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COMPUTER ASSISTED DIAGNOSTICS IN JUVENILE DELINQUENCY

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The three professors present some basic requirements of an "optimal" juvenile investigation. Their Computer Assisted Regional Evaluation System (CARES) is used to illustrate how contemporary technological advances in on-line computer systems can provide a basis for accomplishing such optimal investigations, can facilitate the achievement of the objectives of the juvenile justice system and, at the same time, upgrade the capabilities of the juvenile probation workers.

INTRODUCTION

Juvenile courts in the United States have typically retained considerable flexibility in the disposition of juvenile offenders on the expectation that a focus upon the developmental requirements of the child would occur. This has been accompanied by a corresponding deemphasis upon the nature of the criminal offense itself (Thomas, 1971). Implicit in this approach has been the presumption that juvenile courts have the capability for doing this well; it has been assumed that the courts would be able to identify accurately a child's developmental needs, to determine the most appropriate dispositions for fulfilling those needs, and to insure their satisfactory implementation.

There has been a recent revival of concern with the adjudication process itself; the issues of due process for juveniles have become emphasized as a result of recent court decisions. This change in emphasis, however, does not alter the court's fundamental task of finding ways to promote the constructive development of children under its jurisdiction.

There is widespread agreement that juvenile courts typically have not succeeded in fulfilling these expectations. The decision to free the courts from legal constraints so that they could act more effectively in the best interests of the child was accompanied by early optimism in many quarters. Subsequently, observers have become much less sanguine about the courts'capacity to live up to this role. It is the thesis of this paper that: (1) a cardinal reason for the failure of the court in this regard has been the unsatisfactory data base with which it has been forced to operate, viz., the juvenile investigation; (2) the key to renewed effectiveness of the juvenile court in accomplishing its principal objective of the rehabilitation of youth is to provide it with a satisfactory information base concerning the youth and his developmental needs; and (3) this can be accomplished by a modification in the conceptual frame within which juvenile investigations are constructed and through the utilization of contemporary advances in computer technology.

A conceptual analysis of problems in the juvenile court system and the specification of a strategy to solve some of those problems stops short of the more difficult task of actually implementing a proposed solution. Consequently, part of the present paper will report on the development of the authors' Computer Assisted Regional Evaluation System (CARES) for juvenile delinquents, as a concrete illustration of ways in which such strategies can be put into operation.

PROBLEMS IN CURRENT JUVENILE INVESTIGATIONS

The National Council on Crime and Delinquency (1967) has agreed that shortcomings of the juvenile investigation have been a major factor in the failure of juvenile courts to achieve their objectives. Several difficulties can be added to those which the Commission has noted, and they

can be summarized under three major headings: (1) conceptual, (2) procedural, and (3) manpower problems.

Conceptual Problems

The human person is a complex combination of biological, psychological, and social patterns of organization which do not always work in appropriate harmony with one another in the course of an individual's development. Hence, problems in any one or a combination of these areas can be encountered in the investigation of a particular youth's circumstance. These problems require attention if he is to be helped to become an effective and useful member of society. There has been a continuing problem in how to design an investigatory process which will be usefully comprehensive, and which can thereby survey the youngster's status with respect to all significant aspects of his development and their interrelationships. At the same time, it has been neither feasible nor sensible to collect masses of information about each and every aspect of every individual; some selection of pertinent and relevant data must be made. The conceptual problem has been to discover what selected information needs to be collected that will constitute a comprehensive sampling of the entire person's developmental situation.

The prior use of the word "developmental" signalizes another aspect of the difficulty. Since the human person is in a constant state of growth and change, at no point in his life are physical condition or behavioral patterns entirely fixed and static. A developmental evaluation of an individual must thus take into account that where he is at any point in time is a product of what has happened to him in the past, and what he anticipates with respect to the future. The field has not yet discovered a satisfactory frame within which to accomplish such a developmentally oriented analysis.

Behavior does not occur in a vacuum, and it is always partially determined by things external to the individual. Typically, quite different behavior can be expected from each person one chooses to study depending upon the different situational conditions in which he behaves. Often, however, efforts have been made to analyze the life-situation of the youth

independent of societal, community, and peer factors, an approach which some have seen to be a mistaken application of the "medical model" (Thomas, 1971). Others have proposed to shift from a concern with changing the individual to an emphasis upon changing the physical and cultural settings in which people must function. The most appropriate method of carrying out an effective juvenile investigation requires an analytic procedure which would describe the person and his behavior in relationship to the physical, interpersonal, and social situations to which he is responding, a framework for such *contextual* evaluation of people and their behavior awaits development.

Post hoc evaluations, such as juvenile investigations are doomed to be, require the accumulation of information from observers who have been privy to the events of concern. Thus, youths are asked to behave as reporters about themselves, and observational reports are necessarily collected from parents, peers, teachers, and juvenile officers, as well as others. The problem is further complicated by the addition of contemporary observations of professional workers such as probation officers, clinical psychologists, neurological specialists, and the like. Since observations differ depending upon the frame of reference of the observer, juvenile investigations encounter the taxing problem of synthesizing diverse forms of data from multiple data sources. The serious problems in developing an integrated evaluation of a person and his situation, which is useful for diagnostic and dispositional considerations, can all be related to the need for discovering a conceptual frame within which a variety of observations from a multiplicity of observers can be meaningfully ordered.

Finally, there has been a continuing problem in finding ways to link "diagnostic" conclusions with "prescriptive" decisions regarding the treatment or disposition which should be provided. Neither this problem, nor those earlier discussed, are unique to the field of juvenile rehabilitation. Nevertheless, the rationale for conducting juvenile investigations rests firmly upon the principle of differential treatments for different kinds of problems. At present there is no satisfactory basis for insuring that sensible remedial action becomes applied to whatever problems come to be identified.

Procedural Problems

In addition to the conceptual problems outlined above, there have been difficulties in the conduct of investigations which could be classified primarily as problems of method.

The common practice of pursuing unstructured interviews in which the investigator adopts an exploratory posture, making moment-to-moment decisions as to the information sought probably results in greater liabilities than advantages. Interviewers often assume that such open-ended procedures permit maximal adaptation to the individual case and thus will yield more accurate or meaningful information. However, they also can produce "wandering" interviews as multiple and often nonproductive areas are explored; failure to follow an orderly and systematic line of inquiry frequently results in serious omissions and deletions. Such deficiencies only become compounded when reliance is placed upon the interviewer's recall when he returns to his office to prepare his written summary reports. The entire process, as usually followed, is seriously vulnerable to the level of competence, retentive capacity, and extent of subjective bias of the individual investigator.

This rather obvious methodological problem, namely, the absence of standardized investigatory formats, has been noted before, and efforts to solve it have been repeatedly made. Manuals and schedules for standardized juvenile investigations have been developed (Keve, 1960), but such attempts have not found general acceptance in the field. As a result, the kind and quality of information varies greatly from one locale to another, and the absence of comparable data precludes any useful person-to-person or person-to-group comparisons. