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Professionals' Use of a Microcomputer in a Court Setting*

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Overview of Computer Assessment

IN THE COURSE of daily operations the court provides many professional services including client intake, diagnosis, counseling, and referral to other agencies. The court maintains extensive confidential records and the construction of these documents requires a substantial amount of professional time. Due to the increasing demand for professional services, court personnel are often not able to meet the system's needs with available economic resources and traditional methods. It is incumbent upon professionals in the field to find ways to improve the quality of services, yet to do so in an efficient manner. This time-worn problem of quality versus quantity can be partially addressed through the acquisition of a microcomputer.

With the advent of the computer chip, the microcomputer came within the reach of the average American household. For less that $7,000 a court can purchase a complete computer system which can be used to assist professionals in the performance of their work.

The microcomputer can be used for several purposes. It will administer intake questionnaires, psychological instruments, and educational tests to clients. Upon completion of these instruments the computer can be programmed to analyze the data and prepare machine-generated reports. The microcomputer can be used by professional staff to enter observations in a systematic fashion. In addition, it can produce narrative reports for the professional, thus saving substantial amounts of time previously spent in report construction and dictation.

Used in these ways, the microcomputer can improve professional efficiency. The machine can be used to collect preliminary intake data before the

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FIGURE 1.—*Facsimile of a social intake generated by the microcomputer for an adult client.*

INTAKE QUESTIONNAIRE: Jane P. Smith

CURRENT STATUS: This is a 41-year-old white female who lists her religious affiliation as Protestant. She is currently married and has five children. The present relationship has lasted for 6 years and this is her second marriage which has some marital difficulties. This individual resides in a house which she owns. She has lived in this location for 3 years and lives there with seven other people. She describes the economic status of the neighborhood as lower income. Ms. Smith is currently employed full time and classifies her work as clerical. The respondent lists her average monthly income as between $1500 and $2000 and states that the primary source of family support is her job and husband's employment.

FAMILY HISTORY: Ms. Smith was raised by both of her natural parents. Her mother divorced when Ms. Smith was 10 years old and remarried 2 years later. The respondent has two natural siblings and characterizes her family life as harsh. Relationships between family members at this time are poor.

EDUCATIONAL HISTORY: Ms. Smith has completed 11 years of education and is not a student at the present time. The respondent failed two grades in school and was placed in special classes for reading problems. She denies serious problems in school but does admit to some arguments with teachers. Her attitude towards school was poor.

EMPLOYMENT HISTORY: Ms. Smith has held one job during the last year and had four jobs in the last 5 years. Her shortest period of employment was 2 weeks, the length of time in her present position is 9 months. She is currently working 40 hours per week, earns between $400 and $500 per month and enjoys her work.

MILITARY HISTORY: No participation in the military service is reported.

CRIMINAL/LEGAL HISTORY: Ms. Smith has had at least five contacts with the legal system as a juvenile and two contacts as an adult. Juvenile offenses included: truancy, runaway, theft, unruly. Age at first offense was 15. Adult offenses include theft, forgery. The total number of offenses in the last 5 years has been 1. The respondent states that she was incarcerated as a juvenile but has not been incarcerated as an adult. She has been on probation before.

ALCOHOL/DRUG HISTORY: This individual reports using alcohol now and in the past. She presents herself as a periodic drinker who consumes beer and wine for pleasure and when under stress. She began using alcohol at age 15 and reports that members of her family had problems with alcohol. Problems deriving from alcohol use include: blackouts, nervousness, marital discord, and family problems. She has received prior treatment for alcohol problems. The respondent reports present and past use of nonprescription drugs. Past illicit use was reported to include: marijuana, sedatives, and tranquilizers. First occurrence was at age 16. Abuse of drugs did not occur in the childhood home. Current use of illicit substances include: marijuana, sedatives and is reported to be less than once per week. The client has not received prior treatment for drug abuse.

MENTAL HEALTH TREATMENT: The client states that she was under the care of a social worker for alcohol related problems when she was 27 years old. She has not been hospitalized for mental health problems and says there are no cases of mental health problems in her extended family. Her attitude towards prior treatment is good. At this time she is not receiving mental health care, is not taking medication, and feels that she is coping well with her life situation.

