at irregular intervals and unpredictable times; the decision process is heuristic rather than prescribed; and the data items selected to inform such decisions, the way in which these items are combined, and the decision alternatives vary from decision to decision.

A secondary emphasis was on the development of interactive programs to administer standardized psychosocial measurements and carry out other procedures for collecting clinical data and monitoring, measuring and evaluating practice. The project has de-emphasized but not excluded data-processing and management information system (MIS) applications for better caseload management and the production of structured reports.

Analyzing how family therapists make clinical decisions

A critical phase of DSS development is the analysis of how users make

the decisions the system is intended to support. Two approaches have been used in this project. One, the ROMC framework, was developed for designing DSS's for relatively unspecified and unstructured decision environments, such as family therapy practice (Sprague & Carlson, 1982, pp. 95-107). ROMC is an acronym for "representations," "operations," "memory aids," and "control mechanisms." Sprague and Carlson (1982) state that:

The capabilities of DSS from the user's point of view derive from its ability to provide representations to help conceptualize and communicate the problem or decision situation, operations to analyze and manipulate those representations, memory aids to assist the user in linking representations and operations, and control mechanisms to handle and use the entire system. (p. 96)

The conceptualizations used by family therapists include theories of the family and of family therapy, diagnostic classifications, criteria for classifying family systems and relationship patterns, and categories of intervention. Examples of computerized representations are family maps, a graphic profile of a family or its members plotted against a normative profile, and a table of indices of the relative effectiveness of different interventions with a particular family problem.

Family therapist decision-making also involves operations for gathering, selecting, organizing and retrieving data and information. This includes such activities as collecting and weighting client data, developing a treatment plan for a family, and assessing the merits of alternative interventions. A DSS would support these operations in an integrated fashion, and also permit user enquiries and updating of the data base.

Decision-makers use memory aids. Examples of aids used by family therapists are a card file of basic information on client families, an appointment calendar, and a list of work to be done. These aids can be readily computerized.

Clinicians employ a variety of styles and strategies in their decision-making that combine personal modes with organizational conventions of interpersonal communication, information handling and decision rules. The project DSS has been designed with a view to providing family therapists with a similar degree of choice over its operations. To this end most of the project programs are menu driven and permit the user to override "default options."

The ROMC analysis was conducted by interviewing family therapists about how they make clinical decisions, and the results were used in developing the project DSS software. Besides indentifying the supports that therapists could use in making clinical decisions, the ROMC analysis also confirmed that there was sufficient uniformity among therapists in the way that they practiced to justify the development of a system that could be expected to serve all of them. Individual therapists were not as idiosyncratic as it first appeared.

Group supervisions as a decision-making mechanism

The second analysis of family therapists' decision-making was based upon audiotape and videotape recordings of their group supervision sessions. The therapists meet weekly for group supervision, when cases are presented for group discussion and evaluation. The families presented are ones with which the presenting therapist is having difficulty. It may be that treatment is not having the expected result; or that new information has thrown the assessment into question; or that a change in the family's situation indicates that some renegotiation of the treatment contract is in order. These meetings revealed that the structure and process of group supervision is analogous to the structure and process of decision support systems.

In group supervision, the data base for decision making consists of the data on the family under discussion collected by the presenting therapist and selectively presented to the group, plus data on similar cases that the therapist has treated in the past. Added to this are data on similar families treated currently or in the past by the other participating therapists. A third data set is comprised of relevant research findings and expert opinions and prescriptions from the family therapy literature that is known to the therapists.

These data and the ways that they can be retrieved and manipulated in the course of group supervision comprise the data base management software for group supervision.

How these data are selected, combined, compared and otherwise analyzed is determined by the therapists' model base, the theories of the family and family therapy and the taxonomies, definitions and criteria that the therapists use to organize, sift and weight data during the course

of group supervision discussions.

Two kind of queries of the data base predominate in group supervision. The first asks what characteristics of the case under discussion are similar to or different from other cases with which it is being compared. This implies that a similarity function must be performed by the project DSS software. The other type of query is the "what if" question. "What if this happened in the family?" "What if that intervention were tried?" These queries represent the interfacing of the group supervision data base and model base to estimate outcomes of alternative decisions.

The part of the group supervision sessions that corresponds to the dialogue generation and management system of computerized DSS is the protocols that govern group discussion. In lieu of a computer, the family therapist who is using group supervision as a DSS dialogues with the system by providing an exposition of a family, then posing questions and asking for advice from other members of the group. The protocols, together with ground rules and group norms, govern the user-system interaction and are the means by which the presenting therapist exercises control over the operations of the group supervision system.

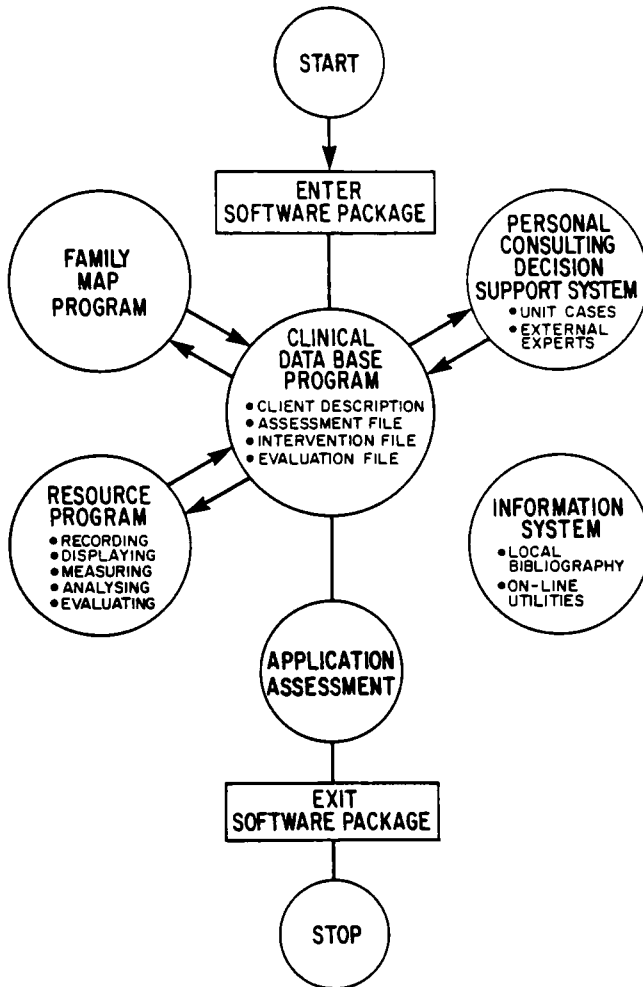
The Integrated Software Package

The structure and operation of the integrated software package are depicted in Figure 1.

Insert Figure 1 about here

At the center of the system is the Clinical Data Base Program. This is implemented under dBASE III, a commercial off-the-shelf relational data base management program. The principal content is the set of files that contain the records of families served by the program. The family therapists developed a case record of more than 300 items organized in sections on family description, assessment, intervention and evaluation. This formidable task involved reaching agreement on definitions of terms and taxonomy classes. Data can be entered directly by the therapist in response to query prompts that require only a "Yes/No," "Present/Absent," or scale value response. Therapists have found this recording procedure to be considerably more efficient than dictation or written data entry, and are confident that the quality of data has been enhanced through computerization. No concern has been expressed about

Figure 1. An integrated software package for clinical social work.



the opportunities for idiosyncratic record keeping that were sacrificed to produce a standard format record that permits cross-case comparisons and computations.

A second component of the package is a Family Map Program. This program constructs a family map from descriptive data on the family and the family therapist's ratings of the relationships and interactional patterns between family members on several dimensions. These ratings are depicted by lines of varying width joining the relevant family members. The family maps can be printed as well as displayed, and can be stored in the family record.

A third component is the Resource Program. This program is a computerized version of the procedures, forms, measurements, statistical operations, guidelines and decision trees presented in *Evaluating Practice: Guidelines for the Accountable Professional* (Bloom & Fischer, 1982). The substantial contribution of this book is that it provides clinicians with feasible means for making practice accountable, especially through the application of single-system experiments for self-evaluation of practice effectiveness.

The information generated by the Resource Program includes checklists, behavior records, self-anchored and rating scales, client logs, post interview session reports, line charts, bar charts, and computer administration and scoring of standardized psychosocial measurements. The program also enables the clinician to choose the best standardized measure, single-system design, or data analysis procedure to use in a given situation. The Resource Program resides in Lotus 1-2-3, an off-the-shelf program that combines data base management, spread sheet and graphics capabilities.

The Information Package consists of: A family therapy annotated bibliography that is being compiled by the family therapists and stored as a dBASE III file; and on-line utilities that access other bibliographic data bases. Continuing research is being done to determine which on-line utilities and data bases will provide the most cost-effective resource.

The component of the software package with the greatest potential is the consultation program that provides advice to the family therapists. It is described in the following section.

When an application of the package is completed, an application assessment is automatically administered to the user. This program asks the therapist to rate the help provided by the application on several key dimensions. These ratings are stored and used to evaluate the software package and to give direction to the programmer/analyst in improving it.

Development and Architecture of PCDSS

PCDSS (Personal Consultant Decision Support System) is constructed in terms of a theory of consulting, i.e., it has been designed to simulate the way consultants give advice. There are four components of this model (see Figure 2).

Insert Figure 2 here

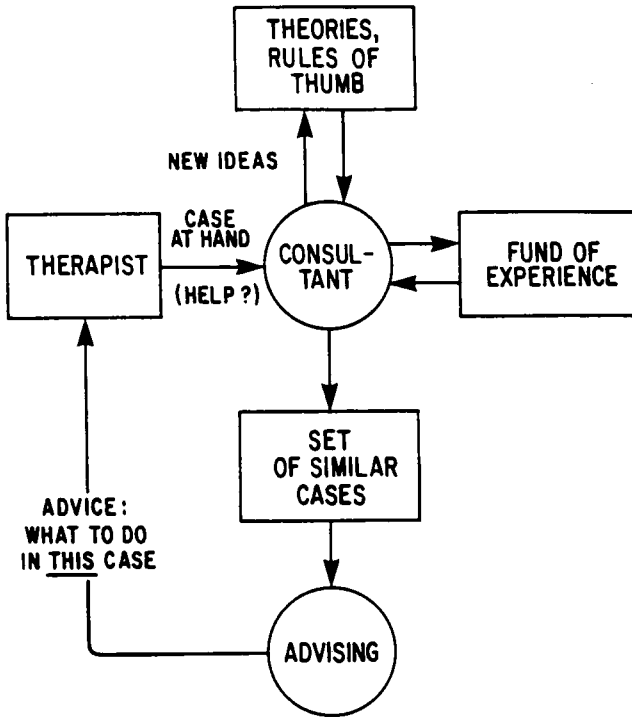
First, consultants typically quiz therapists about background information on the case at hand. For family therapy applications, this means describing in some detail the family about whom advice will be offered and what has happened in therapy to date. Second, consultants analyze or categorize the case at hand in reference to their fund of experience of cases that they have handled, read about or can theorize about. Explicit theory may play a role here; just as likely, a consultant may advise cases without the benefit of explicit theory or in the face of conflicting theories.

Third, consultants make comparisons between the case at hand and cases in their fund of experience, deriving a set of similar cases to think about. Finally, this set is analyzed for patterns in strategies attempted and success attained. Consultants offer advice in terms of these patterns and the likelihood that certain strategies will succeed for the case at hand.

These four components (the case at hand, a fund of experience, a set of similar cases, and derived patterns of actions) are at the heart of consultation.

There are four broad approaches to implementing computer-assisted consultation, each with a unique stress on one or more of these components. The data base (DB) approach (Codd, 1970) merely provides query facility into the fund of experience to answer simple questions, such as "What families have I seen that are single-parent, having a child acting out in school and a history of intergenerational sexual abuse?" The consulting system relies heavily upon the user's ability to draw

Figure 2. A model of consulting.



inferences from the organized presentation of sets of data in a variety of formats. Figure 3 illustrates this approach. We rejected the database approach as merely automating history recall without introducing any real "intelligence" to the consulting situation.

Insert Figure 3 here

The Decision-Support System (DSS) approach (Sprague and Carlson, 1982; Keen and Scott Morton, 1978) taps the recall and organization capabilities of the database approach, but adds the power of explicit mathematical and statistical models to the area in which the therapist works. To use the DSS approach in family therapy would require developing at least one model of the interaction of "causes" and "effects" (i.e., interventions and outcomes) on a statistical basis. Developing such models requires far more information about family therapy theory than now exists. The DSS approach was therefore not pursued. Figure 4 illuminates the activities of the DSS approach, which serves essentially to answer questions such as "What would happen if we try paradoxical intervention with a family like the one described in the previous paragraph?"

Insert Figure 4 here

The most ambitious consulting system approach is the expert system/artificial intelligence (ES/AI) alternative. This is actually a spectrum of approaches, each based on the idea that a "logical model" of family therapy intervention can be developed (Schoech, et al., 1985). Using the model, questions such as "Can paradoxical intervention be used with a family of this type in this situation?" may be answered. This approach is derived from early work in LISP on theorem-proving. While artificial intelligence has indeed blossomed in recent years, techniques for creating logical models are still difficult to use and successes in complex arenas such as family therapy have not been reported with the frequency of others like medical diagnosis. The expert system approach substitutes a "front-end" conversational program to tease out these models from "experts," thereby simplifying model-building. Nonetheless, the obvious lack of widely-shared theory in family therapy makes such models difficult to elicit. Shown in figure 5, the ES/AI approach has also been rejected by our team.

Insert Figure 5 here

Figure 3. The database approach.

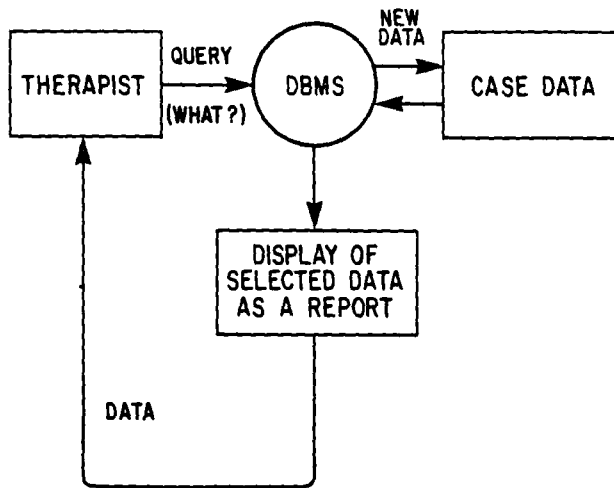


Figure 4. The DSS approach.

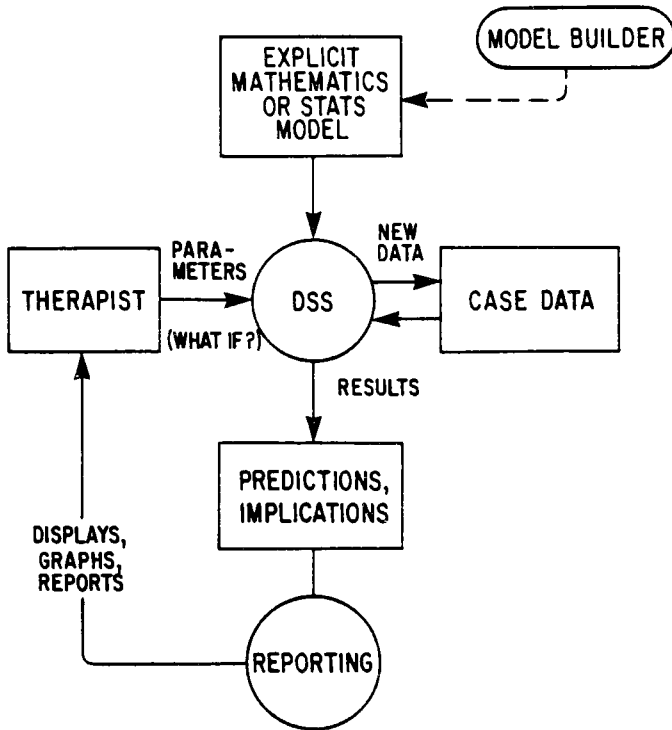
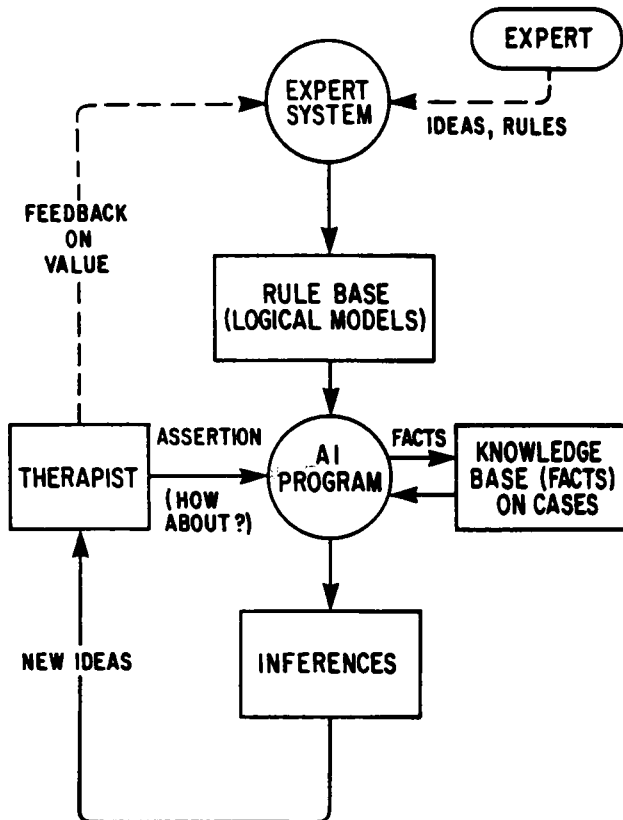


Figure 5. The ES/AI approach.



Instead, we have chosen a fourth plan (Licker & Thompson, 1985; Gipton, 1984), one combining aspects of each of the three approaches. First, PCDSS is built around, and thereby depends upon, a commercial database management package for microcomputers called dBASE III. This brings the query facilities of the database approach to consulting with the obvious benefit of easy data entry and reporting.

Second, PCDSS provides consultation from a variety of idiosyncratic consultants, each of whom is "teased" in some way to elicit a model. But the models are not logical models of family therapy intervention. Rather they are models of a consultant's way of judging cases as similar. Since no two consultants would judge each pair of cases as alike or dissimilar, our models, or "similarity functions" as we call them, characterize each consultant's way of consulting. In this way, PCDSS employs "experts" without the necessity of constructing complex, slow, costly and difficult-to-debug logical models.

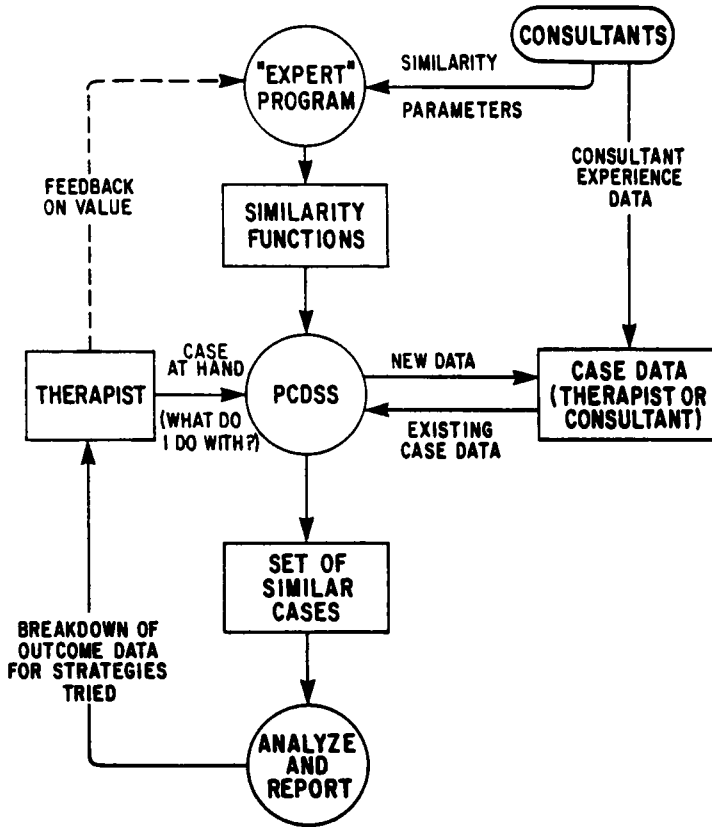
Third, like the DSS approach, PCDSS allows users to employ "What-if" strategies, by asking the consultants "What if the case at hand is like this:...?... or this...?" In other words, users, who are themselves therapists, may be non-specific in certain ways and uncover a range of advice. This allows them to select advice based upon their judgement of the likelihood that the case at hand is really as each description indicates.

The interplay of these approaches in PCDSS (an approach we call CS for "consulting systems") is illustrated in figure 6. Here we see the working of the database manager to retrieve cases, based on similarity functions which are elicited from consultants. These similar cases are then analyzed for patterns of strategies and effectiveness, while the specifications for the case at hand are refined in order to obtain additional advice.

Insert Figure 6 here

Consider the request used as an example so far: "What should I do with the Jones family, headed by a single mother who was abused as a child and whose daughter is acting out in school?" The therapist can request advice from a number of consultants, yet suppose she seeks advice from O. Racle. A file of therapeutic events contains information on what therapeutic interventions were tried with which families and what the

Figure 6. The CS approach.



judgment of "success" was on a variety of dimensions.

In a previous session, O. Racle has informed PCDSS that similarity judgments are made on the basis of family size (± 2 members), having similar presenting problems (in eight classes), age of head of household (± 6 years), and a number of other traits. Let us ignore these others for the moment. The therapist enters information describing the family, its problem, and a host of other factors. O. Racle then proceeds, under control of PCDSS (and therefore under control of dBASE III) to examine all therapeutic events on file, seeking those which fall into a certain range of family size (the size of the Jones family ± 2), having problems O. Racle judges as similar to "acting out," and having the same age of head of household as the Jones family (± 6).

The capabilities of the database manager are such that this search is easy and rapid.

Since the therapeutic events file links families, intervention tactics, therapeutic assessments, and outcomes, the results of this search provide a list of cases in which the families are similar to the Joneses and problems are similar to "acting out" (see Figure 7).

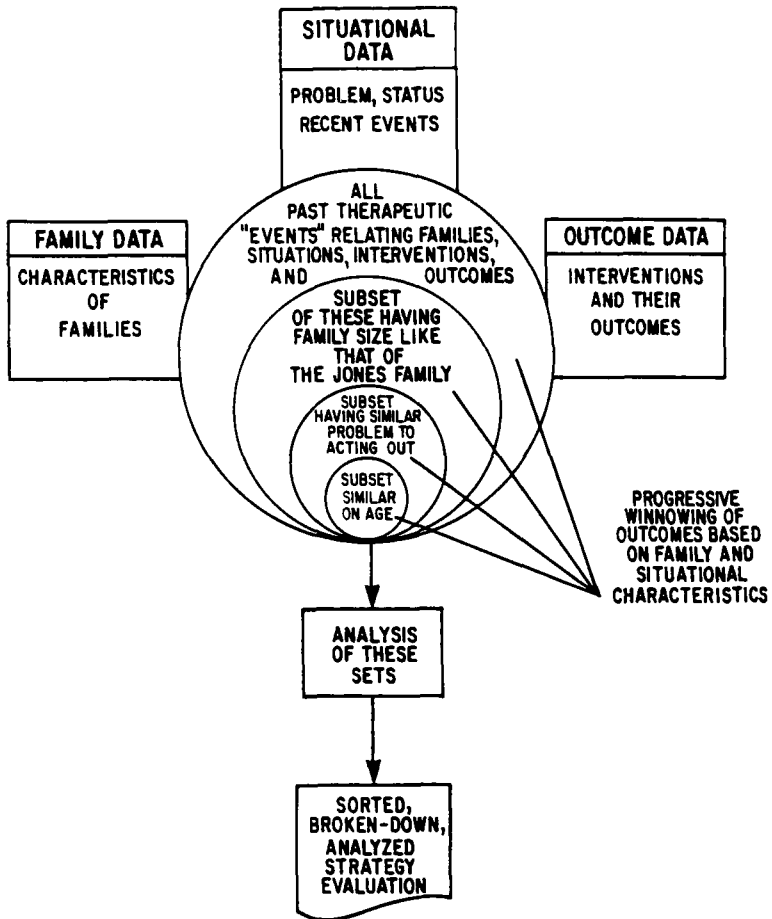
Insert Figure 7 here

Given this set, PCDSS proceeds to break it down by intervention tactics and provides an average outcome rating for each such tactic. Advice then consists of this analyzed list, which may be interpreted as providing probabilities that certain interventions will be effective for treating families like the Jones family now. That is precisely the form of the answer to the question posed: "What do I do with the Jones family, whose daughter is acting out in school?"

The advantage of this approach is that there is no need to construct explicit theories, either probabilistic or logical in nature, relating interventions and outcomes. We work from "raw" data of actual experiences of a consultant. This contrasts strongly with the DSS and ES/AI approaches which begin with theory and then apply it to specific circumstances. Instead, the CS approach utilizes implicit, but effective theory-in-action.

The danger, of course, is that if the "consultant" is a peer and the data

Figure 7. How PCDSS creates advice.



base is all experience (as it is in the Family Therapy Program at Alberta Children's Hospital), the "conservative bias" of PCDSS to advise to behave in the future as in the past may create a system which does not learn. Also, there is the problem that what is effective for one consultant may not be effective for that consultant's advisee. A technique may work for a consultant and fail for a less-skilled therapist.

These criticisms are valid only if we presume that (1) advice is followed mechanically and (2) ineffectiveness in applying advice is biased in certain ways, i.e., non-random across intervention tactics. Neither assumption makes sense in the context of peer groups of professionals. Therapists have several sources of support other than PCDSS, such as peer and individual supervision, professional literature, and in-service training. Far from following advice mechanically, therapists in the Family Therapy Program at Alberta Children's Hospital utilize PCDSS as one source among others.

The other assumption is just as shaky. Therapists are highly-trained. Obtaining advice from other highly-trained colleagues who share a similar orientation should randomize ineffectiveness in application, although it will not eliminate bias among those who simply will not or cannot utilize a technique for personal, political, or practical reasons.

PCDSS may be enriched through the addition of textbook cases which are derived from coherent, accepted theories or from handbook cases which are taken from practical sources. Certified content experts may also be consulted and their experience coded into the database.

We view PCDSS as a good simulation of consultation, but it may also be used in a number of other ways. Because it captures therapeutic events, it may be used to learn about dependencies in order to construct explicit theories. In another mode, PCDSS can be used to teach novice therapists by posing -- and advising upon -- typical or syndromic cases. Finally, PCDSS can be restricted to work in a "self-advising" mode, allowing a therapist to become his or her own consultant.

We have plans to expand PCDSS in a variety of ways. First, similarity functions cannot currently be "debugged" actively by those whose knowledge is tapped to build them. We plan to construct an "advice analyzer" to provide feedback to "experts" on the value of their similarity

functions. Second, although a number of experts may be electronically "approached for consultation," PCDSS does not support inter-consultant comparisons and the merging of advice. Group decision-making is the natural extension of the individual mode we have implemented.

Third, although a limited "What if the case is really like this?" facility is provided, we have no way of saving and comparing these scenarios and their outcomes. Providing this information would assist therapists in understanding their cases better, if only to see if it really matters whether or not the head of a household is aged. As an extension of this, we plan to build a facility to relax constraints on similarity at the request of the user.

PCDSS is a complex software system aimed at simplifying the process of describing families and obtaining advice from consultants in a fairly straightforward mode. PCDSS contains a sophisticated data capture and report facility to simplify paperwork and a set of aids for assessment.

In conclusion, PCDSS provides a straightforward consulting facility for family therapists, built around a simple model of consulting while providing powerful data capture, reporting and advising functions.

Introducing Computers to Clinical Practice

The rationale for computerization

Practitioners or administrators who ask "Why computerize?" should consider the following conclusions derived from our project experience and consultations with others involved in developing computer applications to clinical practice:

- 1) Performance - Computers can store voluminous data in very little space, sort and retrieve it with great speed, and present it in varying formats to suit the needs of the user. They can easily answer "what if" queries, by recalculating conclusions based on alternative conditions suggested by the user. Furthermore, they can almost instantaneously share such information with the world at large through the use of electronic communication systems, thus broadening the user's knowledge beyond the immediate work environment.

- 2) Accuracy and Reliability - A properly functioning computer is unerringly consistent in its digestion and reproduction of data. As a result, such a device can obviate many of the errors in the recording,

storage and retrieval of information to which human processors are prone. Attaining such error-free functioning cannot generally be attained without a significant investment in developmental programming.

3) Productivity - There is no doubt that knowledgeable users of computer systems can accomplish considerably greater amounts of information processing than would be possible without this technology. Again, however, this benefit is not obtained without costs in terms of the learning required to harness this computational power.

4) Revelation - Since they extend human information processing capacity, computers permit the exploration of relationships among disparate items of information that would not be feasible with the "naked brain" alone. Hence, they can assist in revealing heretofore undiscovered relationships between data items.

Before these benefits of computerization can be realized, prospective users must first wrestle with the issue of purpose. Clinical service agencies perform many functions in their daily operation that are amenable to computer support. The question of purpose must be addressed in relation to the users of the system, as well as at the level of the individual task that is to be automated. A broad distinction can be made between management staff, who generally use computers to automate administrative tasks, and line employees, who may wish to utilize such machines to assist them as practicing clinicians. Each occupational group will be less inclined to utilize a computer system developed primarily to meet the needs of others. Although systems can be developed that meet the requirements of each group in equal measure, this can be achieved only with a corresponding increase in development and maintenance costs. Consequently, agencies with limited resources may in the short term be faced with robbing Peter to computerize Paul. Evidence suggests that computerized systems must be tailored carefully to the user's requirements if they are to be well utilized.

At the level of individual tasks, further issues of purpose revolve around the decision as to whether the computer system should directly automate presently performed functions, or innovate in the performance of tasks that were heretofore too time-consuming or computation-intensive for human computational capacity. For example, the introduction of word processing is a use of computer power that does not introduce any new functions but serves to enhance efficiency. On the other hand, the introduction of a clinical decision support system may reshape practice in truly novel ways.

Table 1 presents possible uses of computers in clinical agencies, based on the above considerations. Particular uses of computer systems are classified according to their interest to management or line staff. The uses are listed in descending order according to whether they primarily enhance the efficiency of task performance, or whether they lead to a modification of the task's performance. This list by no means exhausts the possible uses of computers in clinical agencies.

Insert Table 1 about here

A further primary consideration in planning for the computerization of a clinical service agency is the resources available to the agency to realize any such plan. Computerization entails the visible costs of hardware and software. Additional expenses are usually incurred for consultants to advise on which items of hardware and software to acquire. Once these items are on site the task begins of developing viable applications that serve the needs of the agency. This can vary in complexity from the simple use of off-the-shelf software for word-processing to the construction of an elaborate, tailor-made data base management system. Complex applications involve extended time frames and substantial investments of money and expertise. Computer experts are required to construct, test, and help implement the system. The costs associated with such an installation can be expected to exceed greatly the combined costs of the basic software onto which the specific application is built and the computers themselves.

It is only after the system is in place and functioning that the costs that are least visible at the outset are incurred. These include expenditures for staff training, maintaining and developing the software system. Computer programs often appear to be thoroughly error-proofed upon first implementation, but may contain subtle "bugs" that only appear after a protracted period of actual use. Furthermore, whatever the positive attributes of computer systems, they are inflexible to a high degree. As a result, individually tailored software systems typically incur ongoing maintenance costs involving the reprogramming of newly surfaced errors, in addition to redesigning of the system in whole or in part in order to make it better meet the evolving needs of the agency.

The process of decision-making related to the acquisition of a computer system is represented in figure 8.

Table 1

Applications of computers in social work practice.

