Computer applications in social work

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This article describes a social worker's daily use of a computer in a private practice. The author focuses on clinical, administrative, research, and financial applications, and then describes the steps in the computerization of a practice. Current technology is emphasized and the strengths and weaknesses in psychiatric software are discussed. Specific computer programs and reference sources also are included.

I arrive at my office and switch on the computer: an IBM PC-XT, with 512k of memory, and a 30 megabyte hard disk. This computer is my secretary-accountant-office manager-research assistant. I use the computer's modem to access the FIDO Bulletin Board located at Arizona State University's School of Social Work to retrieve messages.[1] The messages include notices from clinicians in other states who have researched certain therapeutic software; other messages refer to a clinical supervision project that I am implementing in Arizona. This project will enable clinicians in distant cities to post treatment issues and receive comments from therapists in ongoing discussions about similar concerns. I have already posted a disguised case, along with recent process notes, but many of the therapists want to discuss confidentiality.

The third item on the board concerns how to use the bulletin board—how to manage the software, the commands, and the various components. We are teaching each other as we go along: It is quite exciting, but often frustrating.

CLINICAL APPLICATIONS

After checking for commentaries on these issues, I store all the messages in a separate file. My first client will be arriving shortly, and I want to prepare for her visit.

Before she arrives, I type a few keys that tell the word processor to go into her file and retrieve a listing of each one of her case notes, catalogued by the date of the visit. I review the treatment plan and several of the most recent case notes, and I notice a recurring theme. I will remember to listen for this theme in our pending meeting, and see if my pointing it out to her might facilitate the therapy.

Upon arriving, the client completes a monthly *Client Assessment System* test program on the computer, which takes about six minutes.[2] She types in single-keystroke answers to the 25 questions regarding the severity of her depression. (The test can measure many elements: anxiety, homophobia, family violence, relationships, alcohol use, among others.) I access a line graph that plots her current answers with previous ones. We discuss her progress, and I comment on points on the graph that correlate with events in her life while in therapy. This finished, the client has her weekly therapy session.

After the client leaves I type another process note. The word processor dates the note and prompts me to input some specifics about the session: a follow-up comment from our previous meeting, the major topic of this meeting, and the flow of our comments during today's session.[3] I intend to review this meeting with my supervising psychiatrist, so I print out a hard copy. My next client should have arrived by this time, but he has cancelled, so I embark on some of the voluminous administrative work that never ends.

I access an unfinished letter I began yesterday. I notice that the information in the last paragraph belongs at the beginning of the letter. Four keystrokes move all of it to a more appropriate place. Now I decide that I want to cite something I mentioned in another letter, so I bring the second letter up on the screen, mark off the comments that I want to cite, and with two keystrokes add them to the new letter. When it is finished, I have the word processor's spelling program check for typing errors.

I print the letter on my stationery, then use the word processor to lift the address from the heading and print it on the envelope. I did not have to type the address this time, because I have written to this person before and stored the heading from that letter.

While this letter is printing, I answer some telephone messages. I display the telephone directory on the screen and type the initials of the person I am calling.[4] The directory scrolls to that telephone number, and I push one more button to dial the number (all 11 digits). Busy! I set the computer's modem to dial the number every minute for the next 10 minutes.[5]

Next, I work on a presentation of the DSM-III-R; I can display the outline on the top half of the screen and compose on its other half. The writing comes easier than I ever though possible. It has something to do with being able to make mistakes without

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getting blocked by corrections or additions or idea changes, all of which can be accomplished immediately. I am please with the results: all footnoted—automatically—and paginated as well. I will take this printout to a computer print shop to have it typeset: a script for me to read from and a high-quality handout for the audience.

The computer's speaker makes a little squeak and I realize that my colleague's telephone is now ringing. When I hear him answer, I pick up my receiver and we discuss his referral. I will want to put notes from this discussion into the client's files, so I bring up a memory-resident note file and write it down.[6] All I will need is the client's name to retrieve this note when I am ready to use it.

When we end the conversation, I go back to writing the presentation. I notice that I need to do some more research on a particular issue and wonder if the university library has any books on the topic. I use the computer again, this time to call the library's computer and to do a search by author or title.[7] Four books are likely candidates: The computer prints out their authors names, call numbers, and their status as checked in or out. A much more extensive information-search system offers current research data about psychological issues.[8] Now, though, it is too expensive. I will settle for hoofing it to the library this time.