MEDICAL HISTORY: Ms. Smith is currently concerned about physical problems and rates her health as fair. She reports no serious accidents in the last 2 years and has had two serious illnesses in the last 5 years. The respondent is currently under a physician's care and is taking medication.

professional sees the client or family members, thus saving 30-40 minutes of routine questioning. Machine generated reports, similar to the one displayed in figure one, are compiled as soon as the client enters his last response and presents a document which highlights the client's current and past problems.

With such a report as the basis for the interview, the professional can then pursue significant matters of interest in more depth and annotate the report as needed. Of course, other types of computer programs can be used for professional reports. These structured programs present the probation officer with a set of questions about a client which can be answered by selecting the corresponding numerical designation. When the questions have been completed, the machine will then structure and prepare a report similar to the one displayed in figure two. This procedure for report generation can be used for intake, ongoing service contacts, and other functions. It takes a probation officer 10 to 15 minutes to respond to 30-50 questions presented by the computer. These responses would yield approximately one page of narrative.

Allowing the machine to collect routine data can save the probation officer time which was formerly spent in an interview and also frees the professional from extensive writing after the client has left the office. This time can then be spent in providing direct services to the client. In addition, the facsimiles displayed in figures one and two are of an acceptable quality for routine professional use.

The nature of structured programming is conducive to uniform and objective reporting. One is required to proceed through all of the significant areas before a report is generated. This requirement insures that all pertinent information for each client contract is collected and that the reports are uniform in content. The report generated is based upon objective data, and often eliminates biases which may result from subjective impressions of the client and his family. Systematic data collection for report writing purposes has a real advantage when it comes to applied and basic research studies. It is well known that information collected by officers of the court has an uneven quality. Day to day operations are such that it is often not possible to collect uniform data on all client contacts, let alone place this information in a report. The microcomputer system offers rapid, efficient services to the working professional and provides uniform data which can be used for administrative and for research purposes.

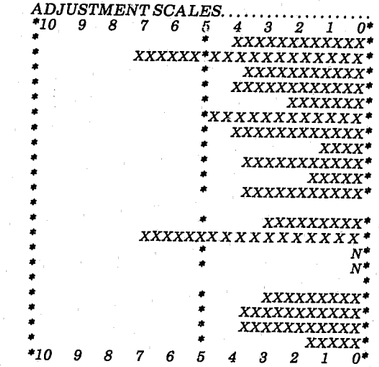
These ideas were put into practice when a microcomputer was obtained for the Mahoning County Juvenile Justice Center in Youngstown, Ohio. In the present article, a presentation of the issues and operation of this system will be

FIGURE 2.—*Facsimile of a probation officer's report for a client contact with a probationer.*

JUSTICE CENTER PROGRESS REPORT

CLIENT Jane P. Smith — *By PO John Jones* — *Data 05/9/81*

ADJUSTMENT SCALES.....



X=Observed N=Not Observed.....

(0=Poor/needs further work, 5=average, 10=good/no problem

PHYSICAL APPEARANCE			
Grooming			
Dress			
Behaviors			
GENERAL ATTITUDE			
Court			
Probation Officer			
Family			
Work/school			
Alcohol			
Drugs			
SOCIAL ADJUSTMENT			
Family relations			
Work relations			
Community relations			
Progress towards release			
AREAS OF SOCIAL FUNCTIONING		*Start*	*End*
Mental Health Counseling	*(alcoholism)*	*5/81*	*?*
Family Problems	*(with PO)*	*5/81*	*9/81*
Vocational Adjustment	*(rules set)*	*5/81*	*?*
Restitution	*($50 mo.)*	*5/81*	*6/82*

NOTES

1. Client placed on probation for forgery. She is employed and will make restitution as noted above. Client needs alcoholism counseling. She will register with AA and will attend sessions at the mental health center on a weekly basis. Intakes scheduled for 5/11/81

2. Client given rules of probation will report first Monday of each month.

presented. Consideration will be given to issues in client assessment, security of information, controlling board approval, and funding. Following this, attention will be directed to hardware requirements and types of computer programs available. The discussion concludes with a presentation of the system operation and staff training.