Use	Management staff	Line staff	All staff
Word processing - correspondence	X		X
- agency	X		X
- client records			X
Caseload management		X	X
Caseload reporting		X	X
Financial tracking/projections (spreadsheets)	X		X
Scheduling - workloads		X	X
- room/equipment bookings			X
Administration/interpretation of scales of psychological/social functioning		X	X
Treatment outcome monitoring and documentation	X	X	X
Client and service descriptions to aid in planning resource development (e.g. problem typologies, service parameters, referral routes all through database management)	X		X
Clinical Decision Support Systems guiding treatment		X	X

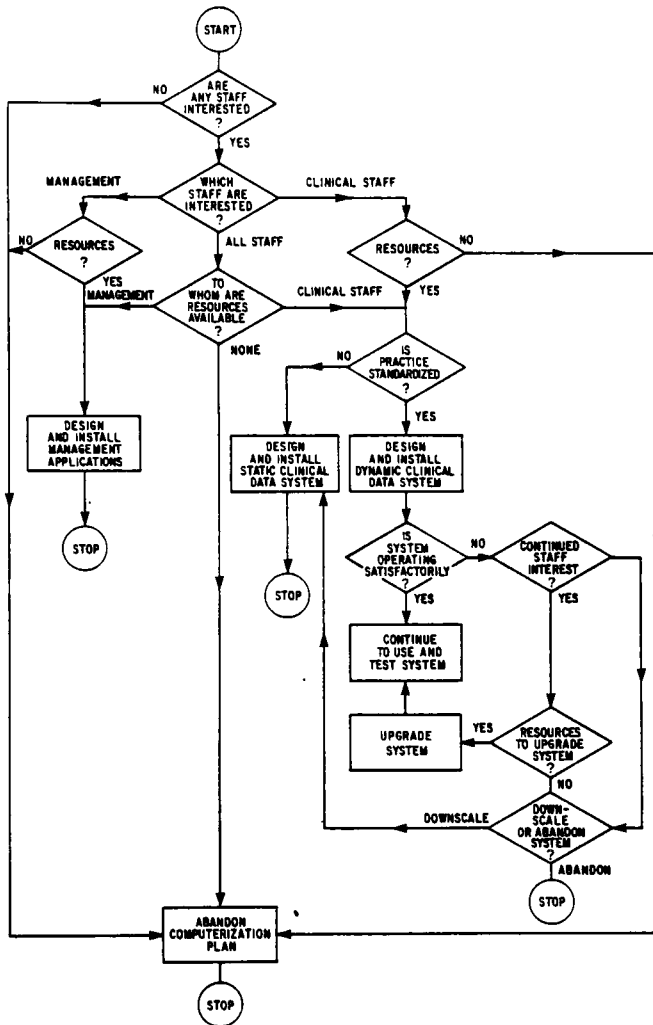
Insert Figure 8 here

The first consideration is whether there is sufficient interest in computerization on the part of either management or clinical staff. If at least one of these groups is interested, then the next issue is availability of resources. If there are both sufficient interest among clinical staff and the resources available to computerize, the next consideration is the degree of standardization of practice among prospective clinician users. If standardization is low and unlikely to be developed, then computer application will be limited to "static" data use systems that passively store data on client and service parameters. Such applications are likely to be of greater value to managers than clinicians. Agency-wide clinical applications demand some consistency in how practice is conducted, described and defined across practitioners. Such standardization permits the development of "dynamic" systems that can render judgments as to how service is best provided. Dynamic systems are capable of reshaping the information that they store. Such is the case of the Personal Consultant Decision Support System described above. The chart also depicts the sub-process whereby the design of a dynamic data base system develops through cycles of refinement, while never reaching a final form. This type of applications development, involving continuous close collaboration between computer personnel and clinician users, is called "prototyping" (Sprague & Carlson, 1982). The maintenance of this cyclical process is dependent upon dependable operation of the computer system, the level of support provided to facilitate clinician utilization, the availability of resources to maintain the refinement process, and the level of enhancement to practice that its use provides to clinicians. Failure to meet these conditions will result in abandonment of the system (Hedlund, Vieweg & Cho, 1985), or downscaling to a static system.

In summary, the process of computerization of a clinical service agency will proceed most productively if the following factors obtain:

1. The agency's administration supports the value of computerization;
2. In the case of clinical applications, the line staff is also supportive and open to technological innovation;
3. The necessary budgetary resources are available to finance hardware, software, and technical expertise;

Figure 8. Steps in planning a computerized information system.



4. There are adequate consulting, technical support, and training personnel;
5. Adequate investment is made in staff training;
6. Staff-users receive ongoing support from data entry personnel, and prompt trouble-shooting is available.
7. Use of the system is perceived by the users as significantly enhancing their practice;
8. In the case of clinical applications, the staff jointly adhere to a common theoretical perspective on clinical practice and largely use the same repertoire of therapeutic methodologies.

Some Impacts of Computerization - Good, Bad, and Indifferent

There are some further impacts on clinical service agencies that attend computerization. Some are readily apparent, others potentially surprising; some are clearly desirable, others potentially noxious. The first four apply to computer applications in general. The others refer more specifically to the kind of clinical decision support software which we have been developing.

1. Time will not be saved by computerization and the amount of data stored will be increased. Initially, time will be lost until the system is properly operational and staff have accommodated themselves to its functioning.
2. Lightning-fast storage of information can also mean lightning-fast eradication. Hence, proper procedures for reproducing "backup" copies of data banks become crucial. Fortunately, this task is easily and reliably performed by modern computer systems.
3. The secure protection of confidential data becomes a paramount concern as theft of this information also can occur at lightning-fast speed.
4. Overdependence on computerized data processing can lead to operational crippling when software or hardware malfunctions. The impact of this can be minimized through building competent technical

support networks. Similarly, the selective reproduction on paper of digitally stored information allows the agency to continue to function at some measure of effectiveness should such a malfunction occur.

5. Obsolescence in hardware and software will be totally unavoidable and mercilessly swift. It will be measured in months rather than years. The resulting depreciation of the original financial investments should be expected at the outset of the computerization process. The only absolute defense against this reality is to perpetually postpone computerization until the next, more powerful computer is introduced.

6. Deification of the computing machine can lead to dangerous over-reliance on its calculations. One of the oldest and truest adages about computers is "Garbage in- garbage out." It succinctly captures the fact that computers are nothing more than incredibly fast and reliable morons. The machine cannot convert items of data into meaningful information in the sense in which Bateson defines this term as "a difference that makes a difference." The transformation of fact to import must still be performed by the user of the system.

7. Users of software systems designed to improve clinical practice will be obliged to engage in conceptual clarification of the nature of their practice. Computer representations of the therapy process do not yet capture its subtleties and complexities. Nor can they resolve ambiguities, or correct faulty logic.

8. Clinical practice will come to be viewed more in digital/scientific terms than in analogic/ artistic terms. Practice will be analyzed more atomically according to its subcomponents, rather than holistically according to its overarching design. This development results from the fact that dissection is more amenable to computer-assisted processing than is the expression of global patterns. It is a direct concomitant of the triumph of digital (which represent percepts as sequences of bits of data) over analogic computers (which represent percepts as data wholes.)

9. Practice will tend to become more standardized within any given agency. Because any computer representation of clinical practice will enforce a parsimony of ideas about practice in order to enhance

computational manageability, all participating staff members will tend to underuse some of their earlier conceptualizations about practice in accommodating to the new computer system. This will be a consequence of the system requiring certain data of the user which previously may not have been valued highly, and ignoring other data which the user may consider highly important. Hence, the agency as a whole may experience a "regression toward the mean," a clustering of ideas and practice about the new definition of reality imposed by the computer system. Since individual clinical service agencies can easily share their data through the use of telecommunications, the effect of such networking may be to extend standardization beyond the boundaries of any particular agency to the larger system of psychosocial services.

10. Computerized agencies may more strongly resist change. Computer systems tend to develop considerable inertia because of the major investment in creating them. Redesign entails reprogramming costs, retraining, and further error-proofing. For a clinical service agency the initial investment in computerization is likely to consume the allotted resources, and the agency may be unwilling to reallocate further resources to such a revision. Hence, we anticipate that new developments in the practice professions will be expected to fit existing clinical computer systems, rather than the reverse. An installed system may thereby retard the agency in incorporating recent therapeutic innovations.

REFERENCES

- Bloom, M., & Fischer, J. Evaluating Practice: Guidelines for the Accountable Professional. Englewood Cliffs, NJ: Prentice Hall, 1982.
- Codd, E.F. "A Relational Model of Data for Large Shared Data Banks. Communication of the ACM. 13 (6) (1970), 377-387.
- Dery, D. Computers in Welfare: The MIS-match. Beverly Hills, CA: Sage, 1981.
- Fischer, J., & Gochros, H.L. Planned Behavior Change: Behavior Modification in Social Work. New York: Free Press, 1975.

- Gripton, J. "Microcomputers and Wordprocessors: Their Contribution to Clinical Social Work Practice." In G. E. Lasker, (Ed.), Applied Systems and Cybernetics Vol. 3 Human Systems, Sociocybernetics, Management and Organizations. New York: Pergamon, 1981.
- Gripton, J. "How to Computerize your Practice." Practice Digest. 6 (3,) (1983) 16-20.
- Gripton, J. The digital social worker: Microcomputer applications to clinical practice. Presented at Council of Social Work Education Annual Conference, Detroit, 1984.
- Hedlund, J. L. Vieweg, B. W., & Cho, D. W. "Mental Health Computing in the 1980s: General Information Systems and Clinical Documentation." Computers in Human Services. 1 (1), (1985), 3-34.
- Keen, P. G. W. & Scott-Morton, M. S. Decision Support Systems: An Organizational Perspective. Reading, MA: Addison-Wesley, 1978.
- Licker, P. & Thompson, R. Consulting systems: Group decision support by one person. Presented at 18th Annual Hawaii International Conference on Systems Sciences, Honolulu, 1985.
- Reid, W., & Epstein, L. (Eds.) Task-centered Practice. New York: Columbia, 1977.
- Schoech, D. Computer Use in Human Services: A Guide to Information Management. New York: Human Sciences, 1982.
- Schoech, D., Jennings, M., Schkade, L. & Kooper-Russell, C. "Expert Systems: Artificial Intelligence for Professional Decisions." Computers in Human Services. 1 (1), (1982), 81-115.
- Schwartz, M. D. Using Computers in Clinical Practice. New York: Haworth, 1984.
- Sprague, R. H., & Carlson, E. D. Building Effective Decision Support Systems. Englewood Cliffs, NJ: Prentice-Hall, 1982.

THE IMPLICATIONS OF COMPUTER TECHNOLOGY IN THE DELIVERY OF HUMAN SERVICES

Narvior C. Barker
Georgia State University

Abstract

Social service programs are nowadays required to operate efficiently and effectively. In order to insure that this occurs, service delivery must be documented and evaluated like never before. Nonetheless, at the same time, clients are reporting in ever greater numbers to receive services. Computer technology can assist practitioners to deal with this apparent conflict. For example, computers facilitate documentation, encourage the utilization of advanced research techniques, and free practitioners from paper work, so that increased services can be offered. Accordingly, this technology can be used to improve the delivery of social services.

With human service programs seeking increased accountability, manageability and visibility, the need to measure and evaluate services becomes critical. Equally important is the need to monitor the services rendered, as well as maintain accurate, updated rules on clients and programs within selected geographical areas. Such activity increases the proficiency of programs, integrates service delivery systems, enhances benefits to recipients, and creates reliable information banks. Thus the use of computer technology in human services warrants serious examination.

This article explores the possible impact of technology on clients, human service personnel, education, funding, and confidentiality. Technology may offer such benefits to clients as shortened qualifying and waiting periods for services (eligibility requirements) and more humane execution of treatment (interpersonal relating). It is further noted that a decline in client abuse (dehumanization of services), service

abuse (case management), and repetitious funding (income maintenance) will occur. Computer technology, by definition, utilizes the language of science - through rapidly examining, correlating, and selecting data - relevant to problem-solving (Webster's New World Dictionary, 1976). Meyer (1982) stated that human communication is usually a mixture of bibliography and task or process oriented data. Human service organizations employ social workers, and other health professionals to interpret this data and make the most appropriate, expedient decision for problem solving. The lack of a "third ear" for assessing material often proves problematic for efficient problem solving (Davis, 1979). Consequently, the worker must be attuned to all levels of information. This intake of information allows for the identification of a problem and movement towards a resolution. Therefore, worker attention is a necessary commodity.

Vogel (1985) and Meyer (1982) stated that an examination of client data is a key factor in providing effective and efficient client services. Yet collecting, processing, transferring, storing, and disseminating material can be overwhelming. (Gruenberger, 1973; Gruenberger, 1972). Computers can be programmed to analyze simultaneously several sources of information and identify alternative courses of action. This produces answers to many unexplored questions. With computers, the attention factor is obsolete because this cybernetic device operates on programming. The impact of technology on clients becomes evident through improved worker-client relationships (Panko, 1982; Dalal, 1981). While the computer analyzes and processes client data, the social worker interprets the information and makes decisions regarding client eligibility and use of service. Entries related to the client are then put onto the terminal, minimizing further duplication of services and shortening the waiting period for clients to receive assistance. Equally important is the increased numbers of clients who are seen because the human services worker, who uses this method, reduces actual client contact to a minimum. These benefits enhance worker accountability, client maintenance, and services with respect to agency visibility and client need. Clients will no longer need to duplicate or triplicate their requests for services. This lack of repetitiousness provides an element of humanness to the client/ worker relationship (Panko, 1980). The client then becomes responsible for keeping his/her file current, while the worker records these entries in the computer. A worker's profit from such a system is a decrease in client hostility and suspiciousness, which results from a client having to repeat his/her request for help

numerous times to several different workers.

Technology clearly maximizes the number of patrons served. By workers not having to record, transfer, and/or telephone or write for verification of information, they are more available to clients. With the core of bibliographic data placed on a computer disk, along with all other pertinent client information, the worker can explore problem solving strategies more easily and quickly. The worker simply extracts from the computer selected information relevant to a client. Worker attention is given to the critical elements necessary for problem identification and resolution. Once services are rendered, information is again keyed into the (computer) client file for future reference. This action promotes the humane execution of services through productive client and worker interaction.

Benefits to human service personnel range from more effective time/case management to improved service delivery systems (Schoech and Arangio, 1979). The ability of the computer to document and maintain data far exceeds the worker's ability to recall this information. Wohl (1980) describes the computer as a data bank for client information and referral aides, identifying programs, and service evaluation. Hence, the computer increases a social worker's ability to reach needy populations, while maintaining accountability for services.

As a result of more proficient and increased client services, worker and agency accountability are realized. Documentation on the number of clients served, the services available in a geographical region, and bibliographical characteristics of client populations are easily assessable. Such data enhance worker productivity while making time available for professional development and creativity. The ease with which cases can be maintained and handled are obvious gains to both the worker and agency. Misplaced and/or lost files will become extinct. Also, client income maintenance and case control are easily monitored subsequent to the installation of computers in human service agencies. This virtually eliminates not only the duplication of services, but actually makes available more programs and services to clients who need them most. As a result of computer monitoring, possible fraud and misuse of funds and services can be detected. The refunds from such an investigation then become available for new clients or improved services.

Dalal (1981) stated that human services offices serve two functions -

processing and communicating information. The computer, when effectively programmed, simultaneously handles both. Traditional employee activities such as processing, organizing and controlling the work flow (Wohl, 1980; Dalal, 1981), all part of management, are minimized or eliminated by the computer. This technology, in effect, enhances a worker's ability to provide more creative client services. The time a worker spends filing, collecting, analyzing, assembling, and checking information comprises approximately forty-five to fifty percent of the work day (Wohl, 1980). Another ten percent is used communicating this data to others. This leaves roughly forty percent for service and lunch. According to Meyer (1982) and Dalal (1981), worker productivity is seriously hampered by inadequate, routine, or lost correspondence. Communication problems produce duplication of services, mistakes, omissions and even complaints, all of which reduce efficiency.

The computer can be programmed to update eligibility files, store information, and maintain a list of all clients, employees, and areas served. For example, a social worker may want to check on the number of unwed teenagers in a certain age range, and such a request can be handled by using the computer to determine the number of such women living in any geographical region. A computer may also store all the known facts related to certain pathologies/disorders so that once a client's symptoms are identified a diagnosis can be made, in addition to informing the worker about the appropriate treatment facilities that are available. Even more importantly, for cases of abuse, neglect, or medical illness, medical staff and/or social workers can identify conditions which require immediate attention and place such information in the patient's chart which is then recorded on a computer disk. Thus, when further entries are made in patients' records, the computer can scan pre-existing records and alert staff to any dangerous conditions and identify whether any correctives have been initiated. This monitors treatment, in addition to improving response time to clients.

I am not implying that health and human service workers are poor at processing information. Instead, I am suggesting that these individuals reflect NORMAL human processing. Carlson (1985) stated that the distinction between human and computer information processing reflects optimum versus minimum processing capability. Computers can be programmed to process all the information entered into its system. Human processing responds to selected stimuli at any given time. Simon

(1981) reported that human beings do not possess the cognitive capacity to seek optional responses to inquiries. Yet normal cognitive activity, though functional for general human interaction, may be dysfunctional when optimal answers are necessary.

In summary, human services personnel can benefit in several ways when technology is applied to their office tasks. First, the time, energy, and error factors inherent in media transformation are reduced. Workers no longer will have to contend with outdated material, wait for unreturned telephone inquiries, or lose and/or misinterpret client data that has been transferred from one agency to another. Such media transformation in a human service organization is common practice. Second, the benefits of automation are realized. That is, repetitious or routine tasks which occupy much of a worker's day are eliminated. Additionally, automation makes it possible to avoid duplicating activities. And third, worker control of personal and client schedules fosters better agency functioning.

Also, the computer is an effective teaching mechanism. Its effectiveness is witnessed when training clients. Take, for example, the computer program designed to call senior citizens on a daily basis to confirm physical activity; or the computer programmed to teach words and sounds to stroke and asphasia victims. Furthermore, the computer helps workers manage information presently in use, as well as future data and information they generate. Such data may also be used for teaching and training interns, students, and employees.

Implications for social work education are equally prominent. The training of future social work practitioners must include knowledge of computer technology. As a result of Title XX and other federal legislation, a dramatic shift is witnessed in the utilization of human service workers' time. Worker commitment has been shifted to eligibility determination and redetermination, reporting, and case management, while major reductions in time are evidenced in providing actual services. Contract administration, monitoring, and evaluation are important tasks in social service programs (Gulati, 1983). Therefore, computers can assist workers to maintain a healthy balance between documenting services and client contact.

Again, social workers spend significant segments of their working day feeding information to processing systems, in addition to decoding this

data. Contracts and contract administration are not courses taught routinely to undergraduate or even the graduate level social work students (Gulati, 1983; Carlson, 1985). Yet new demands such as these are being placed on employees both in the public and private sector which are not being met by current training programs (Gulati, 1983; Carlson, 1985). Additionally, strength in research and an understanding of technology are assets for insuring future employability. Through teletraining and the implementation of contract and advanced policy courses, future social work practitioners will, again, be in demand for administering programs.

In short, computer technology offers techniques for monitoring and reporting services efficiently, while at the same time helping social workers and other human service personnel to keep pace with the rapidly changing times.

Accordingly, computer technology is cost effective. In view of space necessary for files, filing cabinets, and record maintenance, the computer requires limited space. Moreover, its memory bank capabilities surpass all human capacity. These benefits prove efficient to the comptroller and secretary whose responsibility is to monitor office management and control equipment and supplies. Gains are also derived from the computer's ability to cross-reference and make necessary corrections (deletions and additions) in important service delivery manuals and documents, as well as improved proficiency in communicating with other programs not only within the immediate community, but statewide. For example, to access the computer for information is clearly more reliable than having to telephone an individual and communicate verbally, while risking the chance of the callee not being available. Such waiting proves costly.

Ultimately, client confidentiality remains an issue of serious challenge. Anyone with the proper access code can enter the computer data bank. Dalal (1981) reported that the security of most existing systems is based on private knowledge, keys, or badges, none of which guarantees security. Protection is guaranteed through positive identification of individuals, based on something not transferrable between individuals (i.e. fingerprint, voice print, signature) (Dalal (1981). Such scrutiny is not widely used commercially because of the high cost and implementation problems. Consequently, client files and records may not be restricted solely to the assigned worker and immediate agency.

However, in such cases where child abuse and neglect is an issue, or an equally serious social problem, client confidentiality does not need to be protected. Nonetheless, the dangers of easy access are apparent. Yet, the overall advantages of computer technology may be too precious to ignore.

If human services are to be accountable, manageable, and visible, both citizens and social service workers must recognize the capabilities and potential benefits of the computer. "As society has done with other technologies, human service workers must do with the computer. We must learn to understand it, control it, humanize it, and harness it to meet the needs of human service professionals" (Schoech and Arangio, 1979).

e References

- Bolt, A. and Wardle, M. (1970). Communicating with a computer. Cambridge. University Press: London.
- Carlson, R. (1985). "Connecting Clinical Information Processing with Computer Support" in Computers in Human Service, Vol. 1. Spring: 51-66.
- Dalal, J. (1981). "Computers and the future" in Selected computer articles, 1983-84. National Defense University: Washington, D.C.
- Davis, B. (1979). Personnel Communications. National Center for Leadership Development, Atlanta University: Atlanta.
- Gruenberger, F. (1973). Effective vs efficient computing. Prentice - Hall: New Jersey.
- Gruenberger, F. (1972). Problems and Priorities, Datamation. Vol. 18, No. 3 March: 47-50.
- Gulati, Padi (1983). "Future directions in human services and their implications for social work education." Unpublished paper presented at the Southwestern Social Sciences Association Annual Meeting, Huston, Texas.
- LaMendola, W. (1985). "The future of human service information technology: An essay on the number 42." Computers in Human

Services, Vol. 1 No. 1 Spring: 35-49.

Meyer, P. (1982). "Reaching for higher productivity?" in Selected computer articles, 1983-84. National Defense University: Washington, D.C.

Panko, R. (1980). "Rethinking office automation" in Selected computer articles, 1983-84. National Defense University: Washington, D.C.

Schoech, D. and T. Arangio (1979). "Computers In The Human Services," Social Work, Vol. 24 No. 2: 96-102.

Simon, H. (1981). The sciences of the artificial Cambridge, MA.

Vogel, L. (1985). Decision support systems In the human services: Discovering limits to a promising technology. Computers in Human Services, Vol. 1, No. 1 Spring: 67-80.

Wohl, A (1980). "Replacing the pad and pencil" in Selected computer articles, 1983-84. National Defense University: Washington, D.C.

Assessing Child Maltreatment: The Role of Testing

Joel S. Milner
Western Carolina University
Callowhee, North Carolina

ABSTRACT

Due to the recent development of test instruments designed to assist professionals in the evaluation of child maltreatment cases, social service professionals must become familiar with issues related to test construction and use. The purpose of the present paper is to provide the reader with a discussion of issues related to test selection and use. This article, however, is not intended to be a substitute for a basic understanding of the test validity and reliability. The paper begins with a review of different prevention modes and discusses how each mode uses test data. Next, test use as it relates to assessment is outlined. Within the context of assessment, types of test classification errors are discussed. Finally, a number of general test issues that can affect test results are presented.

Assessing Child Maltreatment: The Role of Testing

In the past decade, a large number of checklists, surveys, and test instruments have been developed to assist the protective service worker in the assessment and treatment of parents suspected of child abuse and neglect. While most of these instruments have little or no information on their validity and reliability, an increasing number of scales do provide appropriate psychometric data, which allows the test user to evaluate the usefulness and accuracy of the test. Several assessment tools on which some psychometric data has been accumulated include the Michigan Screening Profile of Parenting (MSPP) scale (Helfer et al., 1978; Schneider, 1982), the Conflict Tactics (CT) scales (Straus, 1979), the Childhood Level of Living (CLL) scale (Polansky et al., 1972; Polansky et al., 1978), the Parenting Stress Index (PSI) (Abidin, 1983), and the Child Abuse Potential (CAP) Inventory (Milner, 1980; Milner et al., 1984). These instruments measure behaviors extending from general problems in parenting (e.g., MSPP) to specific maltreatment problems, such as physical child abuse (e.g., CAP Inventory). Since these and

similar instruments will be available in increasing numbers in the future, the purpose of this article is to discuss the appropriate role such instruments should play in the assessment of child maltreatment cases. It is not the purpose of this paper to provide an extensive discussion of technical issues related to test validity and reliability. Rather, the focus of this paper will be on theoretical issues which will enable the reader to select and use tests appropriately once test validity and reliability has been determined.

Since the degree of emphasis on test use and the type of classification error a professional wishes to avoid varies as a function of the prevention mode, the present paper will begin with an exploration of the role of testing in primary, secondary, and tertiary prevention. Following this discussion, the role of testing in assessment will be presented. The assessment section, which will include a general paradigm for assessment, is provided to give the reader a conceptual guide to the appropriate use of test instruments in screening and diagnosis. Within the context of assessment, the different types of test misclassifications and their associated problems will be delineated. This information should enable the professional to deal more appropriately with classification errors. The article will conclude with a discussion of additional issues related to the selection and use of tests in the assessment of child maltreatment cases.

Types of Prevention

In the field of prevention, three types of prevention efforts have been distinguished. As previously mentioned, the three types are primary prevention, secondary prevention, and tertiary prevention.

Primary prevention assumes that all families in society are more or less at risk of abuse, neglect and/or problems in parenting because of our mobile, impersonal, and generally stressful society. Given this assumption, primary prevention is not concerned with screening or diagnostic activities. It is not concerned with the testing of abusive or neglectful individuals or with the preselection of at-risk groups suffering from poor parenting or other identifiable dysfunctions. Since all families are believed to be at risk, professionals involved in primary prevention are not concerned with misclassification issues. Rather, they are concerned with increasing the number of community support systems available to all families by promoting related legislation and resource

allocation. Advocates of primary prevention stress broad educational and social policy interventions designed to lessen the impact of social and psychological stresses on all families. Their range of interests, therefore, extend from concern about the economic resources available to families so that adequate shelter, food, and clothing are available, to concerns about parent education programs in the schools, to maintaining public awareness of child maltreatment, and to considerations of cultural differences that may affect the quality of family life.

Secondary prevention, in contrast, does not assume that all families are to some degree at risk of abuse, neglect, and/or problems in parenting. Instead, it assumes that only certain families are seriously at risk of child maltreatment and that these families can and should be identified and offered services. Secondary prevention strategies, which are received voluntarily, include family life education programs, counseling, self-help groups, home health visitors, crisis day care, etc. In an attempt to provide services to those who are at risk, advocates of secondary prevention are often interested in using some form of screening criteria or testing to identify groups of at-risk individuals or families. In the screening process, there is less concern about false-positive classifications; that is, identifying an individual as at risk who actually is not. Instead, assessment criteria tend to be overinclusive and test cut-off scores are set low so that most at-risk subjects are selected. This approach produces few false-negative classifications; that is, identifying an individual as not at risk who actually is at risk. The goal is to construct an at-risk group without eliminating any at-risk individuals and to offer the at-risk group direct intervention services without applying labels and without diagnosis. Intervention services may be offered to the child, to the parents, or to the total family system in order to prevent the occurrence of child maltreatment.

In tertiary or legal prevention, society attempts through legislation to prevent child abuse and neglect and to prevent its reoccurrence. Legislative restrictions (i.e., abuse and neglect reporting laws) are placed on the caretaker-child relationship, and if abuse and neglect is believed to have occurred, then action supposedly follows. That is, after an abusive and/or neglectful act has occurred a report is made, an assessment leading to a diagnosis is completed, and intervention and/or adjudication follows. During this legal process, correct diagnosis with the elimination of false-positive classifications is a primary goal. However, as one type of error decreases (i.e., false positives) the

alternate error (i.e., false negatives) will increase, which in this case means that there will be an increase in the number of abusive and neglectful parents that go undetected. This error is permitted because of the often severe consequences of adjudication. For example, following adjudication for maltreatment, children may be removed, parents may go to jail, and parents may be required to submit to intervention (e.g., therapy). Thus, while avoidance of false-positive classifications provides more protection for the adults involved, the cost is an increase in the number of children who will not be protected from actual abusive and neglectful caretakers who go undetected. The problems generated by this dilemma will likely remain an issue of heated debate for decades to come.

As can be seen from the foregoing discussion, the importance of assessment methods and associated misclassification errors varies with the type of prevention efforts employed. To better understand the appropriate use of screening and diagnostic testing in each prevention mode, screening and diagnosis will be defined and discussed within the context of an assessment paradigm. This information is provided to give the reader a conceptual understanding of problems inherent in screening and diagnosis.

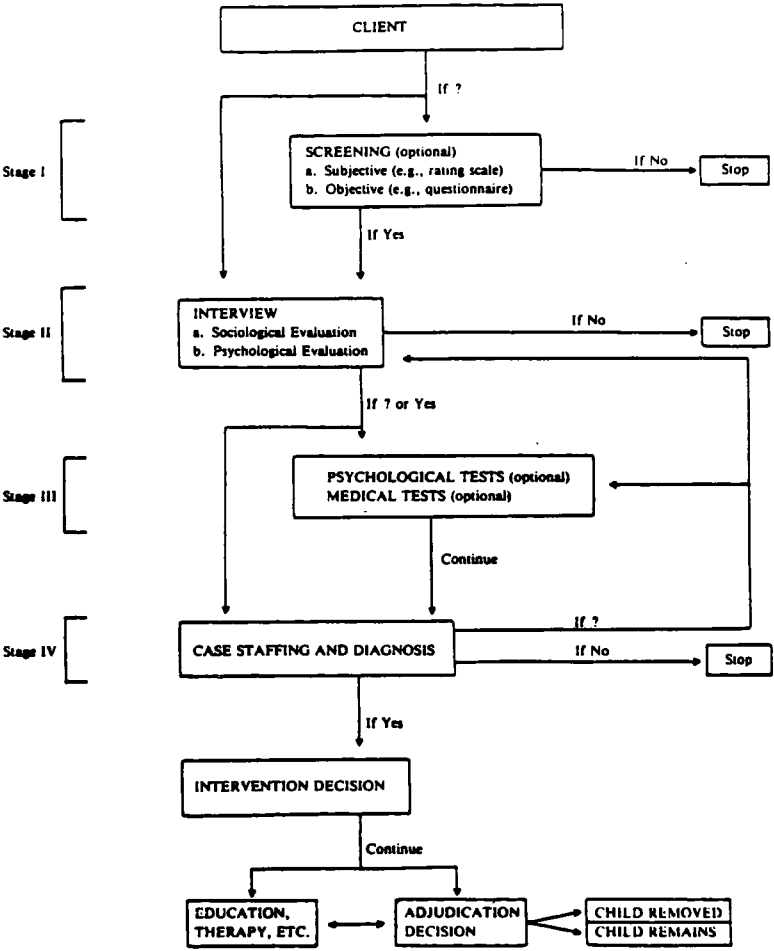
Stages of Assessment

In assessment, screening is a term employed to describe a rapid, often rough selection process (Anastasi, 1982). Usually, screening refers to a preliminary attempt to determine if a personality characteristic or behavior is present or absent in a given individual or group. In most cases, the screening activity occurs as the initial stage of an assessment process.

Diagnosis is another term describing an activity which is part of the assessment process. The term diagnosis, however, is employed to designate a more intensive and comprehensive evaluation process which occurs in the last stage of assessment.

A paradigm describing the typical stages of assessment which begins with screening (Stage I) and leads to diagnosis (Stage IV) is outlined in Figure 1. This assessment approach provides a strategy for the clinical practitioner to follow. As with any decision process, the strategy defines what the practitioner will do in any number of possible situations.

Figure 1 A Paradigm Describing Typical Assessment Stages Leading to Diagnosis and Outcome



Insert Figure 1 here

While the assessment process has been greatly simplified in Figure 1, inspection of the flow chart reveals that this assessment paradigm approaches decisions sequentially. Until the end of the process is reached, no commitment to an individual diagnosis is made. If after one stage of information gathering the individual is moved to another stage, new information about the client is usually gained. The addition of new data may and often does modify the ultimate diagnosis. Even at the last stage of assessment, if the information gathered remains ambiguous or incomplete, the strategy provides for a return to a previous stage in order to obtain needed data. For example, if during the case staffing/diagnosis stage (Stage IV), it is determined that additional history, personality testing, and/or medical tests are needed, the process can return to the appropriate prior assessment stage. Flexibility and completeness are the key features of this approach so that when a final case diagnosis is made, misclassifications are minimized.

While reviewing this assessment paradigm, it is important to understand the distinction between screening and diagnosis. Screening is the initial process (Stage I) and employs a technique which places individuals in one of two categories. That is, either a person is believed to have a specified characteristic (e.g., risk for abuse) or he does not. No other outcome is provided. Thus, placement is dichotomous. While a variety of screening approaches have been developed (e.g., rating scales, tests, etc.), most screening procedures are designed to be brief in terms of items and quickly administered in contrast to more comprehensive and time consuming diagnostic procedures.

During the process of screening individuals into one of the dichotomous categories, two correct and two incorrect classifications are possible. Figure 2 describes the four screening outcomes that can occur. The screening procedures may correctly identify an

Insert Figure 2 here

at-risk client as being at risk of abuse (outcome A) or the screening may misclassify the at-risk individual as not at risk (outcome C). The ability to correctly identify an at-risk individual is known as the sensitivity of the screening procedure. The misclassification or error of designating

Figure 2 Four Possible Screening Outcomes

		Actual	
		Client At Risk	Client Not At Risk
Screened	Client At Risk	A	B
	Client not At Risk	C	D

- A** Correct classification of at-risk status (i.e., sensitivity)
- B** Misclassification of at-risk status (i.e., false-positive classification)
- C** Misclassification of at-risk status (i.e., false-negative classification)
- D** Correct classification of non-risk status (i.e., specificity)

the at-risk individual as not at risk is called a false-negative classification. Other screening outcomes involve correctly identifying a non-at-risk client as not at risk (outcome D) or misclassifying the non-at-risk as at risk (outcome B). The ability to correctly identify a non-at-risk individual is known as the specificity of the screening procedure. The misclassification or error of calling the non-at-risk individual as at risk is called a false-positive classification.

The type of error allowable varies from stage to stage in the assessment process. False-negative classifications are usually avoided during the screening stage, while false-positive classifications are usually considered undesirable during the diagnosis stage.

During screening (Stage I), false-positive classifications are generally allowed and false-negative classifications avoided because at this stage the goal is to avoid missing any actual cases while reducing the often large pool of clients who will continue to the next stage of assessment. Since it is believed that subsequent stages will eliminate any false-positive classifications, the primary concern is that the rating scale criteria or test cutting score be set low so that the screening procedure will avoid missing actual at-risk cases.

In contrast, during the diagnostic stage (Stage IV) the focus changes. It is now important to avoid false-positive classifications because there will not be any subsequent stages to check on questionable cases. Thus, during the diagnostic stage, the criteria for inclusion in the maltreatment group is expected to be more comprehensive and complete. Again, at the diagnostic stage, the goal is to avoid false-positive classifications and the accompanying false accusation of an innocent client.