ADMINISTRATIVE APPLICATIONS

After meeting with several clients, I decide to work on my accounts receivable. I access a spreadsheet program that details the entire accounts receivable history of my practice.[9] It has been only five years, but having that data demonstrates that the receipts always take a dip during this particular month. Not only that, but receipts for the whole year are up 28 percent over last year at this time. I push one button and look again at the graph that displays this information more clearly. No worries here.

What about my current rate of service delivery on a contract with a local agency? With a few additional keystrokes, I illustrate graphically that I am a bit behind schedule. The spreadsheet recalculates what rate I will need to follow for the remainder of the contract period and puts a new line on the graph for me to target. I make a note to call for some referrals from the waiting list.

Toward the end of the day I want to handle my accounts receivable. First, I access the program that tracks both my business and personal finances.[10] I post the sessions that were held and the fees I received. I review the monthly report to see if I am on budget regarding projected earnings, expenses, and upcoming quarterly tax payments. Because my income fluctuates, I have had to use the program's forecasting capabilities to figure out four or five probable earned-income scenarios for the year.

In a month I will apply for a loan to replace my tired office furniture. I print out a current income statement and balance sheet of my consolidated finances. I recall when gathering this information used to take weeks of sweat, swearing, and heartache, because all of it was scattered about and needed vast updating to be current. No more!

After the last client leaves I work on an organizational development proposal. I electronically search through files containing interventions that I have performed for similar businesses and find a similar proposal. I can alter easily the name of the client firm in several places and add some specific proposal requirements. This task used to take several hours: Now it takes about five minutes. In planning this intervention, I realize that I will be gathering information from all levels of a rather complex organization. I will have to ask similar questions of several people, and in the past I had to spend hours collating and synthesizing that interview data. Learning to use some conventional data base management system would make this task a lot easier. (I make a note to buy one of the popular books that helps to demystify specific software program use and abuse.) It is disappointing but true: Many software manuals are written poorly, difficult to use, and even inaccurate. Third-party authors often do a better job of writing books about software.

RESEARCH APPLICATIONS

Thus far, I have offered a phenomenological picture of the actual use of a computer by a present-day therapist. When researching clinical applications of computers, one encounters many situations, recommendations, and prognostications. It is difficult to work through this kind of maze, and to some extent one has to begin with "what hurts," what the therapist wants to resolve or to facilitate. Even this initial inquiry can lead in many directions.

I computerized my practice two years ago. My typewriter was broken and I needed a new one. A computer programmer suggested that I buy a computer. All I wanted to facilitate was typing letters and papers; I had no inclination to computerize and was lousy at math and logic (I thought one had to be a mathematician and a logician). I was certain that the financial cost would outweigh the income generated, and I frankly was overwhelmed by the technology.

I was willing, however, to research the issue. After six months of study and discussion with social and professional cohorts, computer dealers, and bankers, I entered the computer age. When the machine was delivered and set up by the dealer, I wrote and printed my first business letter within the hour; I realized I was on to something.

There is a large body of information available regarding the clinical use of computers. But for the most part, the greater portion of this information is not readily applicable. Even as recent as 1982, articles were published that were still considering the use of large mainframe computers in clinical settings. This is about as relevant to most of us as considering the use of shackles to treat dementia. Prices, software, and hardware change so rapidly that many books are obsolete by the time they appear in print.

In my case, a tutor and 10 hours of training helped me to get started. Although some research indicates that "82 percent of respondents [to a survey in a large organization] are self-taught," many computer users appreciate some specific training, especially during times of major frustration with some aspect of a new program that one repeatedly cannot master.[11] In the beginning, it is hard to even know which computer literature to read, much less what material is relevant to one's needs. This is where others with knowledge can be of assistance.

Also of some help is one's attitude toward computers. Studies on teleconferencing by the New Jersey Institute of Technology

> have found that the prime determinant motivating people to use the system was not typing ability, familiarity with computers, or preference for written over verbal communications, but rather the attitude of the user.[12]

Hence, one's attitude could be a key element for any individual or group to consider when purchasing a computer. If initial research into the purchase of a computer does not counter the early fears and skepticism, there may be little motivation at this point to promote using a computer system.