Client Assessments

Computerized client intakes and other types of assessments such as educational and psychological testing are best administered using a menu system with numerical multiple choices. A sample of such a system's screen display can be seen in figure three. Responses to questions are given by pressing one of the 10 numbers on a keypad; most microcomputers have a keypad which is similar to a hand calculator. Selecting numbered alternatives facilitates testing, since people who are unfamiliar with typewriters find the range of letters on a computer terminal to be confusing.

Once the method of data collection has been decided, the questions about interactive testing which arise are: Will it work? And, will clients use the system?

Hedlund, et al., (1979) provide an excellent overview on the use of computers in mental health. Studies cited in this review are relevant to many aspects of the justice system. With regard to specific studies, Lucas (1977) compared the results of interviews of alcoholics which were conducted by mental health professionals and by a computer. It was noted that 75 percent of the alcoholics responded favorably to the computer interview and that 50 percent of the respondents preferred the nonthreatening, nonevaluative computer to the live interview. Similar findings have been obtained by others (see Johnson and Williams, 1978). In the work at the Juvenile Justice Center it has been noted that adolsecents enjoy using the com-

FIGURE 3.—*Menu driven system for collecting client intake data at the computer terminal.*

```
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x Intake Questionnaire                Item 15  x
x                                              x
x Do you usually get along with the people at work who do the x
x same type of work that you do?               x
x                                              x
x                                              x
x                                              x
x                                              x
x                                              x
x                                              x
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x 1=almost always          0=repeat last item  x
x 2=most of the time       9=don't know (try not to use  x
x 3=some of the time         this answer if possible)    x
x 4=not very often                             x
x                                              x
x *<- Your answer here please                  x
x                                              x
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
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puter. They often see the machine as something similar to arcade games and pinball machines. It is fun to make the computer work, and many juveniles who are initially resistant to "testing" quickly attend to and become interested in the computerized process, especially if it is presented in the context of a learning experience.

Of more importance to the criminal justice specialist are the results of the computerized interviewing. In the Lucas study it was noted that the computer consistently elicited alcohol consumption estimates that were 30 percent higher than the estimates obtained by mental health professionals who were skilled in interviewing. It would appear that alcoholics were more likely to be honest with the computer than they were with a live interviewer. In the criminal justice system, where clients often have reason to dissimulate, this finding takes on added importance.

The reliability and validity of computerized assessments have been addressed in several studies and reviews (Hedlund, et al., 1979, Kleinmuntz, 1972). Studies conducted by Lushene, O'Neil and Dunn (1974) indicate that on some psychometric devices the computer results are comparable to the traditional methods of administration and that computerized procedures may be more reliable than traditional approaches. Given the highly structured nature of many psychometric instruments, it could be expected that the reliability of such things as intake questionnaires is not impaired. Meehl (1954), Kleinmuntz (1972), and several others (see Wiggins, 1973) have noted that actuarial methods like those used for computer scoring are usually more accurate than other interpretive schemes.

In summary, it can be concluded that clients enjoy, and some even prefer, interactive testing. Procedures used on machines are reliable, valid, and are acceptable to professional staff (Johnson and Williams, 1978b). While some professionals are concerned about "mechanizing" services to clients and the perceived "coldness" of such procedures, these fears can be overcome. Rather than decreasing person-to-person contacts with clients and families, the use of computers actually permits the professional to spend more time delivering direct services and to concentrate on case management, which is the primary goal.

File Security

Computer based files are more secure than the paper filing systems used in most courts when the computer system is properly installed. Under traditional filing systems anyone who has access to the file drawer can obtain a client record. On a computer system, only a few people have access to the total file while others may have limited access to various portions of a file. (These levels of access can be changed at will by controlling authorities.) Access is controlled by the use of commands which are known only to appropriate personnel, and without which the machine will not open a file.

With a microcomputer system it is common to find that disk-based storage techniques are used. Computer programs and client data are stored on electromagnetic medium that are similar to phonograph records which the computer writes on and reads from. These disks are stored near, but not in, the computer and are "played" as needed. In order to read the client disk one must have access to the unique computer operating system disk.

In some cases a microcomputer is hooked up by telephone connections to a larger computer. In the subsequent discussion it will be seen that it is to the court's advantage to have a connection to a larger computer. When such a connection is established the court can send administrative data such as payroll information to the larger machine. However, the larger machine cannot assess the court's client data for several reasons. First, client data is not routinely stored in the machine, unless a member of the court's staff places it there. Second, the larger machine would need the computer operating system programs which read client data, and there is no necessity for the court to provide a larger computer facility with this information. Third, unless specific arrangements were made involving several people, there is nothing the main computer could do with machine-coded data that would be meaningful. In essence, the court needs to maintain security on one or two 5½" computer disks to reasonably protect the integrity of its system. With these things in mind, it should be noted that with a sufficient amount of manpower and the proper equipment, a systems analyst can translate most computer codes. However, for most purposes, the amount of effort required, and the level of security involved in a computer system is much superior to filing cabinets.

National Standards and Other Considerations