When classification errors are discussed, the type of error allowed is also affected by the type of intervention that follows the positive classification (e.g., the parent is an abuser or is at risk). If the intervention that follows involves the offer of such things as advice, education, counseling, therapy, child care and/or referral to community resources and services (as is the case in secondary prevention), false-positive selections may not be considered very damaging when weighted against the possible preventive benefit to children who may otherwise be mistreated. Further, when resources are limited and diagnosis is not a goal, a screening procedure, even one with only moderate predictive validity, is beneficial since it allows professionals to

select from a large population a subgroup of individuals who are most likely to benefit from the use of available resources. In this case, an increase in the cost/benefit ratio of the program would be expected as an ancillary outcome because those most in need of services are targeted. On the other hand, the use of more intrusive interventions involving labeling and reporting with department of social services and court involvement, which occurs in tertiary prevention, makes the elimination of false positives a necessary and important goal. With more intrusive intervention, the false-positive classification can have severe negative consequences and harmful effects on the clients and families involved. Thus, the type of classification error the practitioner is most concerned about will vary as a function of the stage of assessment and the type of intervention (i.e., secondary or tertiary prevention) that follows assessment.

General Guides to Test Use

As previously noted, the information in the present article is meant to be supplemental to basic understanding of test validity and reliability and is not a substitute for such knowledge. For a detailed guide to the understanding and use of psychological tests, the reader is referred to the Standards for Educational and Psychological Testing (American Psychological Association, 1985). Included in this document are discussions of technical standards of test construction and professional standards for test use. However, there are several general considerations in the selection of tests that need to be discussed and that are within the scope of the present paper.

Individual Versus Group Classifications

When test instruments are selected, the professional must be cognizant of the differences between the ability of a test to produce group differences and the ability of a test to successfully classify individuals. Many psychological tests, some of which have little ability to screen individual clients, can produce highly significant group differences. For example, it is possible for a given test to produce mean scale scores for abuse and control groups which are significantly different, while correctly classifying less than 50% of the actual abusers as abusive. The professional must have available the information on individual misclassification rates, as presented in Figure 2, in order to properly evaluate a test. If such information is not available in the test manual, a

test should not be utilized for classifying individuals.

What Behavior (Construct) Does the Test Measure

When selecting a test instrument, it is important for the professional to know what attitudes and behaviors the test is measuring. For example, a study may indicate that a test successfully screened individuals that were abusive and nonabusive in a given sample. The test, however, may be measuring constructs such as distress in order to predict group membership. In this example, it would be necessary for the test author to demonstrate that the distress measured relates primarily to abusive behavior and not to a general measure of distress. If general distress is measured, when a larger sample of individuals is screened, clients with personal distress (e.g., a death in the family, personal injury/illness, etc.) that is not necessarily related to child abuse potential would obtain elevated scores and be misclassified as abusive.

Use of Test Scores in Diagnosis

The professional must be aware that a test score alone should never be employed to make a diagnosis. An accumulation of data obtained from multiple sources, as described in Figure 1, must be used. This is especially important when a case is adjudicated. In some instances when assessment data remain ambiguous and a decision must be made to remove a child from the home (or to return a child), there may be pressure to employ a raw test score as a basis for the decision. This is a particularly inappropriate action given the previous discussion of false-positive and false-negative classifications that exist even with the psychometrically "best" tests. Further, each individual test score is only an approximation of an individual's "true" score and is known to contain measurement error. That is, if the test is administered again to the same individual, the test score will likely be higher or lower. Test classification errors and individual test measurement errors are of particular concern when cut-off scores are employed and individuals earn scores that are close (either just above or just below) to the cut-off score. Even when this is not the case, classification and measurement errors make the use of individual raw scores inappropriate for decision making.

What is the Base rate of the Sample Tested

A major technical problem that often is not understood is the effect of

baserates on test misclassifications. Baserate refers to how often a given behavior occurs in a specific sample. When considering the appropriateness of testing, it is not sufficient to merely consider the prevention mode and test misclassification rates. The prevalence of the target behavior (e.g., maltreatment) in the sample tested must also be considered. Simply stated, test instruments are most useful when the sample tested contains approximately 50% of the deviant subjects. In a social service setting where about one half of those reported for maltreatment are confirmed, testing would be appropriate, at least in terms of baserates. However, use of the same test instrument in the general population might not be warranted.

For example, if the baserate for child maltreatment in the general population is 5% and a test misclassifies 20% of both the maltreating and normal parents, the error rate in the group selected as maltreating in the general population will be much higher than 20%. This is true because in a sample of 100 parents, where the test has a 20% misclassification rate for normals, approximately 19 (20% of 95 normal parents) of the individuals that are not maltreating will be selected as maltreating parents. Likewise with a 20% error rate for maltreatment group selection, only 4 of the 5 (5% baserate) maltreating parents will be selected. Thus, for the general population where the baserate for maltreatment is a hypothetical 5% and the test misclassification rate is 20%, the test will select about 23 individuals (19 normal and 4 maltreating parents) as maltreating parents and will be correct in only 4 of the 23 cases selected. Even though it is true that only one of the subjects screened as normal was misclassified, incorrectly classifying 19 out of 23 parents, 19 of which are normal, as maltreating is unacceptable. While multi-stage screening, which will not be discussed in this paper, provides a partial solution for low baserate problems, it is apparent that the error rate for a test can vary dramatically when populations with different baserates are tested.

Other Test Considerations

There remain several other issues that should be considered in the selection of a test instrument. The readability level of the instrument must be acceptable. The test should contain validity subscales (e.g., faking good, faking bad, and random response scales). Validity subscales, especially those that measure faking behavior, are important in settings where there is a likelihood that the client will be motivated to distort

his/her answers in a socially desirable manner. In social service settings, the client may be particularly guarded in his/her responding if there is an investigation for child maltreatment. Thus, misclassification rates, especially false negatives, can be expected to increase if a test does not contain validity checks for response distortions. Finally, the selected test should be relatively free from bias due to demographic variables (e.g., gender, age, educational level, ethnic background, etc.). To the extent that special populations have different test scores, appropriate norm scores should be provided in the test manual.

Conclusion

Recent increases in the number of screening and test instruments available to social service professionals involved in secondary and tertiary prevention of child maltreatment is an advancement which has great potential for use and misuse. The burden for appropriate use is placed squarely on the professionals involved. If these new tools are misused, they can result in extensive damage to the families served. In contrast, if these tests are employed by professionals who have an adequate knowledge of test construction and test use, test results can be a valuable source of information that may be combined with other data to make more accurate assessment and treatment decisions.

REFERENCES

- Abidin, Richard R. Parenting Stress Index Manual, Charlottesville, Virginia: Pediatric Psychology Press, 1983.
- American Psychological Association, Standards for Educational and Psychological Testing. Washington, D. C.: American Psychological Association, 1985.
- Anastasi, Anne. Psychological Testing, New York: Macmillan Publishing Company, 1982.
- Helfer, Ray E., James K. Hoffmeister, and Carol Schneider, MSPP: A Manual for use of the Michigan Screening Profile of Parenting. Boulder, Colorado: Test Analysis and Development Corporation, 1978.
- Milner, Joel S. The Child Abuse Potential Inventory: Manual. Webster,

NC: Psytec Corporation, 1980.

Milner, Joel S., Ruth G. Gold, Catherine Ayoub, and Marion M. Jacewitz. "Predictive Validity of the Child Abuse Potential Inventory." Journal of Consulting and Clinical Psychology 52: 879-884, 1984.

Polansky, Norman A., Robert D. Borgman, and Christine Desaix, Roots of Futility. San Francisco: Jossey-Bass, 1972.

Polansky, Norman A., Mary A. Chalmers, Elizabeth Bittenwieser, and David Williams. "Assessing the Adequacy of Child Caring: An Urban Scale." Child Welfare 57: 439-449, 1978.

Schneider, Carol J. "The Michigan Screening Profile of Parenting." pp. 157-174 in R. Starr (Ed.), Child Abuse Prediction. Cambridge, Massachusetts: Ballinger Publishing Company, 1982.

Straus, Murray A. "Measuring Intrafamily Conflict and Violence: The Conflict Tactics (CT) Scales." Journal of Marriage and the Family 41: 75-88, 1979.

Footnotes

This project was supported in part by Grant No. 1R01 MH34252 awarded by the National Institute of Mental Health.

Request reprints from Joel S. Milner, Department of Psychology, Western Carolina University, Cullowhee, North Carolina 28723.

TECHNOLOGY, STRESS, AND FAMILY VIOLENCE; SOME ISSUES IN TEACHING SOCIAL WORK PRACTICE

Shirley J. Porter
Southeast Missouri State University

Abstract

This paper examines family violence. Specifically, the variables most often associated with this phenomenon are discussed. As part of this analysis, a model for assessing family violence is proposed. It is noted, however, that this mode of assessment differs in many ways from technologically oriented methodologies. Moreover, the social work profession must come to recognize the difference between community sensitive and technological models, or misinformed social policies may be the result.

Introduction

Words such as stress, alienation, and isolation are often heard in relation to technological development. These same terms are used when describing violent behavior in the family. The stress that results from unemployment, underemployment, job dissatisfaction, or isolation brought about by job relocation, for example, is commonly identified as a primary cause of family violence.

Accordingly, the two primary objectives of this paper are to examine the impact of stress on families that are prone to violence and to relate some of these issues to social work education. These implications will be discussed in terms of organizing the practice component of the social work curriculum.

Developing the context of family violence

In order to discuss the relationship of stress to family violence it is necessary to define the terms family, violence, and stress. For purposes of this discussion, the definition of the family proposed by Hartman and

Laird (1983) is used. They describe two types of families, the "family of origin" and "family of intimate environment". The former includes the nuclear family or the "blood family", the extended family, and the fictive kin or those who are considered by function as members of the family unit. The second term they borrow from the work of Skolnik. The 'family of intimate environment' includes those who have made an emotional commitment to one another and "share a variety of family roles and function".

The term "violence" is defined by various authors. There are two definitions which are more helpful than others. Marmor (1978) defines violence as "a specific form of force that involves the effort to destroy or injure an object perceived as an actual or potential source of frustration or danger." In 1979 O'Malley, in her statement prepared for a hearing of the Select Committee on Aging of the U.S. House of Representatives, defined violence as the "intentional, non-accidental use of physical force." According to these definitions, violence may occur between any members of a family, such as siblings, parent and child, spouses, or adult children and their elderly parents.

Stress may be viewed as resulting from life events or changes (both pleasant and unpleasant) which require a person to utilize some form of coping behaviors. In terms of those who study family violence the following definition of stress is generally accepted: "Stress is a function of the interaction of the subjectively defined demands of a situation and the capabilities of an individual or group to respond to these demands" (Straus, Gelles, Steinmetz, 1981, p. 270). Stress is not merely a psychological property, but includes a person's life situation where events are encountered.

Another task in developing the context of family violence is to discuss the incidence with which it occurs. Parent to child violence may range from spanking which was approved by 94% of the parents in one study (Steinmetz, 1977) to the 1.7 to 2 million cases per year which are severe enough to be considered child abuse (Strauss, 1980 and O'Malley, 1980). Of those abuse incidents, more than 1,000 per year result in death (Mayhall and Norgard, 1983). Sibling to sibling violence is so common as to be accepted by most parents with little more than a shrug (Steinmetz, 1977). And estimates of marital violence range from 1.8 million incidents (Freeman, 1979) to 3 million per year (Green, 1980). Martin cites FBI statistics that 25% of all murders occur within

the family, while one-half of those were husband-wife killings. There are no statistics as to the incidence of the abuse of elderly persons, although estimates range from 50,000 to one million per year. Many of the elderly who are abused are mistreated by their adult children in whose home they live (Steinmetz, 1981; O'Malley, 1980; Milt, 1982; Freeman, 1979; Davidson, 1979).

In terms of understanding the context of family violence, various causes have been identified by researchers and scholars. For the purpose of this discussion, five variables are cited most often in the literature as contributing to family violence. From the literature and from many years of professional social work practice, these factors are known to constitute a set of inter-related variables. The presence of any one would not likely precipitate an incident of violence. However, if all five variables are present a person may resort to violence as a way of coping. These five variables are: 1) violent behavior is accepted as normal; 2) a parent was abused as a child; 3) the family is structured on the basis of power relationships; 4) inadequate communication patterns exist for resolving problems; and 5) stress is present in the family situation. The object of this paper is to understand the significance of stress in this model.

Stress and Family Violence

As already mentioned, stress may be viewed as resulting from changes or life situations which require coping abilities. Three of the most common sources of stress relate to unemployment, underemployment, and relocation due to employment. In addition, there are stresses due to isolation that result from the absence of a support network.

Keefe (1983) identifies four consequences of unemployment -- physiological, psychological, interpersonal, and sociological. In terms of this discussion, the last three are most important.

The psychological impacts cited were a loss of self-esteem, loss of personal identity, uncertainty about the future, a loss of purpose, and depression.

In relation to interpersonal factors, Keefe presents two ideas about interpersonal relationships. The first is that persons need to be valued by those who they consider to be "significant others." The second is that

persons faced with actual or impending unemployment may behave in such a way that they reject others and become cut off from potential sources of support. Accordingly, this perceived lack of support tends to exacerbate an already bad situation.

In terms of the sociological side of this issue, Keefe identifies dissatisfaction with employment as well as unemployment as a cause of personal alienation, because workers perceive that they are not regarded as individuals, that they cannot control the condition of their work, or the destiny of the final products. He describes their relationships at the workplace as impersonal, formal, and regulated. Along with this alienation, when workers become unemployed they also lose the capacity to be a consumer. All these losses culminate in a loss of esteem. Steinmetz (1978) indicates that males view both unemployment and job dissatisfaction as a threat to their self-esteem because they perceive themselves unable to fulfill the role of family provider.

For females, the problem of unemployment is compounded by child care and single parenthood. Due to the increase in divorces and births out of wedlock, the number of single parent, female headed households has doubled since 1940 in this country. These women, as well as young married women, work because of economic necessity. On a national average, the income for women is about one-half that of men. Furthermore, about one-half of the children living in a one-parent family live in poverty (Kadushin, 1980). This would certainly seem to indicate that women are locked into low paying jobs with little hope for improving their situations. This condition would certainly be an indicator of a high level of job dissatisfaction and consequent stress.

In addition to unemployment and job dissatisfaction, relocation may also be a source of stress. About 20% of the population in the U. S. moves each year, and about one-half of these moves are job-related. This produces stress for all members of the family. Although the husband may be in a relatively familiar business situation, co-workers, neighbors, and the environment are new. In addition, if he has been promoted, he may believe he needs to prove his ability in the new position. Because of the husband's change of job, his wife may suffer the loss of family, friends, and possibly a job. For her this may result in a feeling of being trapped, a loss of self-esteem, and extreme loneliness. For the children involved, the loss of a peer group, a familiar school setting and contact with their extended family usually occurs. Frequently, relocation is

reported to result in increased marital conflict and difficulties with children (Gaylord, 1979).

Yet are stress and family violence related? Many authors state there is a correlation that indicates a strong relationship between the two (Gil, 1970; Keefe, 1984; Steinmetz, 1978; Stacey and Shupe, 1983). Consistently the statistics shown in newspapers and on national news reports have indicated that with the rise in unemployment, there is concomitant rise in the rate of child abuse.

Unfortunately there are no national statistics kept about other forms of family violence. However, there are some research studies which are helpful. Strauss (1980), in a national sample of married couples, concluded that stress does make couples more prone to the use of violence. Yet this is not a direct relationship. He correlated stress with the rate of assault by husbands using seven intervening variables. For example, although high levels of stress were noted, husbands reported from three to five times higher levels of violence when they approved of slapping a spouse, expressed low marital satisfaction, were authoritarian, and seldom participated in organizations outside of the family. Additionally, when either parent of the husband was reported to have hit the other, much higher levels of violence were noted.

Neldig and Friedman (1984) used the Social Readjustment Scale developed by Holmes and Rahe to measure the "amount of stressful experiences dealt with by clients." Those who were involved in violent episodes had a score of 416 as compared to 260 for non-violent subjects. The authors concluded that:

spouse abuse generally occurs during periods of high stress for the couple. Various measures of stress are predictive of the frequency, but not necessarily the severity of violent episodes.

If it is true that stress mediated by social conditions is related to family violence, how does this affect teaching social work practice?

Issues in Teaching Social Work Practice

Both the instructor and the students must recognize that values may be a determining factor in how well they deal with family violence, and how effectively intervention strategies are taught. Most important is to

identify the relevant points of value conflict.

An awareness of this problem may be promoted on the part of students by discussing societal values pertaining to violence in general and family violence in particular. Values to be dealt with include those pertaining to the use of violence to demonstrate authority, social equality among persons, the rights of women and children, the importance of the family unit, and the right to the opportunity for maximum growth and development.

Probably the greatest difficulties arise when professionals encounter clients with very different value systems. Readings such as "Not with My Daughter You Don't" by Hardman (1977) are valuable in opening a discussion about value differences between worker and client. Thus students can recognize value differences, foster their clients' self-determination, and develop a toleration for persons who are very different from themselves. Often role playing enables students to experience a setting very different from any they may have previously encountered. For example, having a student play the role of a battered woman whose only resource is the women's shelter will put a student in touch with his or her feelings and values.

Another second issue pertains to training a student to recognize the existence of or the potential for violent behavior in family situations. As previously noted in the discussion about stress, other variables interact with stress to produce family violence. To those already discussed should be added another. Specifically, the communication patterns in violent families are most often inadequate for problem solving. Since dialogue among family members is not encouraged, problems continue to increase until a crisis occurs. And if other conditions that lead to violence are present, one member of the family may attack another.

After recognizing the existence of or potential for violence in the family, social work students must develop the skills of assessment necessary to develop and implement treatment goals. Students must first be taught how to explore a problem. Many models for problem exploration exist. Hepworth and Larsen (1982), for example, propose a sequence of specific points which are vital for clarifying a problem. The information to be covered includes: 1) the client's description of the problem, or when, where, how often, and over what period of time it has occurred; 2) the verbal and emotional responses of family members to

the problematic event; 3) the meaning the event has for a client; 4) the corrective steps a client has taken to deal with the problem; and 5) the goal to be achieved with regard to solving the problem.

Because violent family members characteristically have difficulties with communication, particular attention may have to be directed to how these clients express themselves, the meaning of the information communicated, how it is communicated, and who is involved in all communication. This provides data not only on interaction patterns, but insight into the abilities and self-concepts of the various family members, the norms and rules which influence the cognitive/perceptual world of these persons, and the means whereby dysfunctional communication systems can be corrected.

By developing an understanding of the life situation and meaning of human behavior, students may learn to assist a client to identify alternative behaviors which may help to alleviate family violence. In this sense, family-sensitive behavioral goals may be established. The development of situationally sensitive goals, however, requires that family members participate fully in the formulation of all treatment plans.

And once treatment goals are outlined, a plan for the attainment of these aims is necessary. A typical goal, for example, may be to stop or reduce violent episodes. The assessment phase serves the purpose of assisting the client to identify and clarify events or stressors which trigger these episodes and the reactions that follow. The formulation of a treatment plan may include discussing with clients their feelings of anger, frustration, alienation, and isolation. Yet the most important challenge to the social worker is to teach students to use these cues for setting concrete and measurable goals. For example, Neidig and Friedman (1984) suggest that anger control is central to the treatment of those who engage in family violence. Because clients who engage in violence often have difficulty expressing themselves they often become withdrawn, thus leading to increased tension and an eventual aggressive outburst. Once a client's values, beliefs, and cognitive distortions are explored during assessment, he or she can be asked to keep a record of the times angry feelings occur. Then alternative reactions can be explored. An additional step might include assisting a client to learn to express his or her feelings in an assertive manner, which enables other family members to understand these emotions and deal with them rationally.

Techniques for teaching this content to students may include standard resources such as case illustrations, role play, use of a video-tape recorder, and using volunteer experiences. All of these offer an opportunity for students to discuss attitudes, explore various types of treatment strategies, and engage in self-reflection. Of course, these are all essential for professional growth. Particularly the volunteer experience provides students an opportunity to encounter actual clients and observe other professionals. In other words, it provides a "hands-on" experience with a minimum amount of responsibility.

Summary: The Technological Attitude and Treatment.

As should be noted, the model that has been proposed for assessing and treating family violence requires that insight be gained into the operation of this institution. Accordingly, the family cannot be treated as an objective "thing", but must be understood as network of interaction. A proper understanding of violence among family members, therefore, requires that their values, beliefs, and perceptions be appreciated.

Nonetheless, the technological outlook which has come to dominate society, and may inundate the social work profession, diminishes the importance of such insight. From the technological point of view, only so-called objective data are to be admitted as evidence. When this is the case, however, the human condition is obscured, not to mention the situational nature of family violence.

A few examples should serve to illustrate this point. First, the technological method tends to be reductionistic and analyze phenomena in terms of simple causal relationships (A → B). As has been indicated, family violence should not be assessed in this manner, because of the complex nature of this problem. Rather, a multi-dimensional model is required to conceptualize how the variables associated with family violence are related.

Second, values are insignificant for a technologically oriented need assessment. Yet, as those who study family violence have come to recognize, behavior is fully mediated by value judgements. Without an understanding of the value base of behavior, only speculation is available concerning human motivation.

Third, because communication is central to the family system, social

workers must be sensitive to the meanings conveyed by language. Nonetheless, language is ignored by technology, unless it is mathematics. Thus, this mode of assessment provides little insight into what clients mean when they speak. Many writers today, however, contend that language holds the key to human understanding.

And fourth, rational treatment planning requires that clients must participate in the formulation of their therapeutic regimen. From a technological point of view this is worthless, because human opinion may come to occlude the "facts" of a case. Yet without input from clients only standard treatment procedures may be applied, which may be insensitive to a particular case. Nowadays practitioners are coming to recognize that clients will adhere to a treatment plan most effectively when they participate in its formulation.

In sum, social workers must be aware of how the technological outlook may narrow their vision, particularly when conducting social assessments. Unless this awareness is promoted by the professional, socially insensitive intervention may become the norm. From the technological standpoint, however, such objectivity is assumed to be rational and efficient. Nonetheless, in the long-run the social character of problems such as family violence may be overlooked, thus promoting the development of misinformed policies. Eventually this could prove to be socially disastrous.

References

- Davidson, J. L. "Elder Abuse", The Battered Elder Syndrome Edited by Marilyn R. Block and Jan D. Sinnott. College Park Maryland: Maryland University, 1979.
- Freeman, M. D. A. Violence in the Home. Westmead, Farmborough, Harts, England: Saxon House, 1979.
- Gil, David Violence Against Children: Physical Child Abuse in the United States. Cambridge: Harvard University Press, 1970.
- Green, M. R. Introduction: Violence and the Family. Edited by Maurice R. Green. Boulder, Colorado: Westview Press, 1980
- Hardman, D. C. "Not with My Daughter You Don't" as cited in Social Work

- Processes, edited by Compton, B. and Galaway, B. Homewood, Illinois: Dorsey Press, 1979.
- Hartman, Ann and Laird, Joan Family-Centered Social Work Practice. New York: The Free Press, 1983.
- Hepworth, D. H. and Larsen, J. A. Direct Social Work Practice: Theory and Skills. Homewood, Illinois: The Dorsey Press, 1982.
- Kadushin, Alfred Child Welfare Services, Third Edition. New York: McMillan, 1980.
- Keefe, Thomas "The Stresses of Unemployment, Social Work. May-June 1984, 29: 264-268.
- Marmor, J. "Psychological Roots of Violence." In R. Sadoff (ed.). Violence and Responsibility. New York: S.P. Medical and Scientific Books, 1978.
- Mayhall, P. D. and Norgard, K. E. Child Abuse and Neglect: Sharing Responsibility. New York: John Wiley, 1983.
- Milt, Harry "Family Neglect and Abuse of the Aged: A Growing Concern." Public Affairs Pamphlet No. 603. New York: Public Affairs Pamphlets, 1982.
- Neidig, P. H. and Friedman, D. H. Spouse Abuse: A Treatment Program for Couples. Champaign, Illinois: Research Press, 1984.
- O'Malley, H. "Elder Abuse: A Review of Recent Literature," Elder Abuse: The Hidden Problem. Washington: U. S. Government Printing Office, 1980.
- Stacey, W. and Shupe, A. The Family Secret: Domestic Violence in America. Boston: Beacon Press, 1983.
- Steinmetz, S. K. The Cycle of Violence: Assertive, Aggressive, and Abusive Family Interaction. New York: Praeger, 1977.
- Steinmetz, S. K. "Violence Between Family Members," Marriage and Family Review, 1978, 1:3.

Steinmetz, S. K. "Elder Abuse", Aging, January-February, 1981 pp. 6-10.

Strauss, M. A. "Social Stress and Marital Violence in a National Sample of American Families," Annals of the New York Academy of Science, 1980: 229-250.

Strauss, M. A. "A Sociological Perspective on the Causes of Family Violence," Violence and the Family edited by Maurice R. Green. Boulder, Colorado: Westview Press, 1980.

Strauss, M. A., R. J. Gelles, and S. K. Steinmetz, Behind Closed Doors. Garden City, NY: Anchor Books, 1981.

SCIENTIFIC TECHNOLOGY AND THE HUMAN CONDITION

Vernon R. Wiehe
University of Kentucky

Abstract

Society applauds the recent advancements of scientific technology in fields such as medicine, energy, and communication. While humankind profits in many ways from this technology, a few voices are heard cautioning society to consider the implications of these developments. This paper discusses the gulf which appears to exist between scientific technology and the human condition. Reasons for this gulf are: 1) the failure to develop a philosophy of science in which human values, and aspirations are viewed within the context of scientific technology, 2) the reductionist approach to science in which the parts are emphasized at the expense of the whole; and, 3) the failure to conceptualize behavior in such a way that the situational or contextual variables of technology are understood. The paper concludes by proposing a social ecological model of human behavior which allows for the integration of technology with the human condition.

Introduction

Society applauds the advancement scientific technology has made in recent years in various fields, such as medicine, energy, and communication. While humankind profits in many ways from this technology, a few voices are heard cautioning society to consider the implications of these developments.

The objective of this paper is not a crusade for clean air, a lament for the return to the "good old days," or a call to halt the advancement of scientific technology. Rather, the purpose is to discuss the interface of scientific technology and the human condition. Most important is that a gulf currently exists between these two factors. Several factors are responsible for this gulf: 1) the failure to develop a philosophy of science in which the human condition, values, goals, and aspirations are viewed within the context of scientific technology; 2) the reductionis

approach to science in which the parts are emphasized at the expense of the gestalt or whole; and, 3) the failure to conceptualize behavior in such a way that the situational or contextual variables of technology are understood. The paper will conclude by proposing a social ecological model of human behavior, which allows for the integration of technology and the human condition at both the micro-level of individual psycho-social functioning and at the macro-level of social institution.

The Need for a Philosophy of Science

Rene Dubos (1965), in the essay "Science and Man's Nature" published in Daedalus, reports on a symposium entitled "Man and His Future" held in London in 1963. The purpose of the conference was to study and predict the effects of science on every aspect of human life. Dubos observed that the participants had no difficulty discussing the role of science in terms of space exploration, energy, and the consumption of raw materials. As a matter of fact, the participants seemed to believe that there were few limitations to what science might do. However, Dubos noticed that no-one seemed to be able to deal adequately with the human side of the coin, or the psychological, ethical, emotional, and cultural factors which mediate the use of science. Dubos felt this was an indication that scientific knowledge was in danger of becoming alienated from human experience, thus reducing the ability of technology to meet human needs.

Dubos refers to this as the disjunction between technology and human experience. The choice of the word "disjunction" is rather interesting. One might visualize this phenomenon as similar to putting an electrical plug incorrectly into an extension cord socket. This results in one prong in one hole and the other sticking out of the socket. To lament over the disjunction of science and technology is not a cry for a return to the good old days in which life was supposedly simpler and sounder, a thesis which could easily be refuted. Rather, Dubos is asserting that there is a need for a new philosophy of science, one which will unite scientific technology with human experience (Mokrzycki, 1983; Munevar, 1981). One cannot assume that automatically the good life will emerge from scientific and technological inventions, and naively think that more of the latter will create a better society.

The disjunction between scientific technology and human experience is being demonstrated in some of the questions facing modern society. One example of the double-edged nature of technology is the development of

insecticides and herbicides which have benefited the agricultural industry and everyone who uses their products. Lawns are greener and gardens pest free, and consequently more productive as a result of the development of these products. However, the residuals of these poisons are retained by the human body, while the waste that results from the manufacture of these products are difficult to dispose of safely. Similar problem areas are related to the use of genetic engineering, the implantation of mechanical hearts, and the utilization of nuclear energy, just to mention a few.

The Reductionist Approach to Science

A second reason for the gulf between scientific technology and the human condition relates to the structure of the scientific method. The scientific method, also known as reductionist analysis, approaches the study of natural phenomena and living organisms by dividing them into fragments, in order to investigate elementary structures and properties in increasingly greater detail (Dubos, 1965). This approach has been very fruitful in some cases, for it has led to numerous discoveries which save time and energy. However, there is a dark side to this process. How do the parts fit together as a "whole?" By obscuring the "whole" are the social implications of science missed? Warner Wick (1976) discusses this theme in a delightful essay entitled "Sour Apples from the Tree of Knowledge," in which he contends that Eve got more than she bargained for when she bit into the apple from the tree of knowledge. Although he uses biblical imagery, his message is clear. Specifically, persons cannot always anticipate the consequences of their actions, particularly in terms of their social impact. Wick (1976: 30) quotes Harland Cleveland as saying:

There isn't anything we don't know about the modern city - its demography, its water table, its engineering design, its art, its slums, its economics, its politics. We just don't seem to know how to make it beautiful, accessible, safe and clean.

Cleveland sums up this problem with what Wick calls a "tidy aphorism": "In everything you and I undertake, the bottleneck is somehow the situation as a whole." What a bottleneck!

General systems theory, as conceptualized by Boulding (1956), offers a holistic standpoint as an answer to the fragmentation resulting

from the scientific approach. Systems theory emphasizes not only the parts but also the whole, in addition to stressing the reciprocal relationship to the parts and the whole. As the parts of a system are analyzed by the scientific method, so also the system formed by the parts must be studied. Thus the impact the breakdown of a particular part has on the whole can be understood. As an example, Boulding (1956: 198) laments the failure of scientists from various specialties to communicate with one another and aptly portrays them as "walled-in hermits, each mumbling to himself words in a private language that only he can understand." This commentary should be expanded to include the failure of the physical scientists to communicate with social scientists, including the professions charged with intervening in the lives of those who experience a breakdown in psycho-social functioning. A general systems theory, as Boulding suggests, fosters the development of "generalized ear" on the part of specialists, which enables them to communicate with scientists in other fields. The establishment of "think tanks" comprised of individuals representing various disciplines, including leaders in business and government, represents an attempt to address Boulding's concern.

Traditional Conceptualizations of Human Behavior and a Proposed Social Ecological Model

A third reason for the gulf between scientific technology and the human condition relates to the prevailing theories used for conceptualizing human development and behavior. As L'Abate (1976: 34) states, "... most of developmental and personality theorists chose to consider personality development as if it occurred in a vacuum. If some reference is made (to the role of the family and of parents in personality development), it will be tangential, short, or treated as being inconsequential."

This might be restated as the use of linear models to explain human development and behavior, which fail to grasp the influence of situational and contextual variables on psycho-social functioning. One of the earliest stage theorists was Freud, who stressed the decisive role the early years of infancy and childhood play in determining a person's basic personality structure. A person's later life, actually from about six years of age, was an extension of this basic structure (Hall and Lindzey, 1978). Freud conceptualized the six steps of development as the oral, anal, phallic, oedipal, latency and genital stages. Freud was influenced by the scientists

of his time, including Hermann von Helmholtz who formulated the principle of energy conservation, Pasteur and Koch who did the fundamental work on the germ theory of human disease, and Mendel who did pioneering work in the area of genetics. This is to name only a few of Freud's contemporaries or near contemporaries who influenced him (Hall, 1954). Freud applied many of the principles offered by these physical scientists to his developmental theory. The stages of development postulated by Freud portrayed the human being as a complex energy system. In fact, Freud proceeded to create a theory of human development based on the transformation and exchange of energy within the personality. Freud focused his attention on the influence of "needs" or internal stimuli, rather than the external stimuli which he felt persons could avoid. Thus, the stages of development initially postulated by Freud, and which still impact psychological thought today, presented human development and behavior as if they occurred within a vacuum. Development was primarily an intra-psyche phenomenon; namely, the individual coping with instinctual energy or libido.

Later theorists, such as Erikson, viewed these stages in terms of the interplay between humans and their environment, as suggested by the title of Erikson's (1963) book, Childhood and Society. Erikson conceptualized development in terms of the developmental tasks which an individual must complete in order to function adequately in society. His stages were not tied to a strict chronological timetable, thus reflecting his epigenetic principle. This term, borrowed from embryology, means that a stage is not completed and left behind, but continues to influence a person's development throughout his or her life.

Several observations may be made about the customary way in which human development is viewed. One, the first eighteen years of life are divided by Erikson and other theorists into six to eight stages. The last sixty-two years of life, assuming humans live to an average age of seventy years, are divided into only three stages. Of course, this is due in part to the impact of Freudian psychoanalytic theory, which stressed the importance of the early years of development on a person's later life. Another reason is that the complex nature of adulthood has only recently been "discovered." It has taken the work of theorists such as Levinson (1978) and his colleagues at Yale to conceptualize adulthood as consisting of phases, just as earlier theorists analyzed childhood. Levinson, for example, conceptualized adulthood as consisting of three key phases, e.g., early, middle and late, with distinct phases within each of these periods

which last approximately ten years. More recently the popular writing of Sheehy (1976) suggested that human development should not be viewed as stages, but in a more fluid manner which portrays growth as spontaneous and very individualized.