The best current overview of the needs of a single user that I have found is in Lieff.[13] If offers the beginner direct information about psychiatric computing and a well-rounded

introduction to basic computer applications. Schwartz offers a good reference work on considerations when implementing computer use in an agency or multimodality treatment setting.[14] But in my search for assistance I often look to other sources, because they are more timely: weekly or monthly computer magazines;[15] computer bulletin boards that offer discussions on computing and on psychology;[16] user groups at the local university; computer retailers, and fellow amateur "psych-hackers." Psych-hackers persevere, make many mistakes, and support one another by sharing research and experiences with lost files, electrical power surges, and other hazards of computer use.

CURRENT TECHNOLOGY

Given all of this, one might still ask, what is in this for the client, the service worker, the system? What is in this for all of us depends on two elements: (1) the particular computer application in use, and (2) the setting in which it is being used. Some uses I have not mentioned include a clinician who publishes articles and wishes to lift whole blocks of case notes into the article, rapidly and without retyping any of it; a program director who needs to present professionally drawn charts that demonstrate the dramatic increase in services to a certain segment of the population; a large agency that publishes its own community newsletter with a desktop publishing program; a state department of health services that tracks its many client services annually; social workers in the field who track their contacts with homeless clients and use a laptop computer to enter this information while returning from an encounter; and researchers who can cross-correlate dozens of variables about client responses to several types of interventions. I will not try to list the multiple benefits or capacities of each form of computer application that is relevant here. I might offer, however, four general principles that demonstrate the benefits for social workers.

First, there is the opportunity to use one bit of information in several ways. For instance, one set of case notes can be graphed out longitudinally, chronologically, and correlated with interventions that also are described; or be combined to form part of an article, or a report to the court, or part of an accountability package, or clinical discussion. I write the description once, but move it about as an entire unit multiple times. I am managing my time more effectively and representing my client more accurately across multiple fields of view.

The second principle involves the synergistic power and time savings by building upon previous work. For example, an agency supervisor has at his or her immediate call, the financial data covering any specific facet of the organization for every year that these records have been entered. Amassing this data in accessible form empowers the supervisor to make rapid, informed decisions. In working relationships, supervisors with similar data in comparable programs can share timely information that will promote the financial functioning of all their programs, and thus their entire system. Other immediate advantages are obvious: the grant application that now saves hundred of human hours by building on generic efforts.

Third, one's "reach" is somehow extended. A large task is to communicate with clients and colleagues. When the process that forms the written outreach is strengthened, eased, and empowered, one's reach also is lengthened. Hence, I now write more letters, proposals, papers, and presentations. A block to my professional expression has been removed.

Fourth, the computer can assist in accessing existing research, and in the conduct of research. For example, I gather a more detailed process note on clients nowadays and can easily search the material for underlying themes, trends, and hypothetical ideas that propel my thinking and practice in very tangible ways. Although technically, I am not a research worker, the statistical programs now available make it more feasible for the mathematical analysis of formal research results.

Also, I gather more data about my practice and can discern similar patterns: some of these observations include referral sources, costs per service, presenting problems, appropriate times for vacations, and lag-time in accounts receivable collection. Note, however that gathering information can become a hindrance, an inappropriate end in itself. But, if used reasonably, the computer's applications create a research context that is personal and local in nature, encouraging a pattern of self-study that is valid and positive. This is a way to make the word "feedback" operational: It creates a looping of information that flows back into the system and helps that system to correct and direct its own course. Peters, a nationally syndicated columnist and management authority, replied recently to some comments I made about organizational productivity and change, which I think encapsulates the core of the value of this information:

> Yes, we are in agreement. The key is, indeed, constant exposure to real-time, unadulterated data; and provision of the tools to allow the average worker to deal with that data in a constructive, non-threatening way.[17]

I have already commented on the time-saving nature of on-line library searches, which may in fact be better accomplished by professional librarians than by clinicians. I want to add that much of this search material is only an entry point into research access—that the material thus gathered is likely to be a synopsis helpful in beginning a literature review, but not as a substitute. It makes an overwhelming task manageable—synthesizing massive amounts of data.

The disadvantages involve the costs associated with a computerization. Three issues need to be considered: (1) researching the need, (2) acquiring the materials, and (3) training the workers.