The use of computers by public and private organizations to process data on individuals has raised important questions about the right to privacy and the guarantee of confidentiality (Hoffman, 1973; Miller, 1971). Even though the use of computers has fostered concern over these questions, the same questions have been raised about any data gathering on individuals whether manual or mechanical. Perhaps, then, the concern about computers is simply one of degree, but no different in kind from questions of privacy and confidentiality generally. So, for example, stories about computer geniuses breaking or circumventing the security safeguard in a computer operating system are presumably no different than a staff worker determining how to extract information from a locked file cabinet. Where the two might differ is in situations wherein an individual might be able to destroy an entire record file for an agency with the push of a button versus a case in which file cabinets might be tampered with one at a time.

At any rate, the state-of-the-art in computer science is such that computer operating systems can be developed to insure privacy and security at least as adequately as current manual systems. (see Campbell, et al., 1977). Privacy in this context is a question of system design. If administrators can determine what data will be collected and to whom it will be distributed, then the system can be designed to guarantee the desired result. Security is a question of operating system construction. Controls over how data is gathered, stored, assessed, processed and distributed can be implemented to insure security. Just as there exists no absolute guarantees over privacy and security in manual systems in agencies, there can be no absolute guarantee with computer systems (see also Ware, 1973).

Several principles regarding privacy and security should be followed when utilizing computerized systems: (1) Only data which is absolutely essential in serving the needs of clients and operating an agency should be stored (Buss, 1980); (2) when client data is to be aggregated, individual data sources should be kept anonymous where possible (Campbell, et al., 1977; Lowe and Sugarman, 1978); (3) when client data files become obsolete, files should be destroyed (Campbell, et al., 1977); (4) attempts to link data files in one agency to other agencies especially by means of common identifiers like social security numbers should be avoided (Campbell, et al., 1977); (5) informtion should only be shared when anonymity can be guaranteed or when absolutely essential (Paton and D'huyvetter, 1980); (6) if clients are required to give "informed consent" in gathering data about them manually, then clients should be required to provide the same consent for computer systems; (7) access to client files and the computer system should be limited to those on a need-to-know basis (Coursey, 1977); and (8) clients or responsible client representatives should be permitted access to personal data files stored in the computer to the same extent that clients are given access to other kinds of personal files (Coursey, 1977).

In order to insure that the items above are implemented, administrators should insure (Paton and D'huyvetter, 1980): (1) "Specification of appropriate policies and procedures stipulating that only authorized staff may process documents and gain access to the data through the machine." (2) "Application of appropriate control procedures for both the manual and computerized components of the information system." (3) "Identification of personnel authorized to obtain types of client and staff data and of personnel authorized to request and review various types of reports and evaluations."

In assuring that agencies are managed under the guidelines above, administrators may be confident that computer systems will protect individual rights while allowing for the computer-assisted management of the agency.

Controlling Board Approval

If the level of security is acceptable to the court and it is thought that professional services can be improved through the addition of microcomputers, then other problems must be addressed. First among these is obtaining the approval of the governmental data processing board in the court's hierarchy. It has been our experience that if such a board is approached with a request for "new" computer, it is likely that the request will be turned down because it "duplicates existing services" that will be available through the main frame computer at some later date. However, if the board is petitioned for the acquisition of an "intelligent terminal" which has some additional capabilities (such as disk storage and a relatively small amount of computer memory) and that it will be used to meet some of the main frame responsibilities (such as entering payroll information) then it is likely the request will be approved.

Obtaining Equipment

It has been noted that microcomputers are relatively inexpensive, costing less than $7,000 to fully equip a reasonable system that will service 300-400 clients in a 10-person department. This is not a large sum and it was found that local social service groups such as the Junior League and the Ladies Auxiliary to the Bar Association were pleased to provide funds for a microcomputer that would allow probation officers to spend more time in direct services and less time on paperwork.

Beyond this source of funds the computer is also used for routine psychological testing (Waldron & Sutton, 1981a) and is leased to a part-time psychologist. The psychologist bills eligible clients for services and is in turn expected to pay for use of the computer for test scoring. Through the use of the microcomputer the psychologist is able to see all clients of the court (some of whom cannot pay for services) and is able to support his efforts while paying the court for machine use. This system does not yield a large amount of revenue, however, it is possible to obtain the services of a licensed psychologist at little or no cost to the court and to purchase some supplies for the machine.

Equipment and Computer Programs

At the present time there are several manufacturers of microcomputer equipment that sell their machines in any city in the country. A department's needs would depend upon several factors. Particular attention should be given to the number of clients to be served, the number of professionals who use the machine, and the amount of data to be stored. In our experience, a court with 300-400 clients and 10-12 probation officers requires a computer system with 48-64K of memory, three 80K disk drives, and a low speed line printer.

We have added a voice synthesizer to our list of equipment and find that it is of some use with people who have poor reading abilities. A system such as the one described can be purchased for under $7,000. Maintenance fees are less than $100 per year and supplies currently cost about $200 per year.

While the computer was readily obtained, the problem area is in the acquisition of computer programs to run the machine. Some programs are available that would be of use in a court setting; however most of these are administrative packages. Report writers, intake questionnaires, and testing programs are becoming available (Annon, 1980; Waldron & Sutton, 1981b) but it will be 4 to 5 years before there are several commercial packages available for purchase. One alternative is for the court to write its own programs. It was found that an interested individual could learn to program the machine in a reasonable fashion in about 1 week. Once the use of the machine has been learned it takes less than 1 month to write a social intake program. A second option would be to hire a college student majoring in computer science at the rate of $10 to $15 per hour to write programs. At these rates it might cost $150 to have a reasonably well-written social intake program

FIGURE 4.—*Menu driven operating system for selecting computer programs and for entering data.*