Another limitation to the way in which human development and behavior have been viewed pertains to the narrow parameters imposed by the traditional models. Reference again is made to the work of L'Abate. L'Abate thinks academic psychology conceptualizes behavior primarily in terms of a reactive perspective. Accordingly, behavior is assumed to progress through three stages: 1) behavior as action; 2) behavior as reaction; 3) behavior as interaction. L'Abate pushes this model one step further to add a fourth view: behavior as transaction. "Behavior as action" is when demeanor is understood to be isolated from both past or contemporary events. Using the example of a child crying, this activity would be viewed as unrelated to the child's biography or immediate environmental conditions. The only causal factors affecting this behavior are mystical forces or the gods. "Behavior as reaction" views behavior as a response to an antecedent cause. A unidirectional perspective is maintained. The child's crying is understood to be a reaction to something which has occurred, such as wetting a diaper. The third phase of behavior as "interaction" suggests a bidirectionality of influences, specifically including exchanges between two or more individuals. Nonetheless, this rendition does not take into account contextual, or ecological, factors which shape behavior. In this instance the child's crying stimulates a caring response in the mother, who attempts to determine the reason for this behavior. The fourth and final view which L'Abate (1976) postulates is viewing "behavior as transaction." In short, behavior is a function of transactions; namely, bidirectional exchange within contextual and situational factors. In order to understand the interaction between a mother and child, the context of this exchange must be known. For example, it is important to know something about what is going on within the life of the mother, such as the presence of significant others and environmental factors which may be influencing her behavior. This is a social, ecological approach to human behavior.

Siporin (1975: 20) describes the ecological model in the following manner.

The social functioning of individuals and of social systems is viewed as a dynamic state of affairs and as a transactional process

between a human unit . . . and social-physical environment. The gestalt and its interaction parts constitute an ecology and a system.

Germain and Gitterman (1980: 5-6) comment:

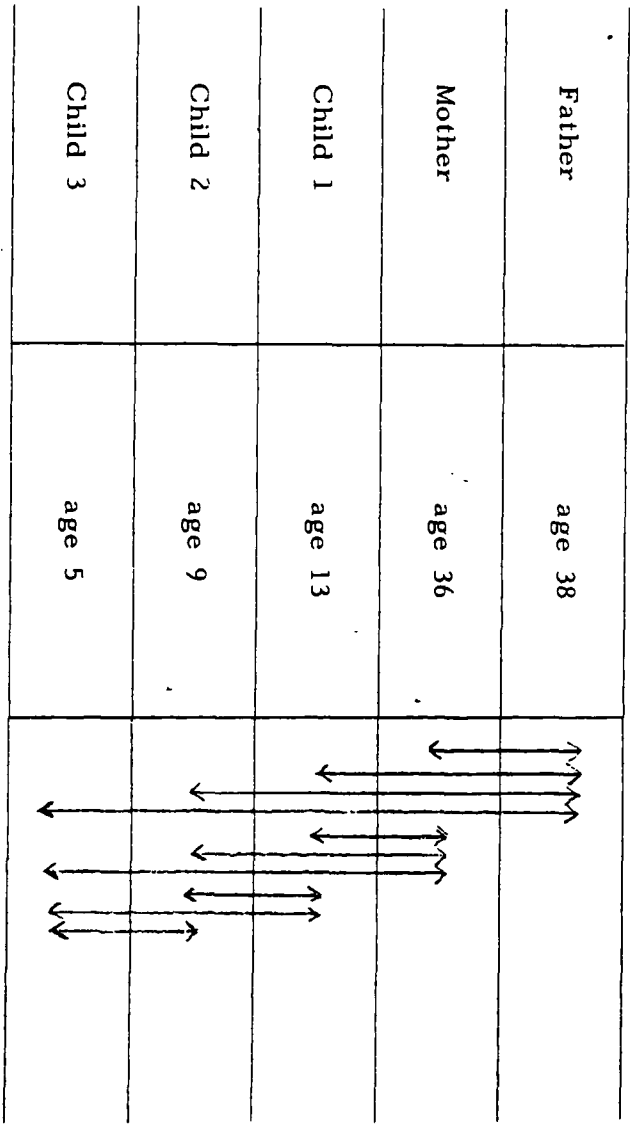
The ecological perspective provides an adaptive, evolutionary view of human beings in constant interchange with all elements of their environment. Human beings change their physical and social environments and are changed by them through processes of continuous reciprocal adaptation . . . Like all living systems, human beings must maintain a goodness-of-fit with the environment. The Darwinian concept of 'fit' applies both to organisms and environments: to the fitness of the environment and the fitness of organisms, each with the order, and through which both prosper . . . Adaptation is an active, dynamic, and often creative process. Put another way, people, like all living organisms, together with their environment, form an ecosystem in which each shapes the other.

Germain and Gitterman emphasize three interrelated components of the transactions between people and their environment which determine the nature of the human-system interface. They are life transitions, environmental factors, and interpersonal processes.

[Figure 1 Here]

Figure 1 attempts to portray life time - lines from an ecological perspective, taking into account life transitions, environmental factors, and interpersonal processes. Because of the complexity of the model, only one time frame is analyzed in the life of a family. The major characters in the family are mother, father, and three children, ages 5, 9, and 13. The vertical arrows attempt to show the transactive nature of the behavior of these individuals, with each of them involved in their own life transitions and interpersonal processes. However, this two-dimensional diagram fails to capture fully what is happening to this family. Contextual and situational variables impacting on this family at this time must be added. In order to do this, imagine adding several clear plastic overlays. Try to conceptualize the structural relationships of this family unit. With this picture in mind, the first overlay is now placed on the diagram. This overlay is identified as race; namely, Black. Does this

BEHAVIOR IN A SOCIAL ECOLOGICAL PERSPECTIVE



change the picture of this family? Add another variable: low socio-economic background. Another and somewhat different picture of the family comes into view. Add yet another overlay, which identifies the current technological advancements that are impacting on this family in the areas of employment, health, education, communication, recreation, etc. How do these factors influence the psychosocial functioning of these family members both as individuals and as parts of a social system within society?

Viewing human development and behavior according to a linear model, as if they occur within a vacuum, is inadequate. L'Abate prefers to view the family as a network of interdependencies, whether mutual or reciprocal, which includes its members' interaction with the physical and social environment. Most social scientists have not been able to deal with this in their research, because of the absence of conceptual and methodological tools to handle such interdependencies. As one begins to add simply a few contextual and situational variables, the ability to portray graphically this complexity breaks down. Behavior is more than what is occurring within an individual, or between one individual interacting with another. Rather, a more appropriate view is that behavior involves transactions, or discourse between persons and significant others within the context of situational and contextual variables.

In summary, reasons have been proposed for the gulf which appears to exist between scientific technology and the human condition. Although it is not difficult to identify positive effects of the interface of technology and human existence, a more difficult task is to pinpoint ways in which this relationship may not enhance the human condition at either the micro levels of individual and familial functioning or the macro level of social institutions. Because modern technology stresses the importance of technique, the theoretical questions posed in this paper are most often overlooked. Nonetheless, unless these considerations are addressed, technology may come to obscure instead of enhance the human condition.

References

Boulding, Kenneth, "General Systems Theory - the Skeleton of

- Science," Management Science, 2 (April, 1956), pp. 197-208.
- Dubos, Rene, "Science and Man's Nature," Daedalus, 94 (Winter 1965), pp. 223-244.
- Erikson, Erik, Childhood and Society (New York: Norton Publishing Company, 1963).
- Germain, Carel and Alex Gitterman, The Life Model Social Work Practice (New York: Columbia University Press, 1980), pp. 5-6.
- Hall, Calvin, A Primer of Freudian Psychology (New York: World Publishing Company, 1954)
- Hall, Calvin, & Gardner Lindzey, Theories of Personality, (New York: John Wiley & Sons, 1978).
- L'Abate, Luciano, Understanding and Helping the Individual in the Family (New York: Grune & Stratton, 1976). p.36
- Levinson, Daniel, et al., The Seasons of a Man's Life (New York: Knopf, 1978).
- Mokrzycki, Edmund, Philosophy of Science and Sociology (London: Routledge and Kegan Paut, 1983).
- Munevar, Gonzalo, Radical Knowledge: A Philosophical Inquiry into the Nature and Limits of Science (London: Avebury, 1981).
- Sheehy, Gail, Passages: Predictable Crises of Adult Life (New York: Bantam, 1976).
- Siporin, Max, Introduction to Social Work Practice (New York: MacMillan, 1975). p. 20.
- Wick, Warner, "Sour Apples from the Tree of Knowledge," The University of Chicago Magazine, 68 (Spring, 1976), pp. 19-33.

Computer Technology - 1984 and Beyond

Terry Holbrook
Rochester Psychiatric Center
1600 South Ave
Rochester, NY

Abstract

This article examines the impact of computerization on record keeping. Particularly important about automated records is that their content becomes reified, thereby distorting the nature of client data. Because the technical side of documenting a client's activities is stressed, the existential nature of behavior is obscured. As a result, a practitioner may not gain much insight into the motives and social situation of a client. Yet without this information, irrelevant advice may be prescribed by a social worker. Accordingly, technology must not be allowed to alter the existential process of creating a client's biography in a record.

Introduction.

Now that 1984 has passed, persons can reassure themselves Orwell's predictions were wrong. There is no police state, no two-way T.V.s in every home, no torture, no Big Brother. There is no mass surveillance, propaganda machine, or thought control squads. People are still free to speak their minds, vote in free elections, and participate in the free enterprise system.

Of course, there is some evidence of "double speak" in the speeches of the political leaders. There is a mood of political conservatism and retrenchment. Social programs are being cut while the country is told that more money is now spent than ever on the poor. Prison populations are on the increase. Stricter discipline is being advocated for schools, while advances in computer technology have made it possible to keep billions of records on individual citizens. This perceived intrusion prompted the 1977 Privacy Protection Study Commission to write:

In a larger context Americans must be concerned about the long

term effect record keeping practices can have not only on relationships between individuals and organizations but also on the balance of power between government and the rest of society. Accumulations of information about individuals tend to enhance authority by making it easier for authority to reach individuals directly. Thus, growth in society's record keeping capability poses the risk that existing power balances will be upset (Burnham, 1980: 205).

The Commission, of course, was concerned with the proliferation of records, as a result of the seemingly infinite record keeping capacity of computerized systems to store hundreds of thousands of "bits" of information on a single micro-chip.

It is estimated that the Federal government alone has over three billion records on individuals, not to mention the records of banks, credit bureaus, and insurance companies (UCLA: 1371-1498). The Internal Revenue Service, Census Bureau, the Armed Forces, State, County and municipal tax offices, motor vehicle departments, licensing bureaus, the Federal Bureau of Investigation all keep computerized records on millions of American, which the average citizen knows nothing about unless there is a problem; e.g. credit is denied or a license revoked. Employers keep personnel records; schools keep testing and achievement records; hospitals keep treatment records; welfare agencies keep eligibility records. Fortunately, all of these records are not computerized and there is no centralized national data bank as was forecasted in the 1960s. Still the capacity is there.

In a previous paper, I (Holbrook, 1983a) have stated my concern about the validity of welfare case records, the imbalance of power between the client and agency in terms of recording data, as well as the taken for granted notions of the objectivity and accuracy of the information they contain. Just as average citizens know little or nothing of the information recorded about them, welfare clients have not rushed to see their case records. Why should they? In fact, until 1974, with the passage of the Freedom of Information Act, welfare recipients were not allowed to read their records. But even with legal permission to challenge and correct errors in their records, most clients are unaware of any problems until it is too late (Wilson, 1978: 26-27).

Only those inside the welfare system really know the margin for

error in case records, as well as the amount of interpretation and judgment that goes into what is recorded as a "social fact." Even experienced caseworkers ignore the "proactive" determinants of record keeping, that is the purpose, motives and goals of both the welfare organization and the individual caseworker (Cochran, Gordon, Krause, 1980). In order to get on with their jobs, caseworkers have to believe in the objective character of case records. If it is in the record, it must be true. After all, ten or twenty other previous caseworkers cannot be wrong. But in order to understand what this has to do with computers it is necessary to grasp the historical significance of new technology upon the written word.

Old and New Technology

The last time technology had a major impact upon the practice of social work was at the turn of the century when the typewriter transformed social work record keeping practices from pen and ink to print. Ada Sheffield wrote: "Indeed, it is a question whether we should today be thinking about record keeping as an expression of social casework, were we still held in bondage to pen and ink. The typewriter is bringing about a change even in the subject matter of our social case histories" (Sheffield, 1924: 75). She credits this labor saving technology with improving both the quantity and quality of case records.

With the invention of the typewriter, record keeping was made easier, less time consuming and more thorough. Now, computers with word processing capability promise additional savings in time, labor, and increased efficiency. The old manual record keeping systems are criticized as labor intensive, requiring the input of many people and as a result are more susceptible to error and less accessible. Computerized record keeping, on the other hand, allows immediate "fingertip" access and improves the accuracy, reliability, and usefulness of information. Market analysts and salesmen claim that the only limit to a computer's capability is an individual's imagination. But, it is the computer market's myth of greater accuracy and less error that this paper challenges.

Computer buffs have an adage: garbage in equals garbage out. The application of computer technology to old records or to new information has no greater claim to accuracy than the typewriter. People make records and decide what is fact, conjecture, belief and self evident.

Human judgment or interpretation is not improved substantially by placing those facts in a computer for instantaneous retrieval. However, "soft" data may take on the appearance of "hard" data when processed and printed out with the machine-like eloquence of a computer. Henry Waldgrave, writing in 1917, asked:

Can it be held that the difference between using a typewriter and 'writing by hand' is purely and simply a matter of degree--that the machine serves the same kind of result as the pen but simply does the work more easily, rapidly and neatly...The change wrought is a transcendence of the earlier level of experience and valuation, not a widening and clarification of vision on that level. And the standards which govern on the new level serve not so much to condemn the old as to seal its consignment to disuse and oblivion (Sheffield, 1924: 76)

He believed that as large-scale technological change occurs there is a corresponding alteration in a society's values and beliefs concerning written documents. But what is this change that new technology produces? What are these new values and standards?

Although I know of no empirical study assessing either Sheffield's or Waldgrave's observations regarding the typewriter's technological impact, I believe a clear parallel can be drawn between the introduction of the typewriter in the 19th century and computer technology, specifically upon record keeping and social work practice. As Waldgrave foresaw, new labor saving machines not only do work more easily, but also qualitatively change the way work is organized, the speed with which information is processed, and persons' attitudes toward record keeping. These changes seem to go unnoticed or are taken for granted with time. Perhaps it is worthwhile to examine the implications of computerized record keeping systems before they too are replaced with something new.

Labeling Theory and Computerized Records

Records have been kept since the creation of civilization and are here to stay. In fact, many historians equate the beginning of civilization with the development of systems of writing and recording. Over the centuries, written words have assumed greater significance, power, and authority, as the medium of print and literacy have increasingly divided the "haves" from the "have nots." Burton Bledstein (1976: 13) quoted a 19th

century aphorism: "A man is his word or the words others use about him." It is the power to define the details of other peoples' lives in words that makes the spector of computerized records irresistible, and a lack of knowledge about them so terrifying.

The stigmatizing effects of being labeled a welfare recipient, a criminal, mentally ill, or a host of other deviant social categories is well known and documented (Schur 1980; Rubington and Weinberg, 1973). What is lesser known and understood is the role records play in the stigmatizing process, since it is assumed that the records of helping institutions are protected in most cases by the rule of confidentiality. Still, professionals read records, courts often subpoena them, and everyone knows they exist. Having been labeled, in writing, by either a welfare agency, hospital, or prison means more than being involved in a process whereby an individual is labelled as deviant and stigmatized. Furthermore, written records insure that this process is inescapable. Records are meant to survive the life of the individual. Computerized record keeping systems simply make that process more efficient, easier, and often more thoroughly devastating. Social workers are told that manual record keeping systems must be replaced in order to improve the efficiency of service organizations, but with these systems a client was protected from both government harassment or a dedicated, resourceful personal enemy by the inefficiency and cumbersome nature of the files. This is not an argument against efficiency or the inevitability of progress, but simply an appeal to those professionals who write the records to consider their possible implications. The power of the written word, combined with advances of computer technology, present real ethical and practical dilemmas for all professionals, including social workers.

Confidentiality and Computers

The mere existence of confidentiality statutes, professional ethics, or legal guarantees does not insure the confidentiality of recorded information (Handler and Rosenheim, 1966; Handler, 1979). Banks are losing millions of dollars each year to highly skilled computer technicians who are capable of breaking into computerized security systems and moving money at will into phoney accounts. It has been suggested that even the national security is being threatened by mischievous teenagers, who are able to decipher the computer codes of the most sophisticated defense systems. Of course, the public is also told that advances in

computer security technology will eventually defeat even the most creative criminals. Somehow, I am not reassured. And certainly I do not believe that the computerized precautions taken to protect money and national security will be applied to the confidential information of welfare clients, food stamp recipients, or other service seekers.

Some would argue that clients forfeit their right to privacy when they sign the application for assistance and are informed as to who might be made aware of their condition. But even with informed consent, has not the stigmatizing process begun? Do individuals seeking vital services have the option to refuse to release information if it is deemed important to the application process? Lipsky (1980: 57) writes of the consent to give or release personal information:

For the most part, except in the more coercive bureaucracies, clients give their consent because (sometimes in combination) they accept the legitimacy of the street-level bureaucrats' position and decision, anticipate that dissent would not be productive, or consider themselves favored by the decision or action taken. Most encounters with bureaucracy appear to be characterized by the consent of clients, but the structure of choices available to clients limits the range of alternative behaviors that they consider realistically available. In short, client's consent is continuously being managed by public agencies.

Lipsky is referring not only to social workers as "street level bureaucrats" but also teachers, police, hospital administrators, and public housing officials, anyone who collects personal client information as a requisite condition to being admitted to treatment.

How much real consent is there on the part of a client and how much bureaucratic coercion? Even with the routine assurances and guarantees of confidentiality, will computerized data banks give welfare clients confidence that their privacy will not be violated? Wheeler pointed out ten years ago that record systems have a "memory tracing function" and that the identities established by records follow an individual wherever he or she may go. Expunging or sealing a record, or even maintaining its confidential nature was impossible then and even more difficult now, with interlocking communication networks and computers that "talk to each other." Records bestow identities and seldom take them away (Wheeler, 1969). Computerized identities will be even harder to lose.

Some may ask, "So what?" The type of information needed by bureaucrats is so general that the intimate details of a person's life are never requested. Surely, name, age, social security number, income, occupation, members of your family, work history, etc., are not all that incriminating! Besides the public has a right to know who is receiving what benefits and how their tax money is being spent. This is precisely the justification given for collecting information about those who apply for public assistance. With computer technology there seems to be no limit to the amount of information that can be acquired. In 1974, Richard Nixon resigned after it was learned, among other things, that he used I.R.S. and F.B.I. files to harass individuals. Do welfare recipients have anything to fear?

Social Work and New Technology

Gyarfas (1969) warned that social work was becoming increasingly indebted to social science and technology, and that as a result she felt the profession was becoming impoverished in terms of its commitment to individual need, self determination, and the relevance of subjective aspects of behavior. Although she did not mention the introduction of computers into social work organization and practice, she was aware of a subtle change taking place in the traditional values of social workers that she could sense was related to the influence of science and technology. It was a change in attitude, a shift from a concern for the individual toward the "social control" of persons. The need for proper socialization of the poor seemed to outweigh the right to self determination. She identified short-term treatment as a "cliche" to justify a "social bandaid" approach to those suffering from chronic stress (Holbrook, 1983b). She also forecast funds being tied to short-term treatment modalities and the number of clients seen by both public and private agencies. What she could not foresee was how the computer was going to be utilized to implement those objectives.

She (Gyarfas, 1969: 271) did predict that: "The new orientation leads inevitably toward social work's becoming a managerial discipline that of necessity must become increasingly concerned with the control, organization and programming of social systems." When cuts in social programs require social work managers to demand more productivity to compete for dwindling resources, her prediction becomes ominous. Service, measured by the number of contacts and computed to the minute,

becomes the standard by which to evaluate an agency's effectiveness, and computer technology provides the means for this undertaking. More important are the choices social workers must make when confronted with computerized documentation systems that mean both survival for their agency and service to the client.

John Johnson, in a qualitative study of a child welfare agency, observed the effect of computerized record-keeping upon worker behavior. He found in studying the implementation of a new computerized system of recording, which was more "streamlined" than the previous narrative method, that child welfare workers adapted the new computer format to their own needs. They first translated the meaning of the encoded "boxes" into everyday prose and reported what they thought their superiors wanted and could understand. Johnson observed that the computerized system with its checklist of social characteristics and service codes constituted an orderly state of affairs, when in fact the worker's day was very disordered, chaotic, and dependent upon factors that could not be reported, e.g., other worker absences, personal and client related crises, unforeseen bureaucratic tasks. Many of the workers then felt justified in "fudging" their statistics in order to reflect what they thought they would have done if no emergencies had occurred. They also knew that these statistics would be used to create or abolish jobs and evaluate their performance. Hence, they devised strategies to inflate their statistics.

Of the workers questioned regarding these practices, each had their own rationale based on their subjective experience of their work load, their impressions regarding the work loads of others, and the need to satisfy both the computer and their superiors. The resulting service and statistical reports were seen by Johnson (1973: 248-359) to be reflecting the situational contingencies of the work setting and personal dispositions of the workers rather than objective reality.

At least the old longhand narrative reports provided a context for the reader to understand the intent and aim of the writer, which would seem to suggest the possibility of less human error and misunderstanding, but more time consuming effort. In the name of computer "streamlining" the human context is felt to be unnecessary and possibly unscientific compared to the staccato-like speed and unambiguous grammar of the computer. But computers save time and money and appeal to those rational, forward-looking human service managers who are trying to

solve the conflict between too many needs for too few resources (Dery, 1981). Ironically, social workers on the front line are finding themselves co-opted by the same technology that promises to help them, as they provide the information to be processed.

As has been shown, computer information is no more reliable than the humans who make the decisions and operate the machines, but the imposition of new technology seems to have given new value to computerized information. Computers reinforce the perception of reality shared by those on the front line and at the top of social service organizations. Imbued with the naive faith of millions of Americans in the accuracy of records, the inevitability of progress, and the inherent benefits of technology, there seems to be little opposition.

Perhaps, too, it is also the computer's promise of relief from the mounds of paper work that have become so much a part of every organization. Social workers have always complained about the amount of paper work associated with their jobs. Numerous time studies have shown that caseworkers spend more time with paper than clients. With the steadily increasing amount of federal, state, and local involvement in the delivery of human services, this trend is likely to continue with the computer touted as the only way out. But is it? Or is it another attempt to justify a reality of power politics under a guise of cost controls and concern for efficiency.

With 4.2 million people on Supplemental Security Income, 22.2 million on Food Stamps, 3.5 million families on Aid to Dependent Children, and 30.5 million persons on Social Security, the problem of records and record-keeping is far from small. While the average citizen may have nothing to fear from a computerized welfare bureaucracy, history has shown that if the technology is available it will be put to "good" use. The question of what use is "good" however, remains to be answered adequately.

Weizenbaum (1976: 31) speculated that had computer technology not been developed, the organization of welfare services would have been much more decentralized, humane, and responsive. Of course, others would argue that those services would also be less efficient, slower, and more error prone. But this raises the serious issue of whether or not technology is directing and shaping society or vice versa.

Technology aside for the moment, social work historian, Roy Lubove (1975: 57), commented that the theory and practice of social work has been shaped as much by administrative exigencies as professional skill. If this is true, then the combination of "administrative exigencies" and bureaucratic values, together with computer hardware, would seem to present a formidable challenge to social workers concerned with highly centralized, dehumanized, and politicized social services.

Management Information Systems or Computers Turned Inward

Although the uses of computerized records by agency personnel are varied, they can be divided generally into management information functions and client information functions. While I have expressed some concerns regarding client functions, it is management information systems that are likely to be on-station first and present social workers with their most immediate problems, as Johnson's study attests. Since historically administrative needs have done much to shape the theory and practice of social work, it is not too far-fetched to speculate that with scarce resources agency administrators will need to rely increasingly on the quantification of service and program evaluation to justify a program's funding. Nonetheless, the quantification of service results in dysfunctional consequences for service organizations, and with the availability of computer technology the desire for "hard data" will be much greater, if not impossible to resist.

For years, managers have known that attempts to evaluate and measure a worker's performance result in behavior that may reflect positively on the control or measurement systems, but is dysfunctional for organizational goals as a whole, especially if records are used as a measure of performance (Blau, 1956; Gouldner, 1954; Campbell, 1971). Johnson has described how the workers in one agency acted to mitigate and counter the impact of computerized counting. Undoubtedly, there will be other qualitative studies documenting similar phenomena. But the fact remains that "official statistics" are often problematic (Kitsuse and Cicouel, 1963; Douglas, 1971: 79-133). The current fascination for numerical data, made simple by computerization, poses an ethical dilemma for those workers on the front line, not to mention problems for social policy based on these numbers. With the administrative mandate to quantify service via the computer, can social workers continue to resist efforts to reduce what it is they do regardless of the complex nature of their tasks? Lipsky (1980: 172) addresses

this point as follows:

Productivity-service quantity and quality/cost. Two of the determinants of productivity, service quantity and cost, are easy to measure; the third, service quality, is virtually impossible to measure. Managers under pressure to improve productivity are likely to try to cut personnel or obtain more work from existing personnel because these are the terms of the equation for which measures are available and which managers can manipulate. Staffs are reduced to bare bones without a reduction in responsibilities. Thus staffs are asked to do more without increases in personnel.

As social workers are asked to do more with less, an inescapable paradox, improved management and increased technology are thought to be the only solutions. The present fiscal crisis is thereby transformed into a shell game, with computer numbers pointing toward ways of reducing expenditures while minimizing the impact of budget cuts. Truly, this is a no-win situation for social workers and clients alike.

As Lubove suggests, social work theory has also followed "administrative exigency" by adopting systems language to explain social problems, while task centered casework, crisis intervention, and short-term service contracts adapt to the computer with its limitless capacity to count. Stanley (1978: 136-177) has referred to this reductionistic, cybernetic mentality as "subjugation by metaphor." Those who do not speak the language of computers and system analysis will be viewed increasingly as backward, irrational, or at best resistant to change. Finally, bureaucracy and the computer make excellent partners, as they are both impersonal and capable of handling large amounts of information. Their potential appears to be limited only by the manager's imagination.

Unfortunately, just as social workers must manipulate the numbers, so must the managers, in a spiraling escalation of what Lipsky (1980: 131) called "auspicious shadings of the truth" or "sincere rationalization." Computer technology, increased supervision, and more regulations are surely not the answer to the problems facing social service programs. Social work, good or bad, is a qualitatively performed task and, by definition, requires a high degree of personal discretion, judgment, and initiative, all of which cannot be quantified. Despite

psychologists' attempts to reduce, scale, rate, and index the components of human judgment, this has not been done and continued efforts in that direction seem to me to be questionable. Again, as Lipsky (1980: 168) observes:

The more discretion is a part of the bureaucratic role, the less one can infer that quantitative indicators bear a relationship to service quality.

The danger to social workers and their clients in allowing the quality/quantity distinction to go unchallenged, in both the literature and on the job, has already been illustrated nonetheless, as managers continue to equate numbers with service, staff members will be reduced proportionately, thus imperiling the quality of the services that are delivered.

The Computer and Social Policy

Bogdan and Ksander suggest that social policy makers might benefit from studying the methods used for counting and measuring service and program outcomes, rather than accepting at face value the findings of program evaluators or quantitative researchers.

What is clear is that in order to understand data on incidence, prevalence and rates of success used by those who generated them has to be understood over time and in the context of that particular moment in history of which they are a part (Bogdan and Ksander, 1980: 304).

They cite numerous studies that have observed the quantification found in Head Start programs, vocational and welfare programs, public schools, and industry, and conclude that the numbers generated may have more to do with the social processes, conventions, and mandates to count than with empirical reality, although numbers, i.e., statistics, are still regarded as the "hardest" of data. Still, someone must decide how to define suicide, crime, mental illness, or child abuse. Human judgment cannot simply be factored out by the use of the computer, for the result is data that have no social significance. This is not to deny that phenomena are categorized everyday by persons, but that the power of quantification to alter and change the meaning of things must be recognized. Qualitative researchers have observed for some time that the ways individuals define

and measure service outcomes, inevitably influence the results of program evaluation studies. Until recently, however, there seems to have been very little understanding on the part of social work researchers as to the effect of the quantitative research model upon the research process. Karger (1983) in a recent article in Social Work, has begun to raise these important issues and challenge the methods and kinds of evidence allowed as "scientific" within the profession. Social policy, guided by computer print-out, can only further confound the problem, unless the difficult question pertaining to quality service is addressed.

Computer Programming and People Processing

Despite the claims that computers are now "user friendly", they may have some unforeseen negative effects. Weizenbaum was alarmed when psychotherapists began advocating for the use of computers to conduct non-directive therapy. In fact, he was sufficiently concerned to devote an entire book to helping people understand how a computer works and the problems which he felt it could be used to solve. He also made a very eloquent statement as to the computer's limitations and why computers should not be used on moral grounds to provide "psychotherapy" (Weizenbaum, 1976: 1-16). Unfortunately, I feel that his warning, as Orwell's 1984, will come and go with people reassuring themselves that there is nothing to fear. Perhaps that is so. But, at the very least, it seems that the unquestioning acceptance of computer technology by service organizations can only contribute to the image of helping professionals as "people processors." For years, vital welfare, housing and job programs have been characterized in the media, professional literature, and the popular press as more concerned with bureaucratic procedures than with meeting people's needs (Prottas, 1979; Galper, 1975; Blau, 1960). Computers, while enhancing service organizations' public image as efficient and cost effective, also project the idea that hardware has taken the place of concerned agency personnel. More important than public image, however, is the impact of the computer upon worker performance. If social workers are evaluated on the numbers of clients they are able to see in one day, it is not difficult to imagine bureaucrats forever "streamlining" procedures to enable more people to be processed in less time, limited only by the manager's imagination and the computer. Of course, this is an exaggeration, but people processing in human service organizations is not uncommon, and advances in technology may only encourage this approach to treating clients.

In 1971, John Noble (1971: 41) made this prediction:

Between now and 1984, the year of Orwell's apocalyptic vision on "Big Brother", there is a strong likelihood that social work and health professionals will join with their clients in major campaigns against the infringements of privacy occasioned by the rapid all pervasive growth of computer and communications technology.

As yet, however, no protests have been witnessed. Perhaps this is because computerization is viewed by both social workers and clients as inevitable, the price of progress, and nothing to worry about. As yet, however, no protests have been witnessed. Perhaps this is because computerization is viewed by both social workers and clients as inevitable, the price of progress, and nothing to worry about. Nonetheless, sometime in the future, the difficult issues related to "quality" social work will have to be addressed by the profession. It is my opinion that computer technology will hasten that day. If this prediction is accurate, then computers will have served a purpose beyond the technological capacity to count and categorize, and people issues will again take precedence over technical ones.

Conclusion

The fear that computer technology will intrude into the private lives of individuals is not new, nor is the fear of violations of client confidentiality. The advocates of this technology, however, decry those concerns as reactionary, or at best minimize them by emphasizing the improvements in record keeping efficiency and accuracy that are possible. Historically, dependent populations, such as welfare recipients, have the most to fear from computer technology but are the least aware of their rights regarding public records. Social practitioners must acknowledge to each other and the people whom they serve the reliability problems that exist in the present manual methods of record keeping, in order to address the dangers of computerized systems.

Elsewhere I have described the unsubstantiated and sometimes erroneous information contained in case records. I have also examined the taken for granted beliefs of both professionals and the public alike regarding the objectivity of case records. Because social facts are

inherently problematic, the result of both subjective and objective factors which influence what a social worker considers to be factual, case records should not be viewed uncritically. The promise of computer technology, combined with cultural and bureaucratic support for "hard" data, simply obscures the problems associated with constructing an accurate case record. Additionally, computer technology is touted as a panacea for fulfilling the current demand by human service managers for "hard" data. Seldom is it recognized how soft "hard" data really are, yet this becomes particularly important when bureaucratic data are used to formulate social policies. The use of computer technology in the human services is inevitable. However, the real choice for the profession of social work lies in whether or not the issues related to quality record keeping will be addressed or obscured altogether by computer technology.

REFERENCES

- Blau, Peter. The Dynamics of Bureaucracy, (Chicago: University of Chicago Press, 1956).
- Blau, Peter M. "Orientation Toward Clients in A Public Welfare Agency." Administrative Science Quarterly 5, (1960): pp. 341-361.
- Bledstein, Burton J. The Culture of Professionalism, (New York: W. W. Norton & Co., 1976).
- Bogdan, Robert and Margret Ksander. "Policy Data as a Social Process: A Qualitative Approach to Quantitative Data." Human Organization 39, (1980) pp. 302-309.
- Burnham, David. The Rise of the Computer State, (New York: Random House, 1980).
- Campbell, D. T. "Administrative Experiments, Institutional Records, and Non-Reactive Measure." Organizational Experimentation, edited by W. Evans (New York: Harper & Row, 1971).
- Cochran, Nancy; Andrew Gordon; and Merton S. Krause, "Proactive Records" Knowledge: Creation, Diffusion, Utilization, (September 1980) pp. 5-18.
- Dery, David. Computers in Welfare, (Beverly Hills, Ca.: Sage Publication, 1981).