The issue regarding need cannot be overstated. There is a tendency to research the "wants" instead—to become enamored with this month's glamorous new hardware-software and try to cram that down the throat of the unsuspecting problem we are trying to solve. I suggest to any organization that they continually return to the problem, not the solution. If the problem is well defined, solutions and thus acquisition costs are likely to be balanced with the task to be handled by the computer. This researching process (and/or hiring of consultants) of course costs the organization money and time: It involves researching the internal needs of the group and the external products that are designed to meet those needs.

The second issue, acquiring the machines and programs, is an obvious outgrowth of the research. I estimate that today a sole proprietor could computerize by spending about $2,500 for hardware and software—50 percent of my costs two years ago. This estimate does not include the use of expensive psychiatric software, nor the writing of new programs, because the size and complexity of computerization are the controlling factors. One large community-based service program in San Francisco spent $50,000 per year "over the past four years... (this) includes all staff involvement and rights to some software licenses."[18]

The final major cost is associated with learning to operate the programs. My training process was intensive, but I made the assessment years ago that some training hours per week would be necessary for me to become proficient

at using the system. I decided to learn system elements only as necessary, that is, for a current project directly at hand. But I suspect I do not use my computer anywhere close to its full potential. I suspect that lack of time on the machine and occasional aid from experts are primary reasons my computer is underused. The danger is that training time intrudes upon the basic mission of one's job. The time used for training could be used to see clients or to do outreach. Obviously, balance is the rule: Learn to operate a machine in proportion to that machine's benefits to the operator. Computers, however, are seductive and can draw a person in beyond the limits appropriate to the task.

What about more specific applications, used in human service treatment settings exclusively? Note that the majority of present computer software facilitates many of the administrative services that make effective treatment possible. It does not (some notable exceptions discussed below) accomplish that treatment itself. But consider that a common public agency standard suggest that one hour of treatment produces one hour of documentation. This still points to the value of the computer, given such demands on clinicians and administrative personnel in processing information.

COMPUTER PROGRAMS

My administrative efforts make use of readily available, commercial programs in several of the major categories of microcomputer applications: word processing, spreadsheets, telecommunications, and financial management. Lately, I have discovered that an integrated programs exist that would link the major administrative elements in a psychotherapy and consulting practice together.

An interesting computer program is the *Psychiatric Resource Network* developed by Richard Metzner at UCLA.[19] This program links administrative, clinical, and informational materials. Appointment calendars are linked to income records, which are linked to clinical records, which are linked to phone messages. Another component of the program links up psychopharmacological data, psychometric testing, referral sources, DSM-II-R data.[20] Furthermore, Metzner is considering trying to link it up with such diagnostic software as *Decisionbase*—a clinical-administrative program developed by Long.[21] Long's program has several features: a fully automated DSM-III-R decision tree and reporting system; several psychological tests; a mental health report writer; flow charts over time of quantitative data; a client data base; statistical analyses capabilities; a menu-driven language to customize functions; and a quality word processor, XYWRITE II PLUS®

There are other administrative software packages available for the people in the helping profession. I have seen references to billing programs,[22] automated social history programs,[23] diagnostic programs,[24] and office management programs.[25] As I mentioned earlier, I chose standard programs for my practice—not those specific to the human services field. Some of these program publishers could already be out of business. It still is a wild West scene in the world of psych-software.

When one considers programs that involve client testing, things seem a little calmer. Most testing programs appear to be of well known and validated tests: the Beck Depression Inventory,[26] the MMPI,[27] and several vocational tests. The use of these programs does not appear to be unique, except that the computer automatically scores and prints out various results, some that are appropriate, and others that seem so generalizable as to be meaningless. This points to a valid criticism of the use of this technology: The medium itself can produce data that appear to have credibility. The results can be at worst mere fabrications by the structure of the program. This is an obvious disservice (and clearly a danger) to clients or clinicians who are relying on the testing process to produce accurate information. Most of the interpretation of testing results still is in the hands of trained humans. But no matter who writes the questions and the interpretations, they all have limitations: One of my clients complained that his testing program is too general and does not measure his paranoia.

Overall, the use of computers in treatment processes is controversial. The use of them in certain realms seems accepted: linked with biofeedback machines, employed in play therapy for children, used to educate clients about particular issues, to help retrain people with neurological damage, or in various self-help modalities. Methadone dispensing systems also have been linked with computers. But what about the employment of the technology in direct service psychotherapy?