```
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
x          JUSTICE CENTER COMPUTER FILES      x
x                                             x
x                    MENU                     x
x                                             x
x      1=OPEN A NEW CLIENT FILE               x
x      2=READ AN OLD CLIENT FILE              x
x      3=PROBATION OFFICER REPORT PROGRAMS    x
x      4=CLIENT TESTING                       x
x      5=REFERRAL FILE FOR SPECIFIED PROBLEMS x
x      6=COMPUTER ASSIGNED INSTRUCTION        x
x      7=MISCELLANEOUS PROGRAMS               x
x                                             x
x                                             x
x      *<-- YOUR ANSWER HERE PLEASE           x
x                                             x
x                                             x
x                                             x
x                                             x
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

Staff Training

In the menu driven system implemented in Youngstown it requires approximately 20 minutes to train a probation officer on the use of the equipment. The computer programs require a minimal amount of alphabetical data entry and are based on a multiple choice menu similar to the one displayed in figure four. When this screen is displayed a person can select from the options available for the next program or program segment. For instance if a "1" is entered as a response to the screen displayed in figure 4, the operator is instructed to place a client disk in slot 3 and press the enter key. Following these instructions leads to a password request and a display of the client file at a particular security level. After displaying the client file the operator is shown a new screen and is allowed to select from a menu the next routine to be performed such as intake, report writing, testing, etc. When the intake program is administered to a client the questions are administered in a multiple choice format and the client responds by pressing a numbered key using the same format displayed in figure 3. The programs contain branching statements which are executed when the person at the keyboard selects specific options. For instance, stating that one is still in high school leads to several questions about high school activities. On the other hand, if a client states he is no longer in school, then this series of questions is omitted.

When the end of the program is reached the television monitor and the keyboard automatically shut down and the data are stored. Various passwords are required to score a test, produce a report, or restart the menu.

As can be imagined the system is easy to operate. A review of the pertinent literature and our own experiences indicate that clients and staff enjoy interactive computers and that the obtained results are reliable and can be more valid than traditional procedures. Professionals find the reports are usable and that they result in substantial savings of time which can be better spent in providing direct services to clients. Data can be maintained in a secure fashion and funding for the system is not difficult to obtain.

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