- Douglas, Jack D. American Social Order, (New York: Macmillan; Free Press, 1971).
- Galper, Jeffrey H. The Politics of Social Services, (Englewood Cliffs: Prentice-Hall, 1975).
- Gouldner, Alvin W. Patterns of Industrial Bureaucracy, (Glencoe, Illinois: The Free Press, 1954).
- Gyarfas, Mary. "Social Science, Technology, and Social Work: A Caseworker's View." Social Service Review 43 (3), 1969: pp. 259-273.
- Handler, Joel F. Protecting the Social Service Client, (New York: Academic Press, 1979).
- Handler, Joel and Margaret Rosenheim, "Privacy in Welfare: Public Assistance and Juvenile Justice." Law and Contemporary Problems 31, (Spring 1966: pp. 377-412.
- Holbrook, Terry L. "Case Records - Fact or Fiction?" Social Service Review 57, (December 1983a): pp. 645-658.
- Holbrook, Terry L. "Who Controls the Worker's Time?" Social Casework 64, (June 1983b): pp. 323-328.
- Johnson, John M. "The Social Construction of Official Information," (unpublished Ph.D. dissertation, Department of Sociology, University of California, San Diego, 1973).
- Karger, Jacob H. "Science, Research, and Social work: Who Controls the Profession?" Social Work, 28 (3) (1983). pp. 200-205.
- Kitsuse, John I. and Arron V. Cicourel, "A Note on the Uses of Official Statistics." Social Problems, 11 (1963): pp. 131-139.
- Lipsky, Michael. Street Level Bureaucracy, (New York: Russell Sage Foundation, 1980).
- Lubove, Roy. The Professional Altruist (New York: Atheneum, 1975).

Noble, John H., Jr. "Protecting the Public's Privacy in Computerized Health and Welfare Information Systems." Social Work, 16 (January 1971): pp. 35-41.

Prottas, Jeffrey Manditch. People-Processing. (Lexington: D. C. Heath & Co., 1979).

Rubington, Earl and Martin S. Weinberg. Deviance, 2nd ed. (New York: Macmillan Publishing Co., 1973).

Schur, Edwin M. The Politics of Deviance (New Jersey: Prentice-Hall, 1980).

Sheffield, Ada. The Social Case History, (New York: Russell Sage Foundation, 1924).

Stanley, Manfred. The Technological Conscience, (Chicago: University of Chicago Press, 1978).

UCLA Law Review, 15 "Computerization of Government Files: What Impact on the Individual?" (1968): pp. 1371-1498.

Weizenbaum, Joseph. Computer Power and Human Reason, (San Francisco: W. H. Freeman & Co., 1976).

Wheeler, Stanton. ed., On Record: Files and Dossiers in American Life, (New York: Russell Sage Foundation, 1969).

Wilson, Susanna J. Confidentiality in Social Work, (New York: The Free Press, 1978).

The De-Skilling of Social Workers:
An Examination of the Impact of the Industrial Model
of Production on the Delivery of Social Services

Howard Jacob Karger
University of Missouri

Abstract

This article examines the effect of the industrial model of production on the delivery of social services. As part of this study, the effects of technology (used in its broadest sense) and system rationalization are explored, particularly as they result in the de-skilling of social workers. Lastly, the author makes recommendations for the development of alternative criteria for system rationality and the evaluation of efficiency in social service programs.

Introduction

In social work, as in most other professions, catch words like efficiency, accountability, system rationality, and austerity have become part of the daily vocabulary of professional life. Moreover, time and motion studies, sophisticated evaluation research, quantitative measures of client contact, and clinical proof of success are becoming increasingly common under the general rubric of accountability.

The intent of this paper is not to initiate a diatribe against technology, systems rationalization, or evaluative research, but instead to examine the deleterious effects of the industrial model of production on the delivery of social services. This paper will examine technology and systems rationalization, with the understanding that they are merely tools used in the service of the industrial model of production. In addition, the article will also explore the consequences of the industrial model of production for the work life of social workers and the experiences of clients. Lastly, the article will suggest some criteria to be used in the development of alternative measures of worker and agency productivity.

The thesis of this article, stated simply, is that when the industrial model of production is utilized in the social services it produces an effect upon client, worker, and agency which is detrimental to the well-being of each. It is the contention of this article that the overall structure in which social services are located, a social structure that by its nature stresses product and production over human needs, shapes technology and the raison d'être of social service programs. Society's emphasis on the quantification of production as the major benchmark of success forces social services into an industrial model of production, in which the most accepted measure of success is not the quality of services rendered, but instead the numbers of people processed. Furthermore, the quantification of social services determines which technologies are developed to measure worker and agency output.

Social Services, Funders, and Technology.

The demand by social service funders for greater system rationality and efficiency has increased over the last fifteen years. The pressure exerted by those funders has been fueled by a combination of inflation and recession, a general dwindling of fiscal resources allocated to social welfare, the intense competition for capital between the social welfare state and the military-industrial complex (a competition that has been exacerbated by the recent obsession with military superiority and first-strike capability), a growing feud with the corporate sector over taxation, and deficit spending on the federal level which has reached almost catastrophic proportions.

Concomitant with the emphasis on fiscal austerity has been an apparent increase in the job dissatisfaction of social workers in both private and public agencies. Many social workers in these agencies are reporting severe problems that relate to "burnout," such as low agency morale and an almost crisis-like state among the managers of many social welfare agencies (Jayeratne and Chess, 1984; Freudenberger, 1974). This dissatisfaction comes on the heels of social work's increasing use and adoption of highly sophisticated technological appurtenances. These technologies include: scientific management (i.e., management by objectives, etc.), the quantification of client/worker contact hours, a plethora of designs used to evaluate and measure how worker time is spent, goal attainment scaling, and so on. Given the recent fiscal constraints experienced by both public and private social welfare agencies, greater economic rationalization through increased

technological monitoring, downward re-classifying of social work positions, and the general diminution of social work jobs can be expected (Pecora and Austin, 1983; Karger, 1983).

The response of the social welfare establishment to the demands of funders has, in large measure, been focused on the development of greater and more sophisticated technologies. Before proceeding any further, however, a definition of technology is in order. Charles Perrow maintains simply that "technology is how the work is done." In a more precise manner, Perrow (1967: 195) defines technology:

"By technology is meant the actions that an individual performs upon an object, with or without the aid of tools or mechanical devices, in order to make some change in that object. The object, or 'raw material', may be a living being, human or otherwise, a symbol, or an inanimate object. People are raw materials in people-changing or people-processing organizations; symbols are materials in banks, advertising agencies, and some research organizations; the interactions of people are raw materials to be manipulated by administrators in organizations; boards of directors, committees, and councils are usually involved with the changing or processing of symbols and human interactions, and so on."

For the purposes of this paper, technology will not merely refer to computers, machines, software, etc. The definition of technology will encompass "how the work is done;" that is, machinery (computers), styles and philosophies of management, and the general design, organization, and execution of agency work. In this sense, technology and management are inextricably linked and part of the general fabric of agency work life.

In order to understand the relationship of technology to the industrial model of production and the delivery of social services, the key characteristics of technology must be examined. The engine that drives technology is the desire to cut costs, specifically the cost of labor. The savings for the agency, organization, or industry are established through increasing both the scale and intensity of production. This scheme results in higher productivity and an increase in the quantities produced (in human service organization the "quantity produced" is the number of clients processed). Consequently, the goal is to process more or the same

amount of people at a lower cost.

Agency savings can also be achieved by cutting the number of clients served. However, the obligation of the government, established through precedent and legislative mandate, necessitates the provision of services to clients who are at specific levels of need. Decreasing the raw materials processed (clients) may have serious consequences for the internal functioning and the stability of American society. Since the demand for services is increasing, savings can also be realized by regulating (re-adjusting means tests) the numbers of clients served. Even though overall social expenditures increase -- and with it the number of recipients -- savings accrue because the actual number of clients that should be served is not processed. The key incentive for technology is to increase the number of clients served while at the same time cutting costs. To do this, the mode of production must be standardized in such a manner as to process the raw materials as efficiently as possible.

The standardization of the mode of production demands that raw materials be perceived in a normative fashion. The raw materials (clients and workers) must have attributes that are similar (whether or not that is the case in reality), each must have a prescribed role, and exceptions must be overlooked or rejected. In short, the whole process of production must be normative for the system to achieve any kind of system rationalization.

Perrow (1967: 156) makes a similar argument when he states that:

"Techniques are performed upon raw materials. The state of art of analyzing the characteristics of the raw materials is likely to determine what kind of technology will be used. (Tools are also necessary, of course, but by and large, the construction of tools is a simpler problem than the analysis of the nature of the material and generally follows the analysis.) To understand the nature of the material means to be able to control it better and achieve predictability and efficiency in transformation. We are not referring here to the 'essence' of the material, only the way the organization perceives it to be ... The other relevant characteristic of the raw material, besides the understandability of its nature, is its stability and variability; that is, whether the material can be treated in a standardized fashion or whether

continual adjustment to it is necessary. Organizations uniformly seek to standardize their raw material in order to minimize exceptional situations. This is the point of de-individualizing processes found in military academies, monasteries and prisons, and the superiority of the synthetic shoe material Corfam over leather."

In short, the overriding object of technology is to rationalize the system of production, which in this case is the delivery of social services.

While savings within social services are important, they represent only part of the equation. The main function of social service rationalization is not merely to save money but to register a profit.

Accountability and rationality have slightly different meanings, yet their goal remains the same: the provision of adequate service at the least possible cost. In the marketplace of social services, agencies are involved in an intense competition for scarce capital. An agency will receive funding only if it can demonstrate that this money will be used in the most efficient manner possible. Consequently, although in many ways removed in form and content from the private marketplace, non-profit social services respond to the laws of market capitalism, which, at their core, operate on the premise of an intense competition for scarce capital.

The Political Context of Technology.

To blame technology per se is to confuse substance with appearance. Technology in social services does not exist in vacuo, but within a political context. Moreover, technology does not produce the social relations of production, instead it is produced by those relations (at least as those social relations are represented by the dominant values and ethos of capitalism).

Situating technology within a political context that values production above all else, suggests that technological appurtenances operate within a distinct political and social system. Given the reality of the current political context, the use of technology represents a change in the style of management rather than in the position of the worker. Used in conjunction with scientific management, the role of technology is to increase social profits (thereby emulating the system of capitalism in which it exists) by rationalizing the social service system.

Rationalization is not intrinsically bad. It is only problematic when used to rationalize the social service system on the basis of a funder's concern for efficiency, rather than client need. The paradox of technology is that the political context of social services is one of constant redefinition of tasks and means. This continual redefinition is antithetical to a system of rationality which pre-supposes stability.

It is erroneous to attribute to technology a power over humanity. Such power does not come from technology, but from the social relations of production. Technology is created by society and hence serves social interests: it has no life unto itself. To believe that technology has power is to reify social relations.

In short, social service technology is not the issue: the fundamental issue is the adaptation of the industrial model of production to social services.

The De-Skilling of Social Workers.

The values, philosophy, and culture of social work is at odds with the values of technological rationalization. Specifically, social work places a high premium on human interaction, is labor-intensive, and has a non-linear view of the world. And when complex technology pays little attention to the "terrain" (the actual work expectations and duties of social workers) of social services, social work skills become devalued and social workers lose their professional currency.

Almost axiomatic is the notion that technology tries to shape the production process to fit the strengths and needs of a particular technology. Therefore, the technology employed by the social welfare system will attempt to mold social work practice into a system which it can rationalize, measure, and evaluate. For example, if the strength of a particular technology is efficiency, social work must become quantitative in its orientation. Since this evaluative criterion is inherent within the technology, if social work fails to be quantified (e.g., numbers of people receiving service) it is assessed as ineffective. Thus the technology determines the practice, and the tail wags the dog. The result of such confusion about means and ends (the evaluative function of technology becoming the ends rather than what it should be -- the means) rigidifies social work practice. The engine that drives social work becomes evaluative technology, rather than the other way around.

In order to utilize fully quantitative technologies, human interactions must be reduced (as much as possible) to quantifiable terms. The strength of technology lies in measuring a product, rather than providing a suitable "terrain" for social service. The net result of this is that the criteria for determining client success are removed from the control of the social worker, and subsequently defined by a particular technology.

Through its emphasis on efficiency -- a notion of efficiency usually tied to quantity rather than quality -- technology attempts to replace labor energy with machine power that is usually less costly in the long-run. Moreover, it is easier to measure the productivity of machines, since production is usually constant (Mumford, 1961).

Therefore, the essence of technology is its ability to achieve efficiency. As part of that motive, systems which are able to quantify the productive output of individuals must be developed. While industry measures the number of commodities produced, social service measures the number of clients processed. In both cases the industrial model of production emphasizes quantity over quality. While describing the modern technological world, Fromm (1968: 39) writes:

"Few people raise the question of quality. This omission is evident in a society which is not centered around man any more, in which one aspect, that of quantity, has choked all others."

Current social service technology fits under the aegis of industrial production in several other important ways. As was stated earlier, both industrial and social agency production demand that the raw materials of production be standardized (Perrow, 1967: 196).

The industrial model of production -- more specifically the industrial technology of rationalization -- forces a non-routinized type of work (social work in this case) into a routinized and standardized framework. For example, the objective of operations research, as used in social work and elsewhere is to develop an unobstructed and continuous assembly line process. The goal of this activity is to create an uninterrupted work flow devoid of organizational and production obstacles. Contrary to Hage and Aiken (1974: 298), the establishment of a highly developed assembly line process is clearly applicable to social service organizations. The principle behind routinized work tasks states

that if clients are stable and uniform, and if much is known about the process of treatment, a routine work flow will follow.

An example of the need to stabilize raw materials is evident in the creation and use of the Diagnostic Service Manual (DSM III). Client problems are catalogued and a diagnosis proffered based on symptomology. When symptoms are channelled into the proper classification the correct path to treatment is illuminated. Those symptoms that defy categorization are either repudiated or ignored. Hence, an assembly line process of diagnosis and treatment is initiated. The process is, however, geared only to treating what has been defined as a problem by the diagnostic manual.

Routinization of task also has profound effect upon the decision-making process of an agency. The more uniform or routine the task, the more restricted the decision-making. Conversely, permitting each individual to control tasks is a move toward collegiality (Litvak, 1974).

Routinization also exacerbates the division of labor within an agency and locates the decision-making functions within an insulated context. If workers' tasks are routine, they can only make decisions related to a small issue. And, in order for tasks to be routine, they must be particular, specific, and measurable. Moreover, the more routine the task the less a worker knows about the overall functioning of an agency, and thus is not well enough informed to contribute significantly to planning an organization. Such ignorance insures that workers will remain passive and in a compliant state. Even within the context of their own routinized task, workers may not be allowed to control the decision-making related to their job. Thus, routinized tasks allow for a division of labor which centralizes decision-making within an administrative cadre and attempts, albeit often unconsciously, to sequester workers within a world of organizational ignorance and impotence.

Distinct problems arise when routinized tasks are introduced into the social service field. Professionalism, according to Friedson (1970: 78), is the quality of being free, self-directed, and autonomous. A professional self-directs his or her work. Conversely, an occupation that cannot direct or control the production and application of its knowledge base is not a profession (Friedson, 1970: 75). The

routinization of social service delivery is problematic for the social worker who, as a result of educational dogma, believes that professionalism is crucial when dealing with clients and other members of the public. Friedson (1970: 81) sums up the dilemma of the social work professional when he states that

"... it has been felt by many writers that the worker, as well as the client, suffers from the bureaucratization of production by a monocratic administration. Lacking identification with the prime goals of the organization, lacking an important voice in setting the formal level and direction of work, and performing work which has been so rationalized as to become mechanical and meaningless, functions as a minute segment of an intricate mosaic of specialized activities which he is in no position to perceive or understand, the worker is said to be alienated."

Therefore, as a result of the technological mandate to increase efficiency, productivity, and profits, the tasks of most workers must be reduced to simple routines approximating the logic of machine production. Workers are thus transformed from competent individuals into machine-like components who possess only the most basic knowledge of their work environment, and hence become labeled as mere "factors of production." This expropriation of knowledge deprives workers of the dignity and worth that should accompany meaningful work, and completes their transformation into marketable and replaceable commodities (Gil, 1984).

Social work practice -- through the exigencies of technology -- must therefore become specialized, its tasks mechanized, and its final mission made more fully automatic (Mumford, 1962: 118) Furthermore, this "decomplexifying" of social work skills allows less skilled people to operate social welfare agencies. Hence, the downward declassification of social work positions -- the trivialization of social work -- becomes more widespread. Because technology demands that jobs be divided into measurable parts, what was formerly a skill (insight, empathy, etc.) becomes an anachronism of pre-technology. If a caseworker's skills and attributes cannot be defined by the technocrats who manage technology, he or she is thus relegated to the role of a skilled technician who can measure behavioral change in the language of the science. Since technology stresses measurement, and what is not quantifiable cannot be measured, behavioral change will be the sole barometer of effective casework

(Hudson, 1978). Insight that cannot be measured is thus extraneous to technology, and hence cannot be included in most "scientific" evaluative strategies.

When a sophisticated technology is introduced into a program that does not pay sufficient attention to the organization and mission of social work, and when that technology is mastered by only a few, severe dislocation and stratification is encouraged in the workplace. In particular, social service technocrats who can master the new technologies come to dominate social workers who cannot compete in the technological arena. Thus, the pre-existing relations of power within the workplace become transformed into a stratified system of power relationships, as the new technocrats are treated as the most important members of the social work profession. In effect, the less technologically adept social workers operate social services under orders from their technocratic managers. The value of the social worker, and his or her ability to make decisions concerning clients, is diminished in light of the power relationships that emerge from the exigencies imposed by the new technocrats. Moreover, the importation of non-social work managers (MPA's or MBA's) results in the colonialization of social work by other professions. These managers, who try to produce the most cost-efficient, productive, and rational service, often have little understanding of the "terrain" of social work practice.

A profession which no longer values its practitioners undermines itself. With its valued talent imported, and little place to export its professionals, social work reduces itself to an economic colony subordinate to other disciplines. In effect, social work imports its own masters and trains their subordinates. Social workers fit neither the old way that is disappearing nor the new ways for which they are not trained. With only their traditional labor to exchange, social workers are threatened with economic obsolescence. Unless social workers work more cheaply or gain technological skills, they will be relegated to inferior work roles. The irony is that within the social work curriculum there is little room for more high-technology without compromising the "knowledge of the terrain."

The technological cycle causes the superfluousness of social workers who possess only interpersonal skills. In effect, they form an underclass in the high-technology social welfare field, while the scientific managers are the valued capital. Finally, the superfluousness of the skilled line

worker also leads to lower wages and the subsequent "proletarianization" of social workers.

Since technology builds on itself, and increasingly more technology is needed to be competitive, the cycle of destruction grows more widespread for the profession of social work. Each new technological advancement in social work means that greater numbers of social workers are disenfranchised from their current status within agencies. In short, every new technological development which requires scientific and complex management skills drives a nail deeper into the coffin of the traditional relations of power inherent in the social work profession.

A result of the de-skilling cycle is that workers begin to doubt and devalue their skills. With such devaluation comes a decline in self-concept and a diminution of the purpose of work. Work becomes labor and labor alienated work (Karger, 1981). That which was once active becomes passive, and he or she who was once a subject is now an object. Technology (including scientific management) dissolves the labor process as one conducted by workers and reconstitutes it as a process organized by management (Aronowitz, 1973: 170). In this sense, the reorganization of labor changes the work process.

The cycle of de-skilling is completed when the trivialization of social work becomes a reality. At the core of this is the devaluation of the social worker's capital and the reduction of social work skills to mechanical operations. The technological mandate is enforced by agencies and, often, by the profession itself. Resistance to the technological imperative is punished either through professional repudiation or agency sanction. In either case, the refusal to capitulate to technological demands engenders substantial risks. In short, the transformation of social workers into mere "factors of production" is repugnant to work, as alienation results when jobs are transformed into routine tasks.

The paradox is that, in many ways, the inhumanity of social service agencies causes worker alienation (an inhumanity fostered by the technological conditions of production). And most often this alienation is dealt with by developing more sophisticated technology. Ironically, that which caused the alienation is expected to end it.

Recommendations.

That social work is being rationalized is evident in social work practice and administration. This rationalization of the profession is a fact of life and will, in all likelihood, become a permanent fixture of social work. The following recommendations, although not exhaustive, suggest a direction for social service technologies and system rationalization:

- 1) The entire notion of productivity must be reassessed. Productivity for its own sake must be discarded, and in its place must be established a form of production that has a human context. Productivity must be designed to reflect the best interests of the client and the workers. Therefore, alternative means to measure and evaluate productivity must be designed. The new criteria must evaluate productivity not merely as a crude measure of production, but as a reflection of agency, worker, and client goals.

The above suggests the use and development of an appropriate technology for the social welfare field. Utilization of appropriate technology supposes the need to redefine efficiency in human rather than technological terms. The redefinition of efficiency hinges on a re-evaluation of the goals of social service, since efficiency is merely the measurement of pre-determined goals. Therefore, in order to develop appropriate technologies in social work, the goals of social service must be articulated in human terms.

Social service planning should be based on the needs of workers and extend from a humanistic framework, rather than machine-like notions of productivity. This requires a thorough assessment of the needs of workers and the ideology that is invoked to describe work in the modern world.

In order to create forms of technological assessment that are appropriate to social work, a "regional" approach to social work technology must be developed by the profession (e.g. for child welfare, mental health, etc.) Moreover, each region must then develop a specific form of technology that is appropriate for each modality of treatment. The notion that social work can develop an evaluative technology which can be used universally is not only misleading, but in the end will compromise the profession. The use of appropriate technology suggests that the "terrain" of social work practice is complex and fraught with problems. Attempts to homogenize the "terrain", by superimposing a

technological modelity that is not indigenous to the particular field under examination, will only create the conditions which render social work ineffective and thus devalue the profession.

2) Social service organizations need less mechanistic practice models and more humane and democratic organizational forms. The hierarchical organization which pits worker against supervisor, and locates the focus of decision-making with a few supervisors, must be substituted for one which stresses collegiality and worker control of production.

3) The technology used in social service programs should be understood easily by those social workers who will be expected to implement it. This does not suggest utilizing only rudimentary or crude forms of technology, but instead using types that can be mastered and understood by practitioners who are not trained as engineers or computer technicians. Undoubtedly, using middle-range technology may necessitate some retraining of social service personnel. Additionally, technology must be flexible (rather than fixed and rigid) and able to be changed by social work personnel. Lastly, the new technology must be dynamic and easily altered, since the conditions of social work practice change. Technology should not determine the criteria for effectiveness, but rather measure effectiveness as it is specified by social work managers and practitioners.

Conclusion.

This paper has attempted to show that the use of inappropriate technology in the social welfare field has serious consequences. Most important is the de-skilling of social workers and the subsequent devaluation of the social work profession. Choices regarding the use and development of technology are unavoidable. Demands for accountability and the fiscal restraints placed on the social welfare system are omnipresent. While choices regarding technology must be made by social workers, the criteria used must be carefully scrutinized. As part of this process new criteria must be developed. These should be based on notions of efficiency which are grounded in the human dimension of work, rather than a purely economic view of service delivery. With a humane and democratic vision, social service technologies can be a potent force in positively changing the face of welfare services in the United States.

Technology is merely a tool. Although technology has its own logic it is still in the service of humanity. Nevertheless, technology can be an

instrument for either liberation or repression. Social work is at a crossroad. On the one hand social workers can be subservient to technology, or on the other hand they can try to develop technologies that benefit both clients and the profession. What social workers choose should be a matter for public debate within the profession.

References

- Aronowitz, Stanley. False Promises (New York: McGraw Hill, 1973).
- Freidson, Eliot. "Dominant Professions, Bureaucracy, and Client Services," in Will R. Rosengren and Mark Lefton (eds.), Organizations and Clients: Essays in the Sociology of Services (Columbus, Ohio: Charles E. Merrill Publishing Company, 1970), pp. 71-92.
- Freudenberger, Herbert. "Staff Burnout," Journal of Social Issues, 30 (Winter 1974), pp. 459-465.
- Fromm, Erich. The Revolution of Hope: Toward a Humanized Technology (New York: Bantam Books, 1968).
- Gil, David G. "Reversing Dynamics of Violence by Transforming Work," Journal of International and Comparative Social Welfare, Vol 1, No. 1 (Fall 1984), p.7.
- Hage, Jerald and Michael Aiken. "Routine Technology, Social Structure, and Organizational Goals," in Yeheskel Hensensfeld and Richard A. English (eds.), Human Service Organizations (Ann Arbor; University of Michigan Press, 1974), pp. 298-314.
- Hudson, Walter. "First Axioms of Treatment," Social Work 23 (January 1978), p. 65.
- Jayarathne, Srinika and Wayne E. Chess, "Job Satisfaction, Burnout, and Turnover: A National Study," Social Work, 29 (October 1984), pp. 442-452.
- Karger, Howard J. "Burnout as Alienation," Social Service Review 55 (June 1981), pp. 271-283.

- Karger, Jacob. "Reclassification: Is There a Future in Public Welfare for the Trained Social Worker?" Social Work, 28(November/ December 1983), pp. 427-434.
- Litvak, Eugene. "Models of Bureaucracy Which Permit Conflict," in Yeheskel Hasenfeld and Richard A. English (eds.) Human Service Organizations (Ann Arbor: University of Michigan Press 1974), pp. 417-428.
- Mumford, Lewis. "The Mechanical Routine" in Eric and Mary Josephson (eds), Man Alone (New York: Dell Publishers, 1962), pp. 114-122.
- Peccora, Peter J. and Michael J. Austin. "Declassification of Social Service Jobs: Issues and Strategies," Social Work , 28 (November/December 1983), pp. 421-426.
- Perrow, Charles. "A Framework for the Comparative Analysis of Organizations," American Sociological Review 32 (2), 1967), pp. 194-208

MEDICINE, TECHNOLOGY, AND GENETIC ENGINEERING: REFLECTIONS FROM THE OUTSIDE

by

Jeffrey R. Pittman
Arkansas State University

Abstract

Advances in technology are producing many changes in the ways humans view and manage their lives. The refinement of genetic engineering techniques has created vast opportunities for humankind, along with novel problems and dangers. Accordingly, the questions that must be addressed pertain to the nature of life itself. Yet the scientific community can not be given sole discretion in managing today's technologies. Instead, all segments of society must be involved in determining how genetic engineering will be used.

Of all the areas of human endeavor, technology most often affects the field of medicine. The marriage of technology and medicine - science applied to the art of healing - influences persons in a manner unlike any other type of scientific undertaking. Changes in the "technology of medicine" come fast and furious, and usually involve questions concerning the nature of death and sickness. Moreover, these questions have more than academic significance to the public. Along with the benefits of medical technology are, of course, problems to be addressed.

A growing number of critics claim the marriage of medicine and technology is not necessarily a match made in heaven. They feel changes in technology are threatening society's moral foundation, destroying person's perceptions of the meaning of life, and endangering the existence of the human species.

Ethical questions in the medical field are prevalent, but certainly not new. The answers to such queries can prove evasive and controversial. For example, the issue of abortion has sparked bitter discussions. On December 1, 1982 Mr. Barney Clark opened a new chapter of medical history, with the first human use of an artificial heart. As a result of

this development, questions about the quality and cost of life have intensified.² However, one particular technology, with extensive applications both within and outside the field of medicine, is giving rise to questions that go beyond those already raised. Visions from Aldous Huxley's Brave New World are becoming realities through the technology known as genetic engineering.

A Definitional Introduction

Genetic manipulation, genetic engineering, gene splicing, and gene therapy are terms that conjure up vivid and sometimes horrifying mental pictures. Genetics - the science of heredity - has been around for sometime, but recent scientific advances have dramatically altered its significance. To analyze the various societal issues involved with today's genetics, the basic scientific principles must be outlined and defined.

Many of the domestic animals, crops, and plants in existence today are human creations. They are the result of a selective breeding process aimed at enhancing desired characteristics. This fairly innocuous "genetic manipulation" has raised little outcry from the public. Of more recent origin is "genetic engineering", a term that denotes a more active intervention in the evolutionary process.³

All living organisms are composed of cells; the human body contains billions of cells. Most cells share a common structural design, including a nucleus that stores genetic information. Within the nucleus are pairs of chromosomes. Each chromosome contains a long thread of deoxyribonucleic acid, or DNA. DNA - the key to contemporary genetics - has been called the "master molecule of life", as almost all living organisms possess it (Judson, 1979). Portions of DNA contain coded instructions which enable a cell to perform a particular function, e.g., to manufacture a necessary protein. These DNA segments are called genes, and they are central to understanding heredity. It is through genes that the blueprint of life is passed from one organism to its offspring, from a mother and father to their child. And it is on these genes the spotlight of science and the heat of debate currently falls.

Genetic engineering refers to the genre of technology that utilizes a range of procedures that add genetically determined characteristics to cells that would not otherwise possess them, or would acquire these traits only after many years of development. Gene splicing, a form of genetic engineering, involves the technology of recombinant DNA. With this

technique, sections of DNA can be removed from one chromosome and fused with a chromosome of another cell. Thus DNA from different species can be combined to create a new organism. Gene therapy is the use of gene splicing to introduce a normal functioning gene into a cell that contains a mutant or defective gene.

The Business of Genetic Engineering

Advanced Genetic Sciences, Genex, Agrigenetics, Cetus Madison, and Genetech are not household names. Yet they are five of the largest corporations involved in the genetic engineering business. According to a recent Department of Commerce (1984) report, several hundred U.S. companies are now employing biotechnology (genetic engineering). Present estimates of the total market for their products by the year 2000 range from 15 to 100 billion dollars.

Wall Street has not ignored the glamor and appeal of the new technology companies. Genetech was formed in 1976 to utilize patented recombinant DNA technology. In 1980 its initial stock offering set a Wall Street record for the fastest rise in price per share, going from \$35 to \$89 in 20 minutes. The following year, Cetus Corporation set a Wall Street record for the largest amount of money raised in an initial offering, or \$115 million.

The biotechnology industry was spawned largely through government expenditures. Over the last 30 years there has been growing federal support for basic biomedical research. This support has created the knowledge and personnel base that provides the foundation for current bio-technical activities. The leading federal agency involved in research has been the National Institute of Health (NIH). The NIH, consisting of 11 institutes and many programs, constitutes the world's largest biomedical research laboratory. Its present budget of over \$3.3 billion supports the work of the Institute's 3000 scientists and 2000 laboratories. The NIH spends 80 percent of its budget to support outside research at hospitals, universities, and other laboratories.

The business of genetic engineering is not without regulation. Regulatory power over the biotechnology industry is possessed by at least 17 federal agencies.⁴ Which agency has jurisdiction depends on the product manufactured or the research undertaken. For example, the Food and Drug Administration (FDA) approves human drugs, diagnostics, and food additives, while the Department of Agriculture has jurisdiction over research conducted on plants and animals. The NIH Recombinant DNA

Advisory Committee (RAC) has authority over basic research. Due to overlapping jurisdiction, turf disputes between regulatory agencies can create administrative delays. Approval of two products developed by Genetech for use on cattle was delayed for over a year because of a jurisdictional dispute between the Department of Agriculture and the FDA (Rhein, 1985). To ease potential conflicts, the Reagan Administration has been attempting to define more clearly regulatory authority and streamline the regulatory process.

Applications of the Art

On April 7, 1985 it was reported that researchers at the Cetus Corporation had succeeded in splicing and cloning the human gene for the protein tumor necrosis factor, or TNF (Jonesboro Sun, 1985). It is hoped that this protein, produced naturally in the human body in small quantities, can be used to attack malignant cancer cells while leaving healthy tissue unharmed. The first human trials of TNF are expected to begin in early 1986. The prospects for successful TNF use appear good, although previous laboratory products (e.g., interferon - a virus-fighting substance) have proved unsuccessful in stopping the spread of cancer.

The Cetus Corporation's TNF is just the latest in a number of increasingly frequent announcements of biotech breakthroughs. The process began in the 1950s when James Watson and Francis Crick discovered the structure of DNA. In the 1970s, when scientists first succeeded in splicing foreign genes into a ring of DNA, genetic engineering was under way.

Applications of genetic engineering are numerous, varied, and quite amazing. A simple gene-spliced bacterium, when placed in a fermentation broth, can produce more than a billion copies of itself in 15 hours. This growth rate can be contrasted with, for example, the normal method of insulin production. Prior to 1982, to supply diabetics in the U.S. with insulin the pancreata of over 80 million cows and pigs were needed yearly. In 1982, insulin produced via recombinant DNA methods was approved for sale in the U.S. and Great Britain.

Products developed by using recombinant DNA techniques have entered the marketplace in increasing numbers over the last decade. The following is a partial list of current recombinant DNA product areas:

*vaccines - largely restricted to animal vaccines, although work is nearly completed on a type designed to fight human cancers associated with viruses;

*hormones - including human insulin, a growth hormone to fight human dwarfism, and a growth hormone for cattle;

*bacteria - designed to protect plants from frost or crops from damaging pests;

*enzymes - including rennet, used in making cheese.

The aforementioned applications of biotechnology, although obviously noteworthy, have not stirred the same level of controversy as those which relate to human medicine.

In the summer of 1980, Dr. Martin Cline attempted to cure two persons suffering from thalassemia - a fatal blood disease related to sickle-cell anemia - by inserting normal hemoglobin genes into these patients' bone marrow. The surgery was not successful, having no effect positive or negative. Moreover, the operations were performed in Italy and Israel, because approval for the surgical technique was denied in the U.S.⁵ As a result of Dr. Cline's activities, he was forced to resign as Chief of Hematology/Oncology at UCLA, and lost two federal grants worth more than \$190,000 (Sun, 1981).