Research has demonstrated that computer programs "can have lasting emotional impact on patients just as therapists can."[28] Various applications have been attempted: a psychotherapeutic dialogue, various educational interventions, the treatment of specific behavioral problems (such as impotence with no organic syndrome present), and the simulation of various normal and pathological thought processes. Direct counseling however, appears to be in its early stages, and one article suggested there currently are no more than a dozen firms marketing such software.[29] The article goes on to comment on the University of Minnesota's recent use of a computer program to help student clients sort out problems for further exploration in the counseling process.[30]

The article also describes a program that has been developed by Roger Gould, a psychiatrist. It makes inquiry into the fundamental questions, "what hurts?" "In which of these areas do you feel stress," the program asks, and offers several choices: day-to-day life, family, physical, health, school, emotional health, social life, and work.[31]

The program then requires that a specific action step be typed in by the client to address the stressful problem, and conducts a dialogue about the consequences of that action step.

I appreciate the problem identification goal of this program, however, I am skeptical about the actual impact as a therapeutic tool. It is laudable to list one's stress points in life and to state what one is willing to do about them. (The implementation of this "doing" is usually far more complicated that the diagnostic portion of a counseling interview.) The resistance that surfaces to "the doing" is perhaps more crucial than "the doing" itself, and the understanding and observation of this resistance has yet to be facilitated by a computer dialogue. Second, I agree with Pollock, president of the American Psychiatric Association. He notes that the actual, present phenomenological nuances in an intimate therapeutic exchange tell a whole story about the behavior of a client (and, I add, a therapist).[32] When I put myself in the client's shoes, I can conceive that a machine could monitor my breathing rate, my facial tensions, my postures, my tone of voice, my sudden silence. Yet, I cannot conceive that the same machine could respond with love to all that data, a kind of love which is embodied in the original meaning of therapeutic: to attend, to be an attendant, to be attentive, or as Laing notes, to be in interpersonal meditation.[33] So for this reason, I do not hold the counseling efforts of today's computers high on the scale of soul healing. I believe the current state-of-the-art is more visable in the management of the information that surrounds the therapeutic process.

I am enthused about the employment of computer technology in the world of human services. Others share my enthusiasm.

One of the authors of the above psychiatric software programs told me that "any clinician

who is computer knowledgeable will have a leg-up in the profession for years to come."[34] I don't know how much I identify with that, but I do identify with this passage from a computer wizard quoted in the *Computers in Psychiatry/Psychology* journal:

> Is the computer an extension of the mind? (It uses terms like "...language..." ..."memory"... "writing...") Alan Kay, one of the truly original minds in the computer field, says it is not. "This is a very weak characterization of the thing. The tools on the computer are the programs that make it into various kinds of levers and fulcra. The computer itself is a medium like paper...zillions of degrees of freedom, used in many ways, making a fundamental change in the way people think about the world.[35]

It has been on my mind to close this article with some comments about the future. But in keeping with a more grounded approach, I will not take a science-fiction attitude here, rather will just detail what I can see clearly in my own practice.

I am considering several hardware acquisitions. For instance, an inexpensive computer for the waiting room, to have clients fill out simple intake data and to provide their comments on symptom assessment on an ongoing basis. I also may add to this a telephone-answering card to replace my halting answering machine. This is a source for voice mail, in that I can leave specific messages for specific people, and thus have very different messages depending on the way the caller responds (via touch-tone buttons) to my initial answering message. It has other intriguing possibilities: reminding people of their sessions; canvassing a series of telephone numbers about specific issues. But as yet I find these actions intrusive so I will probably examine this issue closely before investing time and money into it.

Also I am coveting a letter-quality printer, that I might produce even clearer letters and presentation materials. And I would like to add more of a graphics focus to be able to display verbal data in a picturesque way. But this gets tricky, and can subtly misrepresent what is being said, so I have to limit my graphs at first to numerical issues. And one last item: a simple lap-top computer, to facilitate interviews that I do for organizational interventions in the field.

Software will be needed to manage those items above, but I have not yet researched what will be effective. Since one should begin with software needs and secondly with hardware needs, I have to learn this first. And yes—one more part of my immediate future: teleconference participation. I am increasing my time online in several teleconferencing networks. Two of them are directed toward increasing my professional knowledge and contributing the same to others on the system: One is populated by metropolitan clinicians in Arizona; the other, by clinicians in several states, centered in California.[36] The third is a local city-wide network that is starting up in Tucson, that will likely be more social-political and offer me a chance to converse with members of my community that I have not yet even met.

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