The unsuccessful attempt at human gene therapy has renewed debate regarding the technique. Potential applications of gene therapy in humans abound. Single gene mutations, the first logical targets of gene therapy, are known to cause as many as 2000 human disorders (McKusick, 1982). A defect in just one gene - cells have as many as 100,000 genes - can have fatal consequences.

Existing traditional treatments of genetic disorders are aimed at modifying or easing the damage caused by defective genes. Gene therapy is concerned with curing the disorders, not treating the symptoms. This is accomplished through the insertion of a normal gene into the cell where the defective one is active, therapy attempting to supplant the mutant gene's activity. Gene surgery would take the additional step of surgically removing a defective gene and inserting a normal one in its stead.

Gene therapy, as discussed, would involve only alterations to somatic cells, or those comprising parts of the body other than germ cells. The

reproductive (sex) cells in humans, either sperm or egg, are the germ cells. In theory, then, gene therapy would not affect a change in a patient's offspring. A child would inherit characteristics, including defects, independent of the performed therapy. The same gene therapy performed on a parent would possibly be necessary for the parent's child. One solution for this scenario would involve the most controversial of all genetic technologies, which entails altering germ cells or fertilized eggs.

Several recent laboratory developments have involved genetic manipulation of germ cells (Mark, 1981; Palmiter, Chen, and Brinster, 1982; Brinster, et. al., 1981). In one experiment, fertilized mouse eggs were injected with rabbit hemoglobin genes. The developed offspring were reported to contain rabbit hemoglobin in their red blood cells (Wagner, et. al, 1981). This approach could be applied to fertilized human eggs through *in vitro* fertilization techniques.⁶ Accordingly, human defects could be identified, isolated, and corrected, all before the child is "born". As the fetus develops it would not contain the mutant genes nature otherwise would have provided.

Issues/Analysis

The manufacture of pharmaceuticals and other products via recombinant DNA technology is a reality.⁷ The NIH's recombinant DNA Advisory Committee has indicated recently that it might be ready to approve gene therapy applied to human patients (Bishop and Waldholz, 1985). And experiments continue on the alteration of germ cells and fertilized eggs of laboratory animals. These related, but distinct, areas of technology are generating considerable debate. The following discussion will identify and examine some of the major questions being posed by experts and laymen. The issues surrounding genetic engineering fall into two categories: those regarding unforeseen deleterious effects of the new technologies, and ethical concerns that must be addressed even if the techniques work as desired.

Examples of ill-advised human manipulation of the environment are numerous. The kudzu vine, gypsy moth, and Dutch elm disease created problems that could have been avoided with foresight. Chemical engineers of the 1920s did not conceive of acid rain as a problem, while few physicians in the 1940s were concerned about the effects of low-level radiation exposure. And scientists, chemists, and product engineers today are imperfect in their efforts to keep unsafe products and chemicals off the market and out of food. Critics contend that genetic engineering is a field of great uncertainty, since scientific research often leads into

unanticipated areas. They conclude that a ban on experiments is necessary to protect society from unanticipated catastrophies.

The cited problems are real, but they do not support a ban on genetic engineering. Despite past setbacks, scientific advances have improved greatly life over the past fifty years. Extensive government regulations presently in place are very protective and restrictive. Furthermore, problems with genetically engineered products over the last decade have been nonexistent. After all, genetic engineering only accelerates a process that occurs randomly without human intervention. In nature, bacterial bits of genetic material commonly are transferred between species.

Persons should not place their collective heads in the sand when recombinant DNA technology is applied. But the issue becomes a question of burden of proof. Critics would require scientists to prove that their procedures are completely safe before they proceed. Such proof is, of course, rarely possible. Rather, the burden of proof must be placed on those opposing genetic engineering. The potential benefits from technologies such as recombinant DNA are enormous. And the scientific community generally agrees the techniques are safe. To stop the advance of knowledge, without first identifying specific dangers, is undesirable and unworkable.⁸

Of a different nature are concerns about "man" playing God. Humans are composed of the same DNA molecules as all other living organisms. Will persons lose their sense of self when they start manipulating the building blocks of life? A line must be drawn between changes in somatic cells and germ cells.

Gene therapy on somatic cells, replacing defective genes with normal functioning ones, is simply an extension of the surgical techniques practiced for the last century. A defective portion of the body is repaired or replaced, albeit through a very sophisticated surgery. Accordingly, questions should focus on the effectiveness of gene therapy and not on its desirability as a medical technique. Regarding the notion of "man" playing God, the following question is relevant: Is it God-like to deny therapy to persons suffering greatly from sickle-cell anemia or cystic fibrosis?⁹

An entirely different area of concern involves changes in germ cells or fertilized eggs. One could ask whether it is better to remove mutant genes from a germ cell, or wait until a child is born defective?

Theoretically, it is better to avoid a problem. In practice, however, it would be very difficult to identify and isolate defective genes at that stage. And morally, there are many unanswered questions about such a procedure.

For example, what is a defect? Are low intelligence and unattractiveness defects? Should selection of hair color or body size be allowed if this were possible? Would Beethoven have been a better person and musical composer if his hearing and eyesight problems had been genetically corrected before birth? These questions are difficult, and a consensus on appropriate answers is lacking. Near perfect chances for success would be required before genetic surgery could be attempted. Society would not accept an 80 or 90 percent success rate on the manipulation of germ cells, for such surgery could possibly damage unborn children.¹⁰

Conclusion

Over the last several decades, humankind has been obliged to reconcile the desire for knowledge with the survival of the human species. With advances in knowledge, persons now have the ability to either destroy themselves or provide beneficial services for society. If properly applied, the science of genetics will fall into the latter category, thereby offering a great tool for human betterment.

Yet scientists must be concerned constantly with potential pathogens, or those organisms that could be converted, with a few mutations, from something harmless to a serious menace. But scientists are properly cautious, due in large part to elaborate government regulations. The probability of major unintentional damage being inflicted upon humankind through genetic engineering is very small. Intentional misuses of genetic technology are probable, as the world will always produce a number of Hitlers. However, the fear of potential abuse alone should not stop the pursuit of beneficial knowledge and technologies.

The issue surrounding the genetic alteration of germ cells, or fertilized eggs, has a different character. The profound nature of gene splicing, as applied to unborn individuals, requires the attention of all citizens. This is particularly important because present regulatory efforts in this area are not sufficient. The whole of society, not just scientists and administrators, must be involved in deciding how this

technology shall be used. Public education efforts should be increased, while a committee with oversight authority should be convened. This committee would draw membership from scientists, religious and academic leaders, lawyers, doctors, and members of the general public. For now that humankind has the tools of science, they must not be used to destroy the world.

Most important is that humans must not become enamored by technology to the extent that moral and ethical questions are obscured. Nowadays the tendency is to move ahead with programs simply because they are technologically possible. Technology, in other words, cannot answer questions that only humans can pose. For at the root of technology is human action that cannot be obscured if this tool is to be used correctly.

FOOTNOTES

1. Humankind has always struggled with, and at times fought against, advances in technology. The issues addressed by this paper, though, represent a leap from issues raised by previous changes in knowledge. Challenges to the medical technologies of 1985 cannot be attributed solely to humankind's inherent resistance to change.

2. Prior to Mr. Clark's operation, the federal government had spent over \$200 million aiding research in the development of artificial (mechanical) heart technology. To purchase an artificial heart, \$100,000-\$200,000 is needed for the operation and first year service alone. These facts, and others, give rise to a number of areas of controversy, including the following:

*Should an artificial heart be denied to a patient based on his or her ability to pay? The taxpayer has already funded a portion of his/her bill by contributing to the research vis-a-vis tax payments.

*Should any life-giving technology be denied a patient based on financial considerations? When the dialysis machine became a perfected technology, treatment was partially restricted to those able to bear the costs involved. This restriction has all but disappeared. Will the same evolutionary process affect new medical technologies and, if so, where will the money be found to pay for the treatment provided?

3. The term "genetic engineering" was first used by Rollin D. Hotchkiss, "Portents for a Genetic Engineering," 56 J. Heredity 197 (1965).

4. For a listing of the federal agencies, and a description of their powers and areas of authority, see the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research: Splicing Life: The Social and Ethical Issues of Genetic Engineering with Human Beings, U. S. Government Printing Office, Washington, DC, 1982.

5. Approval was denied, among other reasons, on the basis that more animal work was needed. See the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research: Protecting Human Subjects, U.S. Government Printing Office, Washington (1981) at 177, 182.

6. The approach would involve the following: (1) isolating and amplifying the desired gene by standard recombinant DNA techniques; (2) removing a mature ovum from a woman and fertilizing it in vitro; (3) injecting copies of the cloned gene into the fertilized egg (zygote) using microsurgical techniques; and (4) implanting the genetically altered zygote into the woman's uterus.

7. Users of recombinant DNA techniques won a significant legal battle when the Supreme Court ruled patent protection was available for new life forms created. Diamond v. Chakrabarty, 447 U.S. 303, 316 (1980).

8. Genetic engineering on biological warfare weapons is a separate issue. Drawing on recombinant DNA technology, biological weapons could conceivably be devised to eliminate selected animals, plants, or people. Despite the 1972 Biological Weapons Convention, this type of research is probably being conducted in the Soviet Union, United States, and elsewhere. Research in this area is reprehensible and should be stopped. But the problem is with the misuse of knowledge, not with the scientific knowledge itself. A ban on all genetic engineering in the U.S. would not stop such efforts elsewhere in the world.

9. There is considerable support from religious scholars for gene therapy, appropriately applied. Pope John Paul II gave his approval for gene splicing when its aim is to ameliorate the conditions of those who are

affected by chromosomal diseases. "La sperimentazione in biologia deve contribuire al bene integrale dell'uomo," L'Osservatore Romano, Rome, Oct. 24, 1982, at 2.

10. Near perfection for the surgical procedure would not be required if the following conditions could be met:

- * It was ascertainable with near certainty, upon examination of the fertilized egg, the child would be born with a serious defect;

- * The genetic surgery would, at worse, not improve the child's condition - it would not further damage the unborn child.

REFERENCES

Biotechnology, Washington, D.C.: U.S. Government Printing Office, 1984.

Bishop, Jerry and Waldholz, Michael, "Conflicting Standards Complicate Medical Experiments on Humans," Wall Street Journal, January 22, 1985, p.31.

Brinster, Ralph, Howard Chen and Richard Palmiter, "Differential Regulation of Metallothionein-Thymidine Kinase Fusion Genes in Transgenic Mice and Their Offspring," 29 Cell p. 701 (1982).

Brinster, Ralph, et al., "Somatic Expression of Herpes Thymidine Kinase in Mice Following Injection of a Fusion Gene into Eggs," 27 Cell p. 223 (1981).

Diamond v. Chakrabarty, 447, U.S. 303, 316, (1980).

Hotchkiss, Rollin D, "Portents for a Genetic Engineering", Journal of Heredity 56, 1965, p. 1965.

Jonesboro Sun, "Scientists Have Cloned Gene," April 7, 1985, 12B.

Judson, Horace Freeland, The Eighth Day of Creation, New York: Simon and Schuster, 1979.

McKusick, Victor A., Mendelian Inheritance in Man, Baltimore: John Hopkins University Press, 1982.

Marx, Jean "More Progress on Gene Transfer," 213 Science p. 996 (1981).

Pope John Paul II, "La sperimentione in biologia deve contribuire al bene integrale dell' uomo," L'Osservatore Romano, October 24, 1982, p.2

Splicing Life: The Social and Ethical Issues of Genetic Engineering with Human Beings, Washington, D.C.: U.S. Government Printing Office, 1982.

Protecting Human Subjects, Washington, DC: U.S. Government Printing Office, 1981.

Rhein, Reginald, "Splicing Together a Regulation Body for Biotechnology," Business Week, January 14, 1985, p. 69.

Sun, Marjorie, "Cline Loses Two NIH Grants," Science 214, 1981, p. 1220.

Wagner, Thomas, et. al., "Microinjection of a Rabbit B globin Gene into Zygotes and Its Subsequent Expression in Adult Mice and Their Offspring," Proceedings of the National Academy of Science 78, 1981, p. 6376.

DEVELOPING SOCIAL WORK INTERVIEWING SKILLS THROUGH A MICRO-VIDEO ANALYSIS TRAINING PROGRAM

Peter C. Iverson
Southwest Missouri State University

Abstract

Effective interviewing techniques are required for successful social work practice. Consequently, mastering this relatively complex technology is vital for both social work students and agency professionals. This article will provide a descriptive analysis of the Micro-Video Analysis Training Program which may be operationalized in either an academic classroom or agency. Also discussed are the primary components of the training program and their inter-relationships within the context of the Micro-Video Analysis approach. Hopefully this material will assist those with social work education responsibilities to teach interviewing skills more effectively.

Introduction

One of the most vital components of direct practice in social work is the ability to communicate with clients in a manner that will facilitate positive behavioral change. Consequently, it is essential that social work students learn this deceptively complex activity so thoroughly that a wide range of correct verbal and non-verbal behavior patterns are assimilated into their professional knowledge base.

Teaching professional interviewing and other microcounseling skills has always been a formidable challenge. Through observation and experimentation over the past several years, I have developed a teaching methodology which provides students with an optimal learning experience.

This paper will furnish a detailed description of this microcounseling training model, including its interrelated components: the single skills approach; rotating quadrille simulations; role playing; single-subject videotaping procedures; and videanalysis. The paper will

conclude with a brief summary.

The Single Skills Approach

The difficulties many social work educators face in teaching microcounseling skills to beginning students are often compounded by the utilization of pedagogical formats which are largely ineffective, or, in some instances, even detrimental to learning. At one extreme are instructors who tend to overwhelm students with a large conglomeration of diverse skills, usually to be learned simultaneously. At the other end of the methodological continuum are educators who oversimplify counseling, teaching only a few elementary skills. It is also common for social work practice courses to be taught entirely by the lecture or discussion method, with little or no time or emphasis placed on learning interviewing techniques through classroom exercises (Wells, 1984).

In the single-skills approach to teaching microcounseling, the interviewing process is broken down into several skill categories (Evans, Hearn, Uhleman, and Ivey, 1984). These are further subdivided into specific behaviors, or single skills. The techniques in each category are then practiced, one group at a time, until mastery is attained. The process is cumulative, in that each set of previously acquired skills is practiced again in conjunction with each new learning experience. Thus, step by step, students develop an extensive repertoire of both basic and advanced skills, and learn how to utilize them individually or in combination with others.

Interviewing texts also include specific, concrete techniques to be acquired through a series of progressively complex learning procedures. These are often extracted from the narrative and enumerated in the form of exercises at the end of chapters (Cormier and Cormier, 1979), in a workbook (Iverson, 1980), or in an instructor's manual (Stewart and Cash, 1982). In such cases, learning the single skills in each category can be accomplished only as long as the other procedures for teaching microcounseling are followed.

Rotating Quadrille Simulations

Social work interviewing techniques can also be learned effectively through role-playing exercises (Iverson, 1984). My rotating quadrille simulations system allows each student to participate in interviews

and/or videoanalysis during a single class period. To accomplish this, the class is divided into several quadrilles, or groups of four, whose members assume the roles of social worker, client, evaluator, and recorder. The interviews are relatively brief, as I have found that approximately ten minutes provides sufficient time for students to practice the skills to be learned in one session. In addition, there is some evidence that brief interviews can be as effective as much longer ones (Singh, 1982).

After each interview, the students rotate roles so that every student assumes each role at least once during a class period. Consequently, there is no inefficient use of class time, such as when the majority of students are passively observing interviews as part of a large classroom audience. The four roles are complementary, with the task performance in each one reinforcing the learning objectives in the other three.

This method appears to be effective regardless of class size. Indeed, it has been successfully utilized with groups as small as four trainees in agency staff development programs and with university classes as large as sixty students. The only real limitations are room size and the availability of audiovisual equipment.

Procedures to regulate the order of rotation through the four roles in the quadrille may initially seem unnecessary. However, without specific guidelines students end up in some roles twice, and as a result do not have an opportunity to assume every role. Accordingly, a rotation procedure has been developed to eliminate unnecessary confusion and duplication, while insuring that each student has an opportunity to assume each role during a class period. Figure 1 illustrates a rotation system in which the four students (A, B, C, and D) in a quadrille rotate through their roles during the four interviews in a single class session.

Figure 1 Here

Obviously, the number of students needs to be divisible by four if all are to participate in quadrilles. If this is not the case, one solution is to assign each of the extra students to a different quadrille as an alternate. This student can then be included in the rotation as a worker and/or as a second client or evaluator.

Role Playing

FIGURE 1
The Rotating Quadrille Model

<p><u>FIRST INTERVIEW</u></p> <table> <tr> <td><u>Student</u></td><td><u>Role</u></td></tr> <tr> <td>A</td><td>Worker</td></tr> <tr> <td>B</td><td>Recorder</td></tr> <tr> <td>C</td><td>Client</td></tr> <tr> <td>D</td><td>Evaluator</td></tr> </table>	<u>Student</u>	<u>Role</u>	A	Worker	B	Recorder	C	Client	D	Evaluator	<p><u>SECOND INTERVIEW</u></p> <table> <tr> <td><u>Student</u></td><td><u>Role</u></td></tr> <tr> <td>D</td><td>Worker</td></tr> <tr> <td>A</td><td>Recorder</td></tr> <tr> <td>B</td><td>Client</td></tr> <tr> <td>C</td><td>Evaluator</td></tr> </table>	<u>Student</u>	<u>Role</u>	D	Worker	A	Recorder	B	Client	C	Evaluator
<u>Student</u>	<u>Role</u>																				
A	Worker																				
B	Recorder																				
C	Client																				
D	Evaluator																				
<u>Student</u>	<u>Role</u>																				
D	Worker																				
A	Recorder																				
B	Client																				
C	Evaluator																				
<p><u>THIRD INTERVIEW</u></p> <table> <tr> <td><u>Student</u></td><td><u>Role</u></td></tr> <tr> <td>C</td><td>Worker</td></tr> <tr> <td>D</td><td>Recorder</td></tr> <tr> <td>A</td><td>Client</td></tr> <tr> <td>B</td><td>Evaluator</td></tr> </table>	<u>Student</u>	<u>Role</u>	C	Worker	D	Recorder	A	Client	B	Evaluator	<p><u>FOURTH INTERVIEW</u></p> <table> <tr> <td><u>Student</u></td><td><u>Role</u></td></tr> <tr> <td>B</td><td>Worker</td></tr> <tr> <td>C</td><td>Recorder</td></tr> <tr> <td>D</td><td>Client</td></tr> <tr> <td>A</td><td>Evaluator</td></tr> </table>	<u>Student</u>	<u>Role</u>	B	Worker	C	Recorder	D	Client	A	Evaluator
<u>Student</u>	<u>Role</u>																				
C	Worker																				
D	Recorder																				
A	Client																				
B	Evaluator																				
<u>Student</u>	<u>Role</u>																				
B	Worker																				
C	Recorder																				
D	Client																				
A	Evaluator																				

Each role includes behavioral objectives that must be carried out if the quadrille is to function properly. They are interdependent, so role performance success or failure in one has an effect on the learning experience of the students in other roles and, hence, the entire group. Fulfillment of role expectations is so important that each of the four roles will be described.

(1) **Worker:**

Since the central purpose of the course is to acquire the techniques utilized in professional interviewing, the learning emphasis is on the development of specific communication skills. Students are expected to gain knowledge and competence in this area of social work technology, in excess of that considered necessary for entry-level direct practice positions.

Consequently, the role of worker is the primary learning role. To meet the learning objectives, each student should conduct his or her interview as if it were taking place in an actual agency setting. The worker is generally responsible for the overall progress and outcomes of the interaction, and should utilize the interview to develop professional communication skills and/or eliminate weaknesses.

To this end, he/she is expected to demonstrate the new verbal and non-verbal communication skills to be learned with each successive lesson. Repetition is crucial to acquiring these specific behaviors, so each student should repeatedly practice the various skills until mastery is attained. In addition, learning microcounseling techniques is a cumulative process, and therefore those acquired during previous sessions should also be practiced.

Regardless of the text used, some of the methods will initially seem difficult to learn. However, over the course of a term, skill mastery will be so thorough that many of the new behaviors will be assimilated unconsciously into each student's professional repertoire of microcounseling skills. In addition, students will have acquired expertise in numerous other direct practice methods and will have the knowledge base necessary for using them appropriately.

(2) **Client:**

This role is intended to assist the worker in skill acquisition. Thus, it is essentially a facilitative role. When students assume a client role, they are expected to portray the client realistically and to exhibit verbal and non-verbal behaviors that will maximize the worker's opportunities to demonstrate and practice the skills to be acquired during that particular learning experience. While portraying a client will be difficult for a few students, some suggestions have proven to be helpful.

First, students should use their own names, sex, and age. Those who use pseudonyms tend to forget this midway through the simulation exercise and experience some cognitive dissonance when they are addressed by a name other than their own.

Secondly, each student should create two client roles. One role can relate to a problem she/he has had, or is having now. The other should be based on the problem of a friend, relative, or acquaintance. The student should know enough about this person and his or her problem to develop a convincing client role. Two different roles are suggested because students often desire diversity in their roles, and a second role provides more options. Some students prefer to develop a different client role each week or modify the same role prior to each exercise, in order to provide novel opportunities for the interviewer to practice the skills to be mastered in a particular lesson.

Third, some notes of caution are in order. As a general rule, it is best that those in the client role do not choose to exhibit serious personal problems which they are currently experiencing. This can be too traumatic for everyone involved. Also, another person's problems that are serious and were discussed in confidence should be avoided. Finally, fictitious roles, while initially attractive, are difficult to sustain over the course of an interview. This is due to the frequent spontaneous cognitive and emotional responses that are necessary. Most students have trouble with these unless the person and problem they are portraying is "real."

(3) Evaluator:

Since the evaluator's own skill acquisition is reinforced continuously while carrying out the behavioral objectives of this role, it is considered to be a secondary learning role. The function of the evaluator in a quadrille is to observe worker-client interaction and

evaluate both individuals in accordance with their respective roles. For example, evaluators may ask a worker or client to repeat any segment of their interaction, in which it was apparent that mistakes were made which warrant additional practice. Upon termination of the interview, the evaluator should briefly provide feedback based on the realism of the client's verbal and non-verbal behaviors, and the worker's skills in achieving the behavioral objectives for that particular learning experience.

Preparing and operating the audiovisual equipment and lighting is another major responsibility for the person assuming this role. However, once the equipment is working satisfactorily, she/he should begin observing both the client and worker. At the conclusion of the interview, the evaluator should shut off the equipment and lead the group discussion.

(4) Recorder:

The purposes of recording these exercises include; (1) increasing students' understanding of the worker-client interaction, (2) developing skills in accurate, concise, and rapid recording, (3) providing a record of learning experiences, both in terms of successful skill acquisition and in areas that need improvement, and (4) giving students a preliminary understanding of some of the demands of professional accountability (Wilson, 1980). Thus, recording can be considered an introspective role.

As soon as a student finishes an interview in the role of worker, she/he should leave the group and attempt to complete the recording exercises during the subsequent interview. When that interview is concluded, the recorder must return to the group whether or not his or her recording exercise has been completed. Time should be set aside to finish the recordings after all the interviews are concluded.

There are two basic types of recording exercises that have proven to be most helpful. One is the construction of a "checklist" which includes several interviewing skills that students need to learn. For each of these, the recorder should attempt to recall the instances during the interview that she/he made correct responses, and note these in the appropriate spaces. The completed checklist may also serve as a frame of reference for students during the videoanalysis of their interviews.

The other type of recording is the "original/better response exercise." This provides an opportunity to record, verbatim if possible, the responses made which need improvement. Recorders should list several responses which they believe were their most serious errors. Directly below each of these "original responses," the student should give an example of a correct or "better" response. This exercise is intended specifically to assist students in eliminating or reducing mistakes and in developing the skills of accurate recall and professional self-awareness (Kagle, 1984 a).

Single-Subject Videotaping Procedures

A crucial aspect of teaching social work interviewing skills effectively is the availability and proper utilization of audiovisual equipment, both while taping the interviews and during the subsequent replays. If a class is to receive maximum benefits from this technology, certain guidelines must be followed to ensure that the equipment is used at the right time, in the right way, and with the right subjects on camera.

It is important that all students learn to operate the audiovisual equipment, so that the instructor does not have to be moving constantly from one group to another focusing or adjusting the equipment. The instructor needs to be free to observe all worker-client interaction. To accomplish this, one of the first class periods in the term should be devoted to teaching all the students how to operate the equipment. During the actual interviews, the evaluators are assigned that responsibility.

Another factor that must be taken into consideration is the fact that many students may be somewhat apprehensive about seeing themselves on television for the first time. This self-consciousness can be reduced or eliminated in the initial class periods by having students take turns as camera subjects, while others learn how to operate the equipment.

Thus by the end of the second or third class session, all students should be able to operate the camera, T.V. monitor, and microphone. They should also have had sufficient time on-camera, so that receiving this type of exposure ceases to be a novelty and can be utilized as a vehicle for learning.

Two of the most important aspects of videotaping are the correct

positioning of students in relation to the camera and the number of individuals to be included in the picture. Beginning students (and teachers for that matter) seem to think that all the members of the group should be on camera all of the time. While this egalitarian philosophy is fine for family photographs or class pictures it simply is not appropriate for teaching microcounseling techniques. In fact, quite the opposite is true.

It must be remembered that the main purpose of the training is to assist students in learning interviewing skills. Obviously, then, the only person who should be in the picture is the student in the role of worker. The students who serve as client, evaluator, and recorder do not need to be on camera. To attempt to include any or all of these individuals necessitates a wider camera angle, thereby reducing the emphasis on the worker and eliminating the possibility of having a "close-up" picture of that particular individual. Having additional students on camera is also distracting for the group, both while taping the interviews and during the subsequent videoanalysis.

In my first experiments with videotaping, I found that having all four students on camera simultaneously resulted in each of them being overly concerned with how they looked and sounded in their respective roles, and only minimally interested in the progress of the student assuming the worker's role. This phenomenon was even more apparent during the subsequent videoanalysis, where each student seemed to attend primarily to his or her own behavior, rather than providing additional feedback to the worker.

Another potential problem concerns the positioning of the students relative to the camera, monitor, and microphone. The temptation is to have the worker and client facing each other with the camera situated at a 90° angle from them, thus taking a profile shot from their side. Again, experience has shown that this is not the best use of the technology. First of all, including the client in the picture wastes camera space. Secondly, focusing on the worker in profile greatly reduces the impact of the medium's feedback vis-à-vis such crucial non-verbal communicators as eye contact, facial expression, and gesturing.

I have developed a format which has proven to be the best for positioning students relative to each other and the equipment. As shown in figure 2, the single-subject videotaping procedure requires that the

worker and client face each other with the camera positioned behind the client, focusing exclusively on the worker. The evaluator sits off camera at a right angle to the worker-client axis, at a point midway between those two persons. The recorder sits further away with his or her back to the other actors and the equipment. The microphone is placed between the worker and client, but slightly to one side. The T.V. monitor faces away from the students, toward the instructor at the center or front of the room.

Figure 2 Here

There are several advantages to this model:

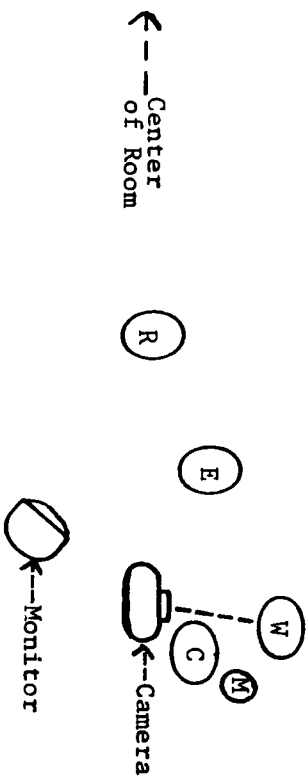
(1) The camera focuses solely upon and, hence, isolates the student in the worker's role. There are no distracting on-camera influences, either during the videotaping of the four interviews or during the subsequent videoanalysis. In addition, the worker, while facing the client, also looks directly towards the camera. This position allows the evaluator/camera operator to "zoom" in for a close facial shot when necessary, and/or to focus on the worker's other communicators such as hands, arms, posture, etc.

(2) The other students in the quadrille are positioned out of camera range, so each can concentrate on their respective roles without the additional stress of being on camera. The evaluator is in an excellent position to observe both the worker and client, but is far enough away to operate the equipment without disrupting the interaction. To carry out this function it is important that the evaluator has a clear view of what is being recorded on the T.V. monitor, so that periodic checks can be made to see if the video equipment is running properly. Furthermore, the recorder needs undisturbed time to complete the written portion of the exercise. I have found the best solution is to have the recorder sit some distance away from the group, facing away from the other students and the equipment. This results in better concentration and leads to more accurate and comprehensive recordings.

(3) In contrast to the camera angle, the microphone needs to be positioned to record both the worker and client. While it is not necessary to see the client on the videotape she/he must be heard, otherwise it is difficult to evaluate the worker's responses during the

FIGURE 2

Single-Subject Video Taping Format



Key: W = Worker; C = Client; E = Evaluator; R = Recorder
and M = Microphone. The camera and T.V. Monitor
are so designated.

videoanalysis.

(4) The screen of the T.V. monitor, which records the video portion of the interaction, should not be visible to any of the members of the quadrille except the evaluator. Any other arrangement is far too distracting, especially for the worker. In addition, students in the worker's role have reported an increase in anxiety when they are conscious of the professor observing them. Accordingly, it is best if the instructor attends discretely to the T.V. monitor. Indirect observation also allows the instructor to watch portions of several interviews simultaneously, without the students being aware that they are being observed.

When all students have finished their interviews, the group should allow ten or fifteen minutes for the last student to complete his or her recording, while the others can review and correct theirs. This time enables students to prepare for the videoanalysis period, and should not be used for socializing. That not only distracts the students who are still working on their recordings, but also disturbs other groups in the class.

Videoanalysis

When all of the members of the quadrille have finished their interviews and recordings, the videoanalysis period begins. For many students, this is the most valuable aspect of the entire course. As the videotape of each interview is played back, the other three students provide additional feedback to the worker whose interview is being shown. Any member of the group can stop the tape at any time and replay the portions that are considered significant.

The analysis of each interview should continue for several minutes after its conclusion on the tape. At this time, each of the students should give an analytical summary to the others vis-à-vis their respective roles during that particular interview. Suggestions for positive change should be included, so that all students can build on their strengths and reduce or eliminate weaknesses. Thus, videoanalysis provides reinforcement for each student in developing microcounseling skills. Furthermore, many of the learning benefits of the recording exercises are gained through audio and videotaping, since they offer an accurate picture of the simulated service

encounter (Kagle, 1984).

Virtually all students are able to utilize videoanalysis to develop interviewing skills, and the improvement in some cases is astonishing. One young woman was totally unaware that she spoke in a monotone, and that her facial features were almost completely devoid of expression. Consequently, the self-awareness that resulted from her first videoanalysis session came somewhat as a shock. Fortunately, she resolved to use the technology as a vehicle for positive professional change. Her improvement was so profound that it was difficult to tell that the worker on the first and final videotape was the same person.

In another instance, a male student was surprised to discover that he spoke very rapidly, and tended to repeat or paraphrase almost every statement he made. His solution was to ask the evaluator during each of his interviews to stop the interaction and critique him whenever he would exhibit either of the problematic behaviors. Using this system, he was able to develop a normal rate of speech and eliminate the repetitiveness not only in his professional work, but in his personal life as well.

Perhaps the most unique example of utilizing this technology to improve interviewing skills involved a graduate student. She had an unconscious habit of fidgeting with an object, such as a pen, or continuously wringing her hands if she had nothing to grasp. After videoanalysis gave her an understanding of the severity of the problem, she became determined to eliminate these behaviors. Unfortunately, they were too deeply ingrained for her efforts to achieve much success. As soon as she would stop concentrating on her problem and begin focusing on the client, the unwanted behaviors would reappear.

After several weeks of frustration, one of the members of her quadrille had a novel suggestion. She should try holding an object, such as a pen or pencil, in her hand while interviewing the client. But, instead of fidgeting with it, use it as a non-verbal communicator, much like an orchestra conductor uses a baton.

Although initially the suggestion seemed frivolous, she began to experiment with gesturing with a pen in her hand. To everyone's

surprise, she was not only comfortable doing this, but gradually became very effective at gesturing with her pen to emphasize points, and also in directing the worker-client interaction. By the end of the course, videoanalysis clearly showed that she had succeeded in turning a very distracting weakness into a most unusual strength.

Conclusion

This microcounseling model, with its interrelated components, has proven to be an efficient and effective method for teaching microcounseling skills. Reports from graduates now in direct practice positions indicate that this training has been beneficial to them in their jobs. This approach has had positive results because it does not fragment the training process, but illustrates that the roles a successful therapist must assume are inter-related. Additionally, this style of learning allows for feedback that is not possible either in the classroom or agency supervisory model, the two most frequently used modes of training. This style of training is holistic and realistic, and thus easily transferable to the types of settings where social workers are employed.

REFERENCES

- Cormier, William H. and L. Sherilyn Cormier. Interviewing Strategies for Helpers: A Guide to Assessment, Treatment, and Evaluation. Wadsworth, Inc., Belmont, California. 1979.
- Evans, David L., Margaret T. Hearn, Max R. Uhleman, and Allen E. Ivey. Essential Interviewing: A Programmed Approach to Effective Communication. Brooks/Cole: Monterey, California. 1984. pp.4-6.
- Iverson, Peter C. Simulation Exercises Workbook for Professional Recording in Social work. Southwest Missouri State University Printing Service: Springfield, Missouri. 1980.
- Iverson, Peter C. Policies and Procedures Manual for Professional Interviewing and Recording. Southwest Missouri State University Printing Service: Springfield, Missouri. 1984.

- Kagle, Jill Doner. Social Work Records. The Dorsey Press: Homewood, Illinois, 1984 a.
- Kagle, Jill Doner. "Restoring the Clinical Records" Social Work 29 (January-February 1984 b) pp. 46-50.
- Ram Naresh Singh. "Brief Interviews: Approaches, Techniques, and Effectiveness." Social Casework: The Journal of Contemporary Social Work 63 (December 1982) pp. 599-606.
- Stewart, Charles J. and William B. Cash, Jr. Instructor's Manual for Interviewing Principles and Practices. Wm. C. Brown Publishers: Dubuque, Iowa. 1982.
- Wells, Mabel Gilbert. "The Classroom Teaching of Social Work Practice" Journal of Education for Social Work 20 (Fall 1984) pp. 58-65.
- Wilson, Suanna J. Recording Guidelines for Social Workers. The Free Press: New York. 1980.

SOCIAL SERVICE DELIVERY SYSTEMS: THE IMPACT OF TECHNOLOGY AND ORGANIZATIONAL STRUCTURE

Louella Mann
Arkansas State University

Abstract

Changes in work and social structures are reviewed for the period from the early industrial era to the present. Work structure is hypothesized to have a significant impact upon society and the individual. The structure of the modern work setting and the rapid changes in technology have increased the stress associated with anxiety and isolation. In turn, these problems contribute to the onset of social ills. Also examined are ways to diminish the negative effects of the role conflict which results from the divergent structures present in the personal and work settings. Predictions about the future of social service delivery include greater emphasis on group interventions and more attention to the marketing and financial functions of service agencies.

Introduction

"There is only one place which our images of the future can be derived and that is our images of the past" (Boulding, 1984: 19). But, forming a clear image of the past is no small task. Analyzing the impact technology has had on society is made difficult by both the breadth of the topic and the human tendency to over emphasize the impact of current developments. "Scholars delight in labeling an era by its most advanced technology, even when that technology was at first very limited in its applications" (Kranzberg, 1984: 6). Kranzberg points out that the Bronze Age was in fact a period of stone and wood for the majority of workers, while the Steam Age was dominated by the use of water power. Likewise, today's Space Age exists for most persons as a concept that has not yet been realized.

Dissemination of technological advances is rarely, if ever, immediate, but usually follows a long and circuitous path. Social institutions might be viewed as major obstacles to change, deflecting minor technological changes and adapting to major ones only after an extended time lag. Because of that lagged adjustment period, today's most pressing social conflicts have their origins in the Industrial Age rather than in the Information Era. This paper presents a preliminary model of the changing structure of society and the workplace brought about by industrialization. The time span of interest is approximately the last one hundred and fifty years.

The Model: Reversed Trends in A Work and Social Organization

The organization of today's work place demands a more rigid separation of job tasks and responsibilities than in the nineteenth century. Over the same period, societal restraints on the individual have diminished. That is, the potential for social mobility has increased, even though perceived equality of status may have moved in the opposite direction. This inversion of rigidity related to social and work structure, and the resulting role conflict, is depicted in figure 1. The model demonstrates the idea of social problems arising out of the cognitive dissonance created by the differing degrees of structural rigidity in personal and work settings.

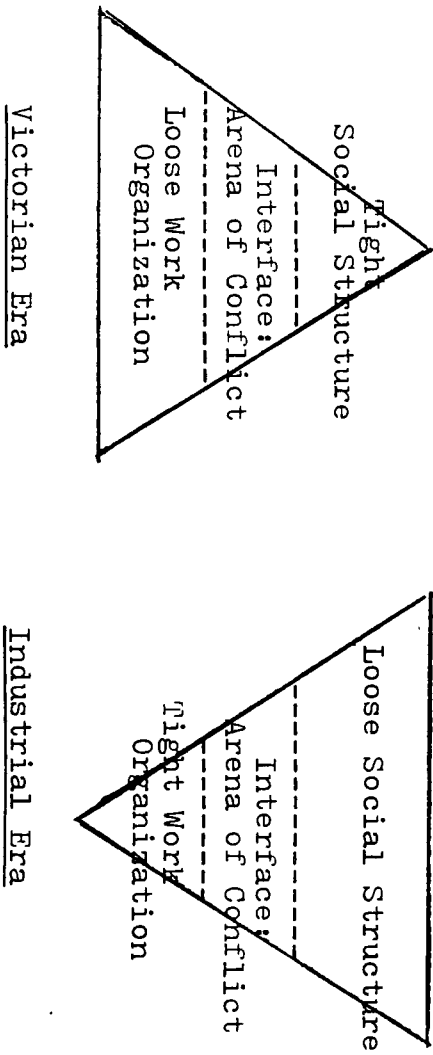
[Figure 1 Here]

Role Conflict and Anxiety

"Every alert citizen of our society realized ... that anxiety is a pervasive and profound phenomenon of the middle of the twentieth century" (May, 1950: 3). R. R. Willoughby (1935: 498) asserts that "anxiety is the most prominent mental characteristic of Occidental civilization," and is manifested in many forms. May gives evidence that while covert anxiety is not a new phenomenon, the presence of overt anxiety seems to have arisen around 1930. He further points out that this occurrence is attributable to more than just the economic depression of that era. He attributes overt societal anxiety to a confusion of role.

Psychotherapists generally consider anxiety to be the most universal experience of modern life with the possible exception of loneliness

Figure 1



(Fromm-Reichmann, 1960: 129). The increased work structure and the decreased social rigidity over time have contributed to greater isolation and anxiety for the individual.

Modern youth are expected to choose a "career" and perhaps to advance beyond the status of their parents. The nineteenth century practice of entering into the family business or at least going to work with acquaintances from the same community eased the transition from youth to adulthood. However, modern youth typically pursue a career in a different field than their parents or childhood friends. As this person progresses he or she experiences isolation anxiety as well as the anxiety brought on by the pressure to succeed.

Anxiety also manifests itself as a feeling of uncertainty and helplessness. Williamson (1980: 19) defines the organizational hierarchy as being relatively great where few individuals have the responsibility for developing adaptations. This emphasizes the low level of personal control in modern large-scale bureaucratic organizations. The specialized nature of job tasks in a hierarchical organization contribute to a double-barrelled malaise of indeterminacy. First, specialists at lower and middle rungs of the company ladder may not have a clear image of how their jobs contribute to the overall objectives of the organization. Then again, even if persons know how their job contributes to the survival of the organization, they may find it a bit unsettling to realize that in a team environment the continuation of their work depends to a considerable degree upon the efficiency of other organizational players over which they have no control. Second, there is the uncertainty of promotion. This produces a conflict between freedom in the personal sphere and the knowledge that an individual's promotability depends upon a willingness to sacrifice for the organization. Specialized, technical jobs require a lengthy educational period. Then after one enters the job market the climb up the bureaucratic ladder is long and uncertain. Furthermore, the overly ambitious individual risks resentment from peers and superiors alike.

Historical Perspectives on Organizational structure

Several economists have taken the position that a hierarchical structure is an unfortunate, but necessary, evil attending the mass production efficiencies brought about by advances in scientific technology. Alternatively, Williamson argues that a hierarchical work structure

provides operating efficiencies completely independent of the level of scientific technology. His argument is that internalizing market transactions into the management of a firm economizes on the coordination of costs. In a practical sense, this means that one must consider two very different kinds of technological advances: advances in scientific knowledge and advances in the knowledge or expertise of organizational management.

The last one hundred and fifty years are referred to occasionally as the Age of Knowledge. For example, the railway was a vital part of the rapid increase in knowledge during that time. The size and complexity of the nineteenth century railway projects in both the United States and Europe expanded engineering knowledge and experience. The degree of the financial undertakings of the railroads, coupled with the need to control geographically dispersed operations, may have provided the impetus for the development of more scientific management principles. An alternative interpretation is that the railway may have been made feasible only because a management structure was already in place. Whichever interpretation is correct, the availability of rail transportation expanded the market of manufacturers. At the same time, advances in communications technology and advertising methods expanded the individual's awareness of alternative life styles.

Rural families began to migrate to the cities in search of better paying jobs in factories. The growing scale of industry created opportunities for new occupations. Geographically dispersed businesses required clerks, commercial travellers, mechanical engineers, and auditors. The legal and medical professions were stimulated by the growing number of people who could afford their services. The growing professional and paraprofessional job markets formed the basis for an enlarged middle class.

Greater productivity from both increased scientific technology and human specialization allowed workers to earn their living in fewer hours. This meant that children could be relieved from strenuous work routines and attend school. Sports and entertainment activities were developed or expanded to fill leisure hours. Ambitious persons also had the new option of spending free hours studying in order to enter new professions or to advance in their present one.

Many popular beliefs of the nineteenth century were incongruous to

public funding of social reforms. Social standing was sharply delineated between the wealthy and the working class. Authoritarianism was an essential element of the prevailing social ideology. A common belief was that some were destined to be givers of orders which others were bound to obey (Reader 1964: 7). Another popular idea was that an individual's position in life was solely a result of his or her own actions. While Victorian morality placed a high premium on personal responsibility it ignored the concept of public responsibility.

Only a crisis was able to create an atmosphere for accepting public obligations, in addition to individual rights and responsibilities. That crisis was the hazard of epidemic outbreaks of cholera. As industrial cities grew, contagious disease became a major concern (Reader, 1964:5). The benefits to be derived from better sanitation facilities and health services were clearly sufficient to warrant the cost. Acceptance of taxation for these services was the first step in recognizing other social reforms that also deserved public funding. The role of crisis in promoting social/institutional change is an important one. It seems that changes in institutions, like changes in technology, tend to develop only out of an urgent need.

Technology and Social Service Delivery

The essence of a social worker's role is the identification of human problems, assignment of priorities, and the efficient servicing of as many persons as resources allow. Scientific advances, particularly in information processing, are not without impact upon the delivery of social services. Yet, with the exception of advances in medical technology, the efficiencies to be gained from computers and communications breakthroughs are not unique to this profession. The ability to build data bases of available services and identify budget restraints may enhance the social worker's ability to pick and fund a service package, while word processing may ease the burden of record keeping and verification. But these clerical effects will probably have much less impact upon social problems and their solutions than older technologies, such as television, telephones, and even the automobile.

While opportunities for social advancement have increased over time, perceptions of differences in social conditions have sharpened. This might be attributed to better public communication systems. As the media have brought available opportunities to the attention of the common person,

public demand for greater social and economic equality has heightened. One could go so far as to say that the New Deal of the thirties, the civil rights movement of the fifties, and the war against poverty of the sixties all stemmed partly from the impact of communications upon the public awareness.

On the other hand, a major theme of this paper is that management technology also played a part in the formation of present social structure and modern social service delivery systems. As more and more segments of the economy began to reap the benefits of large scale operations, corporations were able to support a much larger base of fixed, long-term investment. Economically speaking, the high fixed investment base allowed firms to minimize product costs in many industries, but with the unpleasant side effect of increased volatility in the business cycle. Thus, cyclical unemployment was increasing in magnitude just as communications media were increasing the public's awareness of social and economic disparities. The New Deal economic policies are best viewed as having grown out of both an increase in unemployment and the public's awareness of social inequities.

What about the civil rights movement? How could management techniques or organizational structure have had anything to do with that? The scientific work management techniques developed in the early twentieth century were swiftly followed by the idea of participative/humanistic management. One line of thought that took hold was the simple idea that workers are happier and more efficient when they operate as a cohesive group (Seashore, 1954; Mayo, 1945; Van Zelst, 1952; Behling & Schriesheim, 1976). During the fifties, the scarce labor markets during the economic upswing demanded that companies hire without regard to race, sex, or ethnic origin. At the same time, the idea of efficiency through group cohesion explains why females and the racial/ethnic minorities are the first to be laid-off during economic downturns.

Increases in perceived social problems have redoubled the variety and the quantity of services the public has demanded, but the availability of funds is a constraining factor. Recent cutbacks in federal funding for social programs have produced fierce competition for financial resources among potential service providers. It is not surprising that management-by-objectives (MBO) has become a recurring concept in recent social work administration literature. The current crisis in

funding for social programs has set the stage for potential advances in administrative technology for public programs.

Accountability for Social Programs

The general idea of MBO may prove useful in the search for advances in social work administration, but one should not expect all the methods of a for-profit manager to be automatically applicable in the not-for-profit sector. Yet the management cycle of plan-operate-evaluate-plan is the same for business and nonbusiness entities. Similarly, the successful implementation of this cycle for both sectors must rest upon an effective management information system which provides data needed to allocate resources to alternative ends and to evaluate performance. While these general needs for information are the same, the specific types of information needed depends heavily upon the environment. The chief environmental differences are as follows:

1. A differing degree of involvement with markets,
2. The sources of capital, and
3. The constituents served.

For business organizations, the market mechanism provides a measure of the utility and satisfaction of goods and services provided (revenues) and received (expenses). This equating of the market price with the intrinsic worth of the product applies only for private goods in which the service recipient is the direct purchaser, as self-interest assures that no more than a product's worth will be paid. Nonetheless, the market mechanism fails for public goods, which include social services, because of the indirect connection between those who pay for the services and the recipients. Net profit, consisting of revenues (benefits) minus expenses (costs), is in general an acceptable measure of the net value of services provided only for business enterprises. Cost accounting procedures, as currently applied to not-for-profit entities, are able to capture only the single aspect of cost efficiency. No objective measure of program benefits in the nonbusiness sector is currently available within generally accepted accounting principles.

The ability to express a multitude of objectives by a single unit of measure, the dollar, has obvious benefits. It promotes comparability between periods and economic entities. Thus, historically, financial accounting techniques have proven useful as a measure of economic

performance, but the traditional accounting system is unable to tell the whole story even for business enterprises.

The technology of an economic system imposes a structure on its society which not only determines its economic activities but also influences its social relationships and well-being. Therefore a measure limited to economic consequences is inadequate as an appraisal of the cause-effect relationships of the total system, as it neglects the social effects. (Mobley, 1970: 767)

One economist considers the primary social costs of business to be as follows:

1. The social costs resulting from the impairment of human factors of production.
2. The social costs of air pollution.
3. The social costs of water pollution.
4. The social costs of the depletion and destruction of animal resources.
5. The social costs of the premature depletion of energy resources.
6. The social costs of technological change.
7. The social costs of soil erosion, soil depletion, and deforestation.
8. The social costs of unemployment and idle resources. (Knapp, 1950: 13)

To varying degrees more and more business enterprises have begun to supplement voluntarily their financial accounting measures of economic performance with data on their social impact. Abt Associates, Inc. even went so far as to invent a social income statement and social balance sheet. These reports disclose social costs and benefits to the company, shareholders, staff, clients, the general public, and the community.

Most accountants are skeptical of the ability to measure the total social consequences of a specific entity in dollars, because of the complex set of interactions present in the environment. For that reason, the usual approach is to supplement financial accounting measures of results with qualitative, non-financial measures of social performance. Since even business enterprises recognize the need to present both dollar and

non-dollar denominated information, perhaps it is time for both business and non-business organizations to seek some other primary measure or measures of performance.

Swiss (1985) points out that single-minded attention to maximizing the alternative objectives of equality, responsiveness, efficiency, or effectiveness will necessarily short change the remaining objectives. But how can one build an easily interpreted multi-denominated measure of performance? Perhaps mathematical modelling is the necessary tool. Discriminant analysis effectively combines and scores a series of inputs which are expressed in different units of measure.

Building a discriminant model which could effectively separate efficient/effective/responsive programs from the also-rans would require a high degree of nationwide cooperation and/or administration. Building an appropriate model necessitates a coordinated research effort, which would seek input from practicing social work administrators and practitioners in order to determine statistically the best combination of performance cues. Once such a model is generated it would reduce greatly the need to expend large sums on political lobbying by providing an objective, systematic comparison of similar programs. A distinct advantage of the discriminant scoring approach over other forms of federal administration is that while a central planning board might set the minimum score for funding, local administrators could still choose to meet that score by the mix of equality, responsiveness, efficiency, and effectiveness scores most appropriate to their local community.

Humanistically-oriented social workers may be a bit taken back by the idea that an understanding of certain aspects of higher level mathematics may someday be necessary for them to compete successfully for funding. Fortunately, the details can be left to a professional administrator. As publicly funded social programs have become institutionalized, their operations have come to require a high degree of task specialization and standardization for accountability systems, similar to those of for-profit organizations. Medical branches of social services are already adept at breaking down the service delivery, administration, and fund raising activities into separate organizational operations.

Conclusion

Technologically oriented societies out of necessity rely on an increased division of labor. Furthermore, this means that social service organizations will become increasingly dependent upon highly technical management strategies for their survival. Without a revolution, which seems unlikely today, "high-tech" management is something that social workers will have to accommodate. Yet as noted throughout this paper, the social rationalization which is essential to technology can be disruptive. If modern social service programs are not to be thoroughly dehumanized by technical innovations, some coping strategies will have to be formulated.

1. Organizational structures can be adopted that encourage a sense of community among workers. For example, Rensis Likert has identified the "linking-pin" model as a replacement for bureaucracy. In this sense, the necessary "support" is engendered among workers that is essential for reducing the prevalence of "burn-out" in an organization.

2. Employee assistance programs can be inaugurated. If organized properly, these enable workers to identify and remedy their problems without management interference. In this sense, most problems can be identified early in their development, so that a simple remedy is possible.

3. In-service training should be a part of any change strategy, thereby reducing the likelihood of what some writers call the "adoption trauma" from plaguing an organization. Most often, however, training is initiated after all changes have occurred. Such a delay may have deleterious consequences.

4. Quality of working life (QWL) groups should be incorporated into social service programs. Accordingly, quality circles and other forms of planning groups allow staff workers to participate directly in any change. This type of involvement increases their knowledge about how an organization operates, thus reducing the anxiety and stress associated with innovation. Furthermore, workers' skills are increased, thereby giving them an increased sense of pride.

5. All changes should be made in terms of a comprehensive plan and a reasonable timetable. New devices, for example, should not be rushed on-line before most of their "bugs" are eliminated. Rational planning, in other words, takes a lot of the pain out of change. This type of planning,

additionally, includes all the necessary back-up procedures to avert a total system failure, if one component should not operate as planned.

In sum, technology does not have to be as disruptive to an organization as was once the case. Nowadays, a host of new management strategies exist which can reduce the problems associated with technological innovation. Since technology is not likely to disappear, managers of social service programs must devise ways to cope with its presence. Yet because of social workers' general aversion to management, opportunities may be missed for the rational and, thus, beneficial use of technology.

References

- Behling, Orlando, and Chester Schriesheim, Organizational Behavior: Theory, Research, and Application. (Boston: Allyn and Bacon, Inc., 1976).
- Bensman, Joseph, and Bernard Rosenberg, "The Meaning of Work in Bureaucratic Society," in Identity and Anxiety, edited by Maurice R. Stein, Arthur J. Vidich, and David Manning White, (New York: The Free Press, 1960), pp. 181-197.
- Boulding, Kenneth E., "The Fallacy of Trends: On Living with Unpredictability," National Forum, (Summer 1984), pp. 19-20.
- Committee on Social Measurement, American Institute of Certified Public Accountants, The Measurement of Corporate Social Performance, (New York: ACIPA, 1977).
- Fromm-Reichmann, Freida, "Psychiatric Aspects of Anxiety," in Identity and Anxiety, edited by Maurice R. Stein, Arthur J. Vidich, and David Manning White, (New York: The Free Press, 1960), pp. 129-144.
- Hannan, Michael T., and John Freeman, "Structural Inertia and Organizational Change," American Sociological Review, vol. 49, (April 1984), pp. 149-164.
- Kranzberg, Melvin, "Technological Revolutions," National Forum,

- (Summer 1984), pp. 6-10.
- Knapp, W., The Social Costs of Private Enterprise, (Cambridge, Ma.: Havard University Press, 1950).
- Lurie, Abraham and Gary Rosenberg, editors, Social Work Administration in Health Care, (New York: The Haworth Press, 1984).
- May, Rollo, The Meaning of Anxiety, (Ronald Press, 1950).
- Mayo, E., The Social Problems of an Industrial Civilization, (Cambridge: Havard University Graduate School of Business, 1945).
- Mobley, S. C., "The Challenges of Socio-Economic Accounting," The Accounting Review, (October 1970, p. 767.
- Reader, W. J., Life in Victorian England, (New York: G. P. Putnam's Sons, 1964).
- Seashore, S. E., Group Cohesiveness in the Industrial Work Group. (Ann Arbor: University of Michigan Press, 1954).
- Statement of Financial Accounting Concepts No. 4: Objectives of Nonbusiness Organizations, (Stamford, Ct.: Financial Accounting Standards Board, 1978).
- Statement of Financial Accounting Concepts No 1: Objectives of Financial Reporting by Business Enterprises, (Stamford, Ct.: Financial Accounting Standards Board, 1978).
- Swiss, James E., "Efficiency and Reality," Society (January/February 1985), pp. 64-70.
- Taylor, F. W., The Principles of Scientific Management, (New York: Harper and Row, Publishers, 1947).
- Thibaut, J. W. and H. H. Kelley, The Social Psychology of Groups, (New York: John wiley and Sons, 1959).
- Van Zelst, R., "Sociometrically Chosen Work Teams Increase Production," Personnel Psychology 5 (1952), pp. 175-185.

- Williamson, Oliver E., "The Organization of Work: A Comparative Institutional Assessment," Journal of Economic Behavior and Organization 1 (1980), pp. 5-38.
- Willoughby, R. R., "Magic and Cognate Phenomena: An Hypothesis," in Carl Murchenson (ed.), Handbook of Social Psychology. (Worcester, Mass., 1935), p. 498.

TECHNOLOGY, CORPORATE MOBILITY,
AND
A DECLINE IN URBAN SERVICES

Marcus D. Pohlmann
Arkansas State University

Abstract

Technological changes have produced a postindustrial economy which has both facilitated and encouraged the flight of capital and well-to-do people from the older industrial cities. Left in their wake are increasing levels of unemployment, poverty, and crime. Service needs have increased accordingly, but at a time when these cities have not only smaller tax bases but also less electoral clout with which to acquire additional financial assistance at the state and federal levels. In a nearly futile attempt to reestablish a healthy degree of private investment in their cities, municipal governments let service levels decline and focus on spurring capital accumulation.

Introduction

Technological changes in production, transportation, and communication have given rise to the postindustrial economy. Corporations, no longer tied to a particular geographic location, are now free to move to a less expensive environment. And those individuals and families who can afford it are apt to live in the suburbs, even when they continue to work in the city. Thus as industries mechanize or leave the oldest and largest cities of the Northern United States, the ranks of the urban poor increase while their economic opportunities decline. Meanwhile, their host cities face ever-greater demands for services while their tax bases decrease.

The implications of these developments for the service-dependent poor of the inner-city and for the cities they inhabit are considered in the light of theories presented by James O'Connor, Frances Fox Piven, and

Richard Cloward.

a. Conceptual Framework

James O'Connor (1973) has developed a theory that adds a political dimension to these events. He argues that capitalist economies require two contradictory functions of their governments. He calls the first the "accumulation" function. Here government attempts to guarantee an adequate supply of venture capital and productive labor, so that the capital-owning class can and will invest in ways that will lead to stable economic growth, e.g., by offering corporations tax abatements and subsidies ("social investment"), as well as roads, sewers, and so on ("social consumption") to provide the necessary infrastructure for production. He also refers to the "legitimation" function, whereby government compensates those who become economically dislocated as the economy grows, e.g., by providing social-welfare programs ("social expenditures") and increased maintenance services. This helps secure the necessary level of social harmony. Then as the ownership of capital becomes more concentrated and mobile, the capitalist class can coerce the government into assuming even more of the costs of capital accumulation and production, while the benefits remain largely private. This requires that the government spend increasingly more on social expenditures in order to retain legitimacy with non-owners. The result is an ever-increasing fiscal strain on the government, as it must increase spending on accumulation and legitimation, even though its revenues are limited.

The work of Frances Fox Piven and Richard Cloward (1971) adds a historical perspective to O'Connor's viewpoint. In view of the fact that the health of capitalist economies depends ultimately on the profitability of their private corporations, Piven and Cloward suggest that governments such as the United States, for example, have tended to reduce legitimation expenditures in favor of accumulation spending whenever possible. At certain points, however, the lower classes rebelled both in the streets and at the ballot box. Government responded with repression, but it was also forced to alter its priorities. Thus social expenditures were increased in order both to quell unrest and to legitimate the system; yet once the turmoil subsided, this aid was once again gradually redirected into accumulation expenditures.

b. Focus

By combining these concepts and extending them, it is possible to outline particular dilemmas faced by the United States' twelve largest Northern cities. Sometimes referred to as the "Troubled Twelve," these cities are Baltimore, Boston, Chicago, Cleveland, Detroit, Milwaukee, Newark, New York City, Philadelphia, Pittsburgh, St. Louis, and Washington, D.C.

Technological advances have allowed once concentrated corporate capital to become mobile, and thus is able to demand increased accumulation assistance. At the same time, both the central-city poor and the bureaucrats which have arisen to provide the legitimation services have begun to organize themselves to protect their periodic gains. Therefore, city governments are locked in a vicious cycle. They are required to spend increasing amounts of money to boost capital accumulation, while it becomes increasingly difficult to retrieve the social expenditures surrendered during the previous rounds of civil unrest. The precise nature of the immediate dilemma, as well as local government's response to it, will be discussed below.

Technological Change and Postindustrial Cities

When a society acquires the technology necessary to perform large-scale manufacturing it is said to be industrialized. Industrialization requires that factories be located near to specific natural resources, work forces, and markets. Thus large cities arise in locations that allow manufacturers to obtain the materials necessary for large-scale production. These cities then grow in size as people come in search of the opportunities for employment that industrialization has created for managers, skilled artisans, and unskilled manual workers.

The beginning of the postindustrial period (roughly 1920-present) can be distinguished by the introduction of such technological developments as automated assembly lines, automobiles, airplanes, computers, and telecommunications.

Considering automobiles, for example, the number of Americans owning cars has increased steadily, from a few thousand at the turn of the century to millions in the postindustrial period. Consequently the

development of the automobile and interstate highways did much to facilitate the decentralization of the nation and its metropolitan centers. Additionally, the development of high-speed air travel and advanced telecommunications – via the Wide Area Telephone Service (WATS lines), teleconferences, and the like – further facilitated this dispersion. Among other things, such technologies have freed many companies from the necessity of locating near specific workers, markets, waterfronts, and related businesses. In addition, the workplace has become further mechanized with the introduction of computers and robotics (Faux, 1983; New York Times, 1983c). These developments have serious implications for this society's industrial cities in general, and those cities' work forces and political power structures in particular (Condit, 1974; Goldmark, 1972; Marx, 1964; Rae, 1971; Tabb, 1984a).

Postindustrial Cities

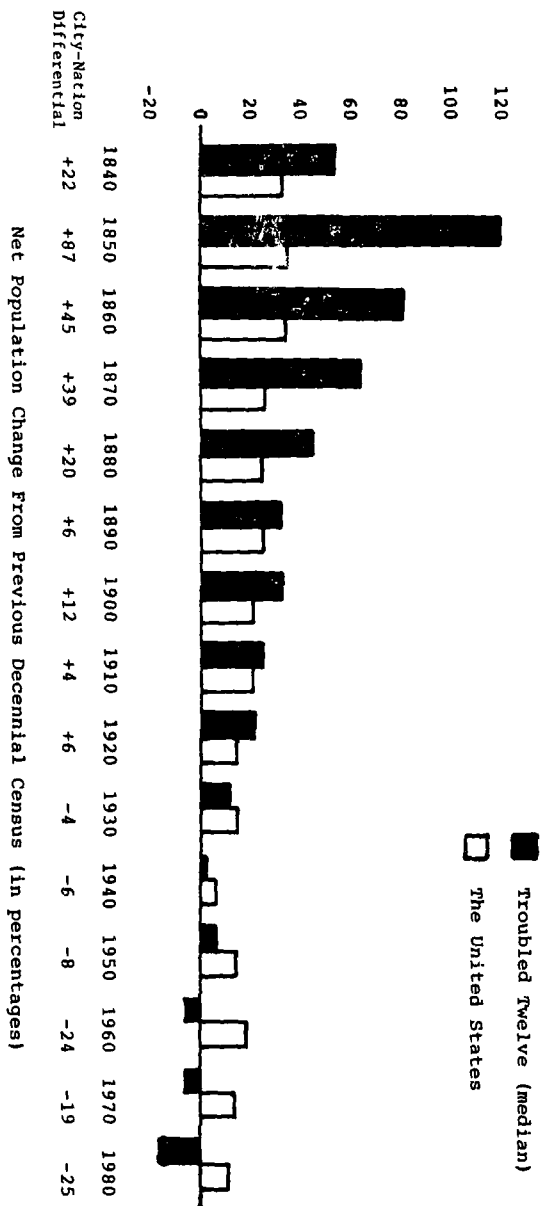
Population Flight. Technological innovation made possible the rapid increase in the number and size of inland cities throughout the nineteenth and twentieth centuries. Innovations in transportation, for example, also allowed affluent workers to live outside the congested and deteriorating "inner ring" immediately surrounding a city's downtown area. From small "pedestrian cities" clustered around a fort or waterfront, cities were becoming "distended metropolises" extending more than twenty square miles, functionally segregated and reaching outward in a star-shaped fashion along the various transportation lines.

Figure 1 Here

Figure 1 indicates the chronology and pace of American urbanization, and these population trends provide a rather clear index of the rise and decline of this country's older industrial cities. The largest cities of the North have witnessed a net loss in the number of their inhabitants in the postindustrial period, while the national population has continued to increase.

The suburbs have become the fastest-growing areas in the nation, attracting central-city residents, as well as a number of nonmetropolitan people who previously would have been unlikely to migrate into the central city. In addition, although census data have yet fully to reflect it, studies are beginning to show that a considerable number of people have

Figure 1
City Population Trends, 1840-1980



Source: U.S. Department of Commerce, Bureau of the Census, Census of the Population, 1840-1980

opted to move entirely away from the immediate metropolitan areas, in favor of small towns within commuting distance of their jobs (Fuguitt, 1979).

People also seem to have moved away from the Frost Belt (the U.S. Census Bureau's Northern and Eastern states) and into the Sun Belt (Southern and Western states) to the point where the population of the latter region has been increasing at a rate almost six times faster than the former. Or, to put it another way, 86 percent of the U.S. population increase in the 1970s occurred in the Sun Belt (especially California, Florida, and Texas), and that figure rose to over 90 percent in the first half of the 1980s.

It also should be noted that not only are more Americans leaving the cities than are coming to live in them, but the average income of those who leave clearly exceeds that of both those who come and those who have remained. This trend is estimated to have cost cities at least \$48 billion in purchasing-power/taxable income between 1970 and 1976 alone (Barabba, 1976).

Industrial Flight. Manufacturers, on the other hand, are now free to escape the high cost of locating in the downtown sector of the older cities. Many industrial firms have moved because the transportation and communications revolutions allowed them the benefits of agglomeration, economies of scale, and trade efficiency without clustering in the center of the older waterfront cities (Brown, 1974: 36-69; Mills, 1972: 1-20).

Jobs left the Troubled Twelve in the 1960s at well over twice the rate of their population flight. New York City, for example, lost 32 percent of its manufacturing plants between 1958 and 1972; Detroit 29 percent; St. Louis 32 percent; and Baltimore 24 percent. As a result, manufacturing jobs disappeared, e.g., New York City lost 18 percent of its manufacturing jobs between 1960 and 1970.

By the 1980s, however, the Troubled Twelve were once again gaining jobs as fast or faster than they were losing them, yet the nature of this reversal is important to note. What have been increasing are white-collar jobs in the professions and services. However, such a trend is problematic for at least two reasons.

First, when Philadelphia, for example, lost one hundred blue-collar manufacturing jobs, seventy of them had been held by city residents. When, however, it added one hundred white-collar office jobs, only thirty were held by city residents. Thus the present labor-market shift has led to a situation in which only about half the jobs found in the Troubled Twelve are held by residents of those cities.

Thus unemployment has become a way of life for many residents of the Troubled Twelve. Except for the years in the 1960s, immediately following Lyndon B. Johnson's War on Poverty, these cities have absorbed a disproportionate share of the Nation's unemployed since the end of World War II. Furthermore, it is important to note that unemployment figures understate the problem. For the old central cities in particular, unemployment figures can be doubled if "discouraged workers" - those no longer looking for work - and black teenagers are included (National Urban League, 1977: 1; PURPO, 1979: 43).

Second, 43 percent of the jobs in the Troubled Twelve were blue collar by the end of the 1970s, only some of which are in the "primary labor market" (Brown and Hymer, 1977). Thus many of those fortunate enough to have found work, toil in the less attractive "secondary sector" of the labor market. Here they are employed primarily by small-scale service-producing businesses, where unionization is rare, wages are low, benefits are often nonexistent, and their job futures are tenuous at best. As early as 1970, a U.S. Bureau of the Census survey of fifty-one urban areas found 60 percent of those employed not making enough for a "decent standard of living," with half of them not earning even poverty-level incomes. They also found that in New York City when discouraged workers, involuntary part-timers, and those underemployed are combined, "subemployment" was somewhere in the vicinity of 40 to 67 percent (Spring, 1977). Thus, there would seem to be far less likelihood of today's ghetto residents working their way out of the underclasses by means of the primary labor market, despite their documented willingness to work (Hilaski, 1971: 45-52; Ryscavage and Willacy, 1968: 15-21; New York Times, 1983b).

A case in point is Barberton, Ohio, where the 1981 closing of a large industrial plant cost hundreds of workers their jobs. More than a year later, 20 percent had managed to find comparable jobs, 40 percent had

acquired "low-paying, low security" jobs, while the remaining 40 percent were still unemployed (Akron Beacon Journal Magazine, 1983).

Where have the manufacturers gone? They, too, have headed for the open suburbs and the Sun Belt.

In 1970 alone, St. Louis saw forty-three corporations move to its suburbs. Between 1970 and 1972, Boston lost seventy-five companies, Cleveland lost Stouffer Food's Frozen Food Division, National Screw and Manufacturing, National Copper and Smelting, and the headquarters of the B.F. Goodrich Chemical Company, among others, while Detroit lost S. S. Kresge, Delta and Pan American Airlines, R. L. Polk Publishers, and Circus World Toys. Additionally, looking at the period between 1939 and 1969, Cleveland's share of its metropolitan area's blue-collar jobs declined from 85 to 56 percent, Chicago's from 86 to 56, and Newark's from 48 to 25.

Northern cities have also witnessed industries expanding in the Sun Belt, e.g., Republic Steel in Alabama, ITT in Florida, and Phillip Morris in Phoenix and Los Angeles. In addition, entire corporations have been lost to the Sun Belt, e.g., Cleveland lost Westinghouse Electric to Vicksburg (Mississippi), Diamond Shamrock Corporation to Texas, Multigraph Corporation to Los Angeles, Harris Corporation to Melbourne (Florida), and Packard Electric Company to Mississippi.

The Sun Belt's share of all new nonagricultural jobs increased from 57 percent in the 1960s to 73 percent in the 1970s. And in terms of blue-collar positions, the Sun Belt gained 1.2 million such jobs in the 1970s, while the Northern states lost 900,000.

Lastly, another shift is under way which could well prove to be the most significant of all. As the President's Urban and Regional Policy Group (1979: 24) stated,

Foreign industrial competition has grown in America and has had a growing impact on the domestic economy and cities. The United States is losing manufacturing jobs to foreign countries, especially in labor-intensive industries....Air freight today is fast and relatively cheap, so foreign workers can perform labor-intensive steps related to production, while domestic

workers carry out the skilled or capital-intensive steps.

In the wake of this postindustrial population and business flight are left a host of social pathologies, such as increasing rates of school dropouts, crime, and poverty.

Inadequate Education. As far as training the unskilled, so that they can compete effectively for high-paying white-collar positions, the nation has made considerable progress in terms of educating its population. The central-city high school dropout rate, for example, declined from 83.4 percent in 1940 to 46.4 percent in 1970. Nonetheless, whereas in 1940, residents of the Troubled Twelve dropped out of high school at a rate of 77.8 percent - less often than urban dwellers in the rest of the country - their rate of 57.1 percent was well above the national average in 1970. Yet even if they do graduate, the quality of most public schools in the center of these declining areas tends to be questionable at the very best (Gordon, 1977: 206-271).

Crime. Harvey Brenner (1976), doing research for the Congressional Joint Economic Committee, found rather clear correlations between unemployment and crime. And as urban crime trends imply, a sizable number of inner-city residents are apparently turning to the "irregular" job market.

Whereas crime rates rose steadily across the United States between 1960 and 1980, they soared in the inner cities. Violent crime in the Troubled Twelve, for example, was three times the national average during the 1960s and 1970s. And even though national and urban crime rates began declining in the early 1980s, the absolute and relative crime levels of the Troubled Twelve scarcely place these cities in a position to attract or to retain industrial corporations and more financially secure inhabitants.

Poverty. The 1979 President's Urban and Regional Policy Group report indicated that poverty was declining everywhere in the nation, except in the large central cities, where real incomes had actually decreased. (PURPG, 1979: 35, 43). By the mid-1980s, more than one out of every five central-city residents lived below the federal government's poverty level, and the figure was significantly higher in a number of the Troubled Twelve cities. Focusing on the Troubled Twelve,

median family income declined 13.5 percent in constant dollars between 1970 and 1980, while the population below the poverty level increased by nearly 30 percent, from 15.9 to 20.5 percent. In addition, the government's definition of poverty excludes many who could reasonably be placed in that category (PURPG, 1979: 43; New York Times, 1981a, 1981b, 1983a).

Fiscal Crisis and Corporate Power

The President's Urban and Regional Policy Commission (1979) concluded that such changes have

left many people and places with severe social and economic problems - and without the resources to deal with them. For example, many areas which have lost both jobs and people face a declining tax base and mounting public costs resulting from the need to serve increasing numbers of poor residents, maintain deteriorating infrastructures, and revitalize substandard communities.

Expenditures. To begin with, these cities end up spending far more on city services. For example, once roads, sewers, waterworks, and the like have been built to serve a population of a given size, maintenance costs do not decrease simply because people leave. Actually these costs generally increase as the physical plant ages, and they certainly increase in terms of cost per capita (Peterson, 1976: 47-51). In addition, more and better services need to be provided in an attempt to cultivate and maintain an attractive business climate. As for the people remaining, Demetrios Caraley (1977: 407) has described them as "high-cost citizens." These are the low-income families, the school-age children of the poor, the elderly, and others "who are direct consumers of expensive services and cash benefits like welfare payments, subsidized housing, etc." Finally, it has become extremely difficult to reduce a city's budget given the decline in private-sector jobs, an organized and militant public work force, and pension payments that have become a large and "fixed" short-term expenditure (Piven, 1977).

Revenues. Setting aside the question of expenditures for the moment, there are revenue problems. In the late 1970s, William Tabb (1984b:

333) estimated that each departing job took with it between \$650 and \$1,035 in local tax revenues. Therefore, when speaking in terms of cities losing hundreds of thousands of jobs in a matter of a few years, there are bound to be short falls even if services are only maintained at their previous levels. As for raising taxes, their residents are already among the highest taxed in the nation. Moreover, they not only believe that taxes are presently too high, but have been part of a nationwide effort to lower the tax rate (Flower, 1974; New York Times, 1975). Voters across the country have succeeded in passing tax-cut referenda and have become more likely to vote down tax-increasing ballot issues (Peterson, 1976: 106; Pfiffer, 1983: 45-56).

City Debt. The resulting dilemma becomes visible if one looks at mounting city debt. Inner cities borrowed heavily to appease their fleeing industries, affluent upper and middle classes, unionized bureaucrats, and turbulent poor, as the vicious cycle reached crisis proportions in the 1960s. Gross debt per capita more than doubled in constant dollars between 1950 and 1970, despite the fact that the combined contributions of the state and federal governments had more than doubled since 1950 and amounted to roughly 50 percent of municipal revenues. Currently the deficits have leveled off to some extent, but this is deceptive.

Cities have come to hide their fiscal problems in at least three ways. First, crucial long-term maintenance expenditures continue to be postponed. Second, they have surrendered a number of functions. For example, surrounding counties have been absorbing a number of the duties performed previously by the cities. Thus when it appears that some cities are faring better than others, it is important to remember that their counties may be providing services that other cities have to provide for themselves. As might be expected, the counties encompassing the Troubled Twelve have been accumulating deficits in a pattern very similar to their central cities. And third, there is "off-budget financing." When voters refuse to approve the issuance of new revenue-raising city bonds, "public corporations" are created. These corporations are then able to sell revenue bonds without any form of voter approval, and neither the spending nor the borrowing of these agencies appears anywhere in the budgets of the governments that created them. Between 1972 and 1982, over \$250 billion was borrowed by means of this method, whereas less than \$54 billion had been borrowed in the preceding decade (Bennett and DiLorenzo, 1983).

In the end, greater shares of city and county budgets are spent to pay the interest on their debts. But even more importantly, this combination of city and county insolvency has begun to shake investor confidence in their revenue-raising bonds. Once investors get nervous it is not long before the cities lose their ability to borrow on the open market. This development generally means that one of two things is likely to occur. Either a city will have to pay escalating interest rates if it hopes to continue borrowing to pay for long-term capital investments and prevent short-term cash flow problems, or it may be closed out of the borrowing market entirely, which means that it will soon be on the verge of default and possible bankruptcy.

The Federal Response. Overall, population shifts have meant a net loss in electoral clout for the older industrial cities despite court-ordered reapportionment, and this loss has been reflected most dramatically at the federal level.

In the 1960s, Michael Harrington and others (Harrington, 1971; Kotz, 1969) documented what many had deduced from the social turbulence of the period: there was still an alarming number of seriously indigent people in the United States. And like a festering sore, the situation was coming to a head as the urban ghettos rocked with unrest. In the face of this, Lyndon Johnson declared war on poverty. With the help of Congress, he added a host of relief, education, jobs, training, and urban redevelopment programs to the welfare-state programs previously instituted during the 1930s (Piven and Cloward, 1971, 1977). It was not long, however, before much of this was reduced considerably (Donovan, 1967).

Following this intermittent and often clumsy effort to achieve the Great Society these programs were altered, as economic and social policies shifted significantly under two successive Republican administrations. Instead of categorical grants directed toward the poorest areas of the nation, block grants and revenue sharing emerged which allowed a far greater number of areas to compete for federal assistance (Newfield and DuBrul, 1981: 43-62; Pressman, 1975). As Frances Fox Piven and Richard Cloward (1977: 356) stated, "Once the turmoil of the 1960s ebbed, the federal and state governments could and did reduce grants-in-aid to the older central cities, thereby widening the disparities

in the city budgets even more."

Then, as the American economy struggled in the 1970s, the general public was anything but ready to launch another "war on poverty." For instance, in January 1978, only 41 percent of the self-styled liberals and 21 percent of the self-identified conservatives favored any increase in governmental spending on domestic programs (New York Times, 1978a). Accordingly, this sentiment was reflected clearly in the policies of the Carter and Reagan administrations. As the federal government's latest burst of new legitimization spending was over, the cities would be left to their own resources.

The Power of Local Capital

After World War II, technological changes in transportation, communication, and automation made it possible for increasingly centralized and internationally dominant U.S. corporations to comb the globe for more attractive industrial environments. However, they generally did not take immediate advantage of these opportunities, striking instead a truce with American labor unions and continuing to make sizable profits by virtue of their superior international position. As late as 1960, there was little or no Third World production of manufactured goods for export. Yet in the face of mounting international competition from Japan and Western Europe, in particular, the economic downturn of the mid-1970s seems to have set off what Barry Bluestone and Bennett Harrison (1982) have called the "hypermobility of capital." Since that time, many U.S.-based multinational corporations have launched worldwide searches for production settings that provide cheap and abundant resources, inexpensive and pliant labor, and a high degree of political stability, while often times these countries are nothing more than military dictatorships (Storper and Walker, 1984: 19-22; Vernon, 1977). Furthermore, some of the last remaining legal impediments to such mobility have been removed recently by the National Labor Relations Board (NLRB) and federal court decisions (New York Times, 1984a, 1984c).

The resulting shifts in capital have come in a variety of ways. Although the overt physical relocation of an entire plant is relatively rare, such techniques as redirecting profits and depreciation allowances, relocating pieces of physical capital, laying off workers while contracting

out their work to cheaper plants, and of course, shutdowns and/or bankruptcy are quite common (Harrison and Bluestone, 1984).

In a very real sense, the economic fate of a city hangs on the investment decisions of its largest private corporations. And such decisions have an enormous impact on the cities, neighborhoods, and individual citizens involved.

These decisions can, for example, create additional dilemmas for what is often already a hard-pressed municipal government. The city finds that departing firms have also taken with them their share of the tax base, and the newly unemployed can no longer serve as a tax source. Obviously this has an effect on the number of services that can continue to be offered to a city's population, not to mention the fact that the need for social services will increase due to layoffs. In order to remain solvent, therefore, a city is generally forced to raise taxes and cut services, both of which drive away even more taxpayers.

For when there is a clear threat of capital disinvestment, city governments are compelled to grant concessions in order to avoid bankruptcy. Because the health of a city is dependent upon the profitability of its private corporations, the corporate elite often do not have to lift a finger to exert their political will for their interests are inherent in the prevailing economic arrangement.

Consider the 3,500 lower-income residents of Detroit's half-white, half-black Poletown neighborhood. In 1980, General Motors threatened to locate 6,000 jobs elsewhere if already ailing Detroit would not raze 1,176 Poletown homes, so that a new \$600 million Cadillac plant could be built there. The city had little choice. A number of residents became concerned and appealed to the mayor, the city council, and the courts, but to no avail. With the help of millions of dollars in public subsidies 465 acres were to be razed, on which sat 1,176 homes, 100 small businesses, 16 churches, 2 schools, and a hospital, so that Cadillacs could soon roll off these publicly financed assembly lines. In return GM promised 3,000 jobs, "economics permitting."

As capital becomes increasingly more mobile and cities more financially crippled, such corporate power will increase accordingly.

Declining Services: Advanced Cases

As the 1970s and 1980s unfolded, city officials were pressured into accepting significant changes in their public policies, as well as in their policy-making processes. These changes included cuts in legitimation services and increases in accumulation incentives. More specifically, as the reins were pulled in on the welfare state, services to low-income areas were disproportionately cut and municipal layoffs were felt most by those last hired and least able to find alternative employment.

New York City and Cleveland are the two cities which reached the most advanced stages of this phenomenon. In each case, a small group of bankers led local corporate elites in a political coup of sorts, culminating in a formalization of corporate political power and a significant alteration of governmental policies.

New York City

In its most basic components, New York City's tale of fiscal woe appears to be a standard one. Between 1950 and 1970 the number of available jobs remained relatively stable, but the government and service sectors had become far and away the major growth industries, while jobs in manufacturing and construction were disappearing most rapidly. For example, some 80 percent of all new positions available in the 1960s were found in the public sector. Then between 1970 and 1978 nearly 600,000 jobs in the private sector disappeared, including half of the city's manufacturing positions (450,000 in manufacturing between 1971 and 1976 alone). By 1980, only 15 percent of all payroll employment was in manufacturing, half of what it had been in 1950. Thus, it was estimated that of the jobs that would be available between 1981 and 1985, less than 9 percent would be accessible to the 40 percent of New York City's adults who lacked a high school diploma (New York Times, 1981c, 1984e).

Meanwhile, the city was also losing population - i.e., 10.4 percent, or more than 800,000 people, between 1970 and 1980. At the same time, the city was becoming older, poorer, and more crime-prone. For example, from 1950 to 1970 the number of elderly residents increased by 50 percent. Additionally the number of families making less than the median national income increased from one-third to one-half of the city's

more than seven million people. What this means is that 1 in 7 families was receiving welfare (at least 90 percent of them eligible recipients), not to mention those who were not receiving the aid for which they were eligible. Amidst this poverty, violent crime increased by almost 700 percent between 1960 and 1977. On the average, nearly 1 out of every 60 New Yorkers would annually fall victim to a violent crime.

Subsequently, in an attempt to meet the service requirements of its needier inhabitants, the city increased its expense budget between 1961 and 1975 at an annual rate of 12.2 percent, with far more being spent in the years following the ghetto unrest (1966-1971) than in all the others combined. In particular, this growth came in the area of social services. Although the percentage of the city budget devoted to police, fire, and sanitation actually decreased slightly between 1961 and 1975, services related to health, education, and welfare increased from one-half to two thirds. Thus, the city came to be spending at least one-half of its \$12 billion expense budget on legitimation programs, with a quarter of it devoted to welfare alone. Where welfare had comprised 14.6 percent of the total city budget in 1961, by 1975 it came to be 26.7 percent.

In the end, of course, the city budget would not balance. Again focusing on the decade prior to the crisis that would develop in 1975, despite a 33 percent increase in local taxation and a doubling of aid from outside governmental sources, expenditures were still growing three times faster than revenues. The result was a cumulative (illegal) deficit in the short-term expense budget which increased from \$0.5 to \$4.5 billion, not to mention a long-term capital budget debt which increased from \$5 to \$7.8 billion. Combined, these sums amounted to a debt of \$1,936 for every child, woman, and man in the city. Interest payments alone had grown to 14 percent of the city's operating budget.

In early March 1975, a delegation of bankers confronted Mayor Beame, informing him that under present circumstances they would no longer be able to lend money to the city. (Although they did continue to sell the city's bonds, at least in part to protect their remaining investments in New York City securities by boosting public confidence in city solvency). By April, however, the banks were quite openly dumping city notes and bonds by selling them for as little as two-thirds of their face value, thus causing Standard and Poor to suspend the city's "A" bond

rating. Soon, the city was very close to defaulting as each new payroll came due.

On June 10th, the state government intervened. They created the Metropolitan Assistance Corporation (MAC) which would borrow money for the city as long as municipal officials proceeded to mend their misguided ways. The concept, structure, and authority of MAC were essentially devised by investment banker Felix Rohatyn and several other commercial bankers. The corporation's governing board was to include nine members, all of whom were to be appointed by the governor. As it turned out, however, eight of the original nine had either banking or brokerage connections (Newfield and DuBrul, 1978: 178-182).

Furthermore, MAC-backed bonds proved difficult to sell. Thus, in order to make these investments secure, the Emergency Finance Control Board (EFCB) was established on September 9 to remove the city's fiscal fate even further from the hands of its elected officials. This time the idea was developed by bankers Rohatyn, William Butcher (Chase Manhattan), Walter Page (Morgan), Edward Palmer (Citibank), and the sole elected official in the room, who was Governor Hugh Carey (Newfield and DuBrul, 1978: 179). It was decided that the control board would consist of the governor, the state controller, the mayor, the city comptroller, and three public members appointed by the governor. The public members turned out to be Rohatyn, William Ellinghaus (president of New York Telephone Company), and David Margolis (president of Colt Industries).

The control board, in consultation with MAC, was to submit a "financial plan" for the city, based on a review of the operating and capital budgets, all borrowing, all large vendor contracts, and all union contracts. Thereafter, the board was to monitor closely the city's adherence to the plan. In essence, the members of the board were delegated the final authority over the city's budget. In addition, control of the city's elected officials, and thus of local residents, was reduced even further by the modus operandi of the city's new governmental structure. The meetings of both MAC and the EFCB were closed to the public, although minutes were kept and guests were occasionally present. These guests included such members of the corporate elite as Walter Wriston and David Rockefeller. As for policy making, Robert Greenblatt et al. (1979) concluded that this new "Super Government" was essentially a business dominated by a financial elite, whereby corporate goals and

methods prevailed.

The policy priorities of "the Super Government" were not difficult to predict. Local investors still held sizable amounts of city securities, e.g., local banks held \$1.2 billion in regular municipal bonds and \$1.1 billion in MAG bonds. Thus the legislation which created the Emergency Finance Control Board mandated that debt service was to be "the first priority." To facilitate both debt service and future borrowing, city policy was revised.

What did not change were accumulation expenditures. For example, tax abatements were still extended to private corporations. This was done primarily through the New York Industrial and Commercial Incentive Board, created in 1977. As of May 1983, some four hundred projects had been funded by the board at a cost to the city of hundreds of millions of dollars in foregone revenues.

What actually were reduced, then, were maintenance and legitimation expenditures. The city work force, for example, was cut by 20 percent (61,000 jobs). A wage freeze was declared. Property taxes and bridge tolls were increased. And after only a half hour of discussion and no public debate, the mass transit fare was raised 43 percent and free tuition was ended at the City University of New York merely for what Rohatyn called "the shock effect" (Newfield and DuBrul, 1978: 184-190; Shefter, 1980: 9-10). The implications of some of these moves are worth nothing.

School budgets were slashed \$262 million at a time when "high-cost" students - those requiring some form of special education - were increasing and when roughly one-half of the freshmen entering high school could be expected to drop out before graduation (up from 36 percent in 1961, and higher yet for black and Hispanic students). Between 1974 and 1976, 23 percent of the city's (13,000) teachers were laid off, while the school day was reduced by 90 minutes. Student/teacher ratios increased from 24 pupils per teacher to 29 in elementary schools, from 16 to 21 in junior high schools, and from 22 to 30 in senior high schools. Foreign language, history, mathematics, and social studies electives were eliminated from the high school curriculum. "Extra programs," e.g., interscholastic sports, adult education, evening trade schools, accelerated and remedial summer school, etc., were

roughly cut in half. In addition, in-school health services were reduced 84 percent between 1970 and 1980.

As for health care in general, a visiting committee sponsored by the United Hospital Fund of New York studied the functioning of seventeen city hospitals in 1978 and delivered a 155-page report. In it, the committee stressed the critical shortage of nursing care arising from the cutbacks. In particular, due to cuts in the support staff, nurses were being forced to spend an inordinate amount of time doing housekeeping, clerical, messenger, and escort work, which the committee concluded "substantially reduced the time left for patient care". They even termed these shortages "life-threatening" in many cases, especially in the intensive care and neonatal wards. In addition, half the nurses at Coney Island Hospital were unlicensed and thus could not give medication. Patients were subject to waits of up to three and a half hours in emergency rooms and of four to five hours in some clinics. Mental-health care was seen to be plagued by "marked understaffing, poor professional training, extraordinary shortages of supplies, and poorly maintained space." An adult psychiatric ward in Harlem was described as "crowded, grim, dirty, and appalling," with eight beds crowded into a room. And it was just such conditions that prompted an unprecedented "strike" by a large group of doctors-in-training, to protest what they felt to be shortages of physicians, nurses, technicians, and other support personnel that were "endangering the lives of patients" (New York Times, 1978b, 1984b).

It should also be noted that criminal activity was reaching record proportions and beginning to shift to middle-income areas, as thousands of the city's police officers were laid off. In addition, the number of street cleaners was reduced to the smallest number since 1881.

Finally, the personnel cutbacks in administrative agencies left 51 percent of Hispanic workers unemployed, as well as 40 percent of previously employed black males. Taxes were raised on one of the highest-taxed citizenries in the country. And fares and fees were increased on a population that was already becoming proportionately poorer and poorer, especially in the face of federal cutbacks (Time, 1980: 18-19; New York Times, 1982a, 1982b, 1982c, 1984d, 1984e).

Cleveland

The tale of the plight of Cleveland is essentially the same as that of New York, with only differences in scale, personalities, and a few tactics to distinguish it.

Cleveland, like New York, was locked in the throes of a fiscal crisis cycle. For example, it lost 23 percent of its business firms and 30 percent of its jobs between 1958 and 1972. This is compounded by the fact that it had been losing blue-collar positions for years, with 20 percent of its manufacturing positions disappearing in the 1970s alone. Additionally, Cleveland lost over one-third of its population between 1960 and 1980. At the same time, the rate of violent crime was thirteen times higher in 1975 than it had been in 1950, leaving city police with a backlog of more than five thousand arrest orders. Thus, in an attempt to cope with the resulting service requirements, combined city and county gross debts came to \$1,500 per resident, including the city's (illegal) cumulative expense-budget deficit of more than \$52 million. Nevertheless, Cleveland managed to avert disaster by gradually surrendering service functions to countywide and regional governance. Between 1969 and 1979, the city surrendered control over its mass transit, port authority, sewers, jails, and health and welfare systems.

In the late 1970s a maverick populist mayor by the name of Dennis Kucinich entered the scene. Throughout his winning campaign he had lambasted the city's "corporate parasites," calling the executives of the mammoth Cleveland Trust Bank "the worst of the robber barons" and declaring that "the banks must be brought under public control." His other major issue was opposition to the proposed sale of "Muny Light" (the Municipal Light Company), which had come to be dwarfed by the privately owned Cleveland Electric Illuminating Company (CEI).

In December 1978, the banks made their move. The city owed \$15.5 million to five different banks, and repayment of those specific loans was due on December 15. The city owed the largest amount to Cleveland Trust (\$5 million), yet at one point the bank was apparently willing to strike a deal. It would refinance the debt, help convince the other banks to do likewise, and even extend \$50 million in new financing, if the major would sign a resolution promising to sell Muny Light. Kucinich countered

by offering 100 percent collateral (from property and income taxes) if the banks would simply refinance the \$15.5 million about to come due. He even indicated that a private investor had offered to underwrite the city's debt, and that his administration had agreed publicly to support an income-tax hike. Nonetheless, Cleveland Trust refused, despite the mayor's warning that default would prompt major layoffs and service cuts.

Interestingly enough, Cleveland Trust was one of CEI's three biggest stockholders, holding 782,798 shares (purchasing 91,000 more shares ten days after the city defaulted), and three of its directors also sat on the board of CEI. In addition, Cleveland Trust held most of CEI's \$140 million pension fund. Even though the Federal Reserve Board saw no impropriety in all of this, Kucinich refused to sell Muni Light because he thought it was a bad deal for the city.

On December 15, 1978, the city of Cleveland became the first major city to go into default since the Great Depression. At that point, however, there was a twist. Rather than forcing the city into bankruptcy by demanding payment, thereby surrendering precious decision-making power to the courts, the banks simply did not move to collect. Through this maneuver, the banks were left in a much stronger position to "suggest" public policy priorities and to "encourage" city voters to elect more "responsible" candidates.

With the city in default and under bank receivership, Kucinich steered through an income-tax hike, cut 20 percent of the city work force, and successfully repaid \$5 million of the loans on which the city had defaulted. Yet the banks still refused to refinance the rest of those loans. In November, a beleaguered Dennis Kucinich was defeated soundly by Republican Lieutenant Governor George Voinovich.

Within two weeks of Kucinich's defeat, the state legislature passed an "assistance" package which set up a governing structure similar to that of New York, an approach Kucinich had ardently resisted. In December of 1979 Mayor Voinovich applied for "fiscal emergency" status, and when that was granted he gained approval of his "Financial Plan." It named the following three persons as the public representatives: George Grabner (chairman and president of Lamson and Sessions Company), Robert Blyth (executive, National Citibank), and Jackie Presser (at that time a

vice-president of the Teamsters Union).

Local business elites quickly formed an "Operations Task Force" and made recommendations to City Hall. More than two-thirds of them were adopted (Akron Beacon Journal, 1983: E4). For example, social services would be trimmed and the city would begin making an even greater effort to gain and/or hold large corporations.

Prospects

What has been suggested thus far is that technological change has produced a postindustrial economy which has made corporate capital very mobile and driven older cities into fiscal crisis. Therefore, the requisites of corporate profitability have come to prescribe the parameters for making political decisions in these cities. And even though those who do not own capital may gain material benefits from a healthy economy, this entire process precludes a serious challenge to the basic structure of ownership and power. For in the postindustrial city, if local government responds to the interests of the poor by implementing fundamentally redistributive public policies, this drives the city's private-sector capital to the suburbs, small towns, Sun Belt cities, or foreign countries. Such interest, therefore, must generally be ignored or, at best, occasionally placated.

Yet as Piven and Cloward (1971, 1977) have indicated, the service-dependent underclass becomes increasingly better informed and better organized as well, especially when concentrated in segregated inner-city enclaves. Thus, each time the members of the underclass are driven to rebel, new legitimization expenditures tend to be added to those remaining from the last round of placations.

With each new round of underclass turbulence, however, it becomes increasingly more difficult for the city, state, or federal governments to remain both successful in the struggle to stimulate capital investment in their jurisdictions and capable of appeasing their periodically rebellious, deprived classes. What is uncertain is just how much of this trauma the American fabric can withstand and how much more government can spend on subsidies and placations and still maintain the integrity of the present economic system.

References

Akron Beacon Journal, February 13, 1983.

Akron Beacon Journal Magazine, May 15, 1983.

Barabba, Vincent "The National Setting: Regional Shifts, Metropolitan Decline, and Urban Policy," in Sternleib, G. and Hughes, J. (eds.), Post-Industrial America. New Brunswick, N.J.: Center for Urban Policy Research, 1976.

Bennett, James and Thomas Lorenzo. Underground Government: The Off-Budget Public Sector. New York: Cato, 1983.

Bluestone, Barry and Bennett Harrison. The Deindustrialization of America. New York: Basic Books, 1982.

Brenner, Harvey, "Estimating the Social Costs of National Economic Policy," in Congressional Joint Economic Committee, Achieving the Goals of The Employment Act of 1946, 50th Anniversary Review, I, Employment Paper no. 5. Washington, D.C.: GPO. 1976.

Brown, Douglas. Introduction to Urban Economics. New York: Academic Press, 1974.

Brown, Harold and Bennett Hymer. "Racial Dualism in an Urban Labor Market," in Gordon D. (ed.), Problems in Political Economy: An Urban Perspective. Lexington, Mass.: D. C. Heath, 1977.

Carsley, Demetrios. City Governments and Urban Problems. Englewood Cliffs, N. J.: Prentice-Hall, 1977.

Condit, Carl. Chicago: 1930-1970: Building, Planning, and Urban Technology. Chicago: University of Chicago, 1974.

Donovan, John. The Politics of Poverty. New York: Pegasus, 1967.

Faux, Jeff. "What Now, Willy Loman?" Mother Jones, November, 1983.

- Fowler, Floyd Jr. Citizen Attitudes Toward Local Government Services and Taxes. Cambridge: Ballinger, 1974.
- Fugitt, Glenn, et al. Growth and Change in Rural America. Madison: University of Wisconsin, 1979.
- Goldmark, Peter. "Communication and the Community," Scientific American, September, 1972.
- Gordon, Davis. Problems in Political Economy: An Urban Perspective. Lexington, Mass: D. C. Heath, 1977.
- Greenblatt, Robert. "The New Governance of New York City," paper presented at the annual meeting of the American Political Science Association.
- Harrington, Micheal. The Other America. Baltimore: Penguin, 1971.
- Harrison, Bennett and Barry Bluestone. "The Incidence and Regulation of Plant Closings," in Sewers, L. and Tabb, W. (eds.), Sunbelt/Snowbelt. New York: Oxford University, 1984.
- Hilaski, Harvey. "Unutilized Manpower in Poverty Areas of Six Major Cities," Monthly Labor Review, 1971, 94.
- Kotz, Nick. Let Them Eat Promises. Garden City, N.Y.: Anchor, 1969.
- Marx, Leo. The Machine in the Garden, New York: Oxford University. 1964.
- Millis, Edwin. Urban Economics. Glenview, Ill.: Scott, Foresman, 1972.
- National Urban League. The State of Black America. New York, 1977
- Newfield, Jack and Paul Dubrul. The Abuse of Power. New York: Penguin, 1978.
- Newfield, Jack and Paul Dubrul. The Permanent Government. New York: Pilgrim, 1981.
- New York Times:

July 21, 1975
January 22, 1978a
May 21, 1978b
February 29, 1981a
March 8, 1981b
March 14, 1982
January 1, 1982a
January 9, 1982c
April 19, 1983a
April 21, 1983b
September 22, 1983c
January 25, 1984a
January 31, 1984b
April 11, 1984c
July 28, 1984d
December 12, 1984e

O'Connor, James. The Fiscal Crisis of the State. New York: St. Martin's, 1973.

Peterson, George. "Finance," in Gorham, W. and Glazer, N. (eds.), The Urban Predicament. Washington, D. C.: Urban Institute.

Pfiffer, James. "Inflexible Budgets, Fiscal Stress, and the Tax Revolt," in Sbragia, A. (eds.), The Municipal Money Chase. Boulder: Westview, 1983.

Piven, Frances Fox. "The Urban Crisis: Who Got What, When, and Why," in David, S. and Peterson, P. (eds.), Urban Politics and Urban Problems. New York: Praeger, 1977.

Piven, Frances Fox and Richard Cloward. Regulating the Poor. New York: Vintage, 1971.

President's Urban and Regional Policy Group (PURPG). A New Partnership to Preserve America's Communities. Washington, D. C.: GPO, 1979.

Pressman, Jeffery. "Political Implications of the New Federalism," in Oates, W. (ed.), Financing the New Federalism. Baltimore: John Hopkins University, 1975.

- Rae, John. The Road and the Car in American Life. Cambridge: MIT, 1971.
- Ryscavage, Paul and Hazel Willacy. "Employment of the Nation's Poor," Monthly Labor Review, 1968, 91.
- Shefter, Martin. "Organizing for Armageddon," paper presented at the annual meeting of the American Political Science Association, 1980.
- Spring, William. "The Crisis of the Underemployed," in Gordon, D. (ed.), Problems in Political Economy: An Urban Perspective. Lexington, Mass.: D. C. Heath, 1977.
- Storper, Michael and Richard Walker. "The Spatial Division of Labor," in Sowers, L. and Tabb, W. (eds.), Sunbelt/Snowbelt. New York: Oxford University, 1984.
- Tabb, William. "Economic Democracy and Regional Restructuring: An Internationalization Perspective," in Sowers, L. and Tabb, W. (eds.), Sunbelt/Snowbelt. New York: Oxford University, 1984a.
- Time Magazine. August 18, 1980.
- Vernon, Raymond. Storm Over the Multinationals. Cambridge: Harvard University, 1977.

Manuscripts should be sent to:

Robert D. Leighninger, Jr.
School of Social Work OR Department of Sociology
Western Michigan University
Kalamazoo, Mi. 49008

Please submit three copies. Manuscripts are reviewed anonymously; please omit names and affiliations from the title page and make any internal self-reference in the third person. Manuscripts will not be returned. Reviewing normally takes 45-60 days but can take longer in the case of split recommendations. Authors should feel free to write or call the editor if they feel an undue amount of time has elapsed.

The Journal welcomes a broad range of articles which analyze social welfare institutions, policies, or problems from a sociological perspective or otherwise attempt to bridge the gap between social science theory and social work practice.

Books for review should be sent to:

Shimon Gottschalk
School of Social Work
Florida State University
Tallahassee, Florida.

Subscriptions to the Journal may be obtained by writing to:

Journal of Sociology and Social Welfare
University of Connecticut
School of Social Work
1800 Asylum Avenue
West Hartford, Ct. 06117

Volume XII (1985)	Individual in U. S.	\$15
	Individual outside U. S.	20
	Institution in U. S.	25
	Institution outside U. S.	30
	Student in U. S.	12

Individual issues and back issues are available.
Price on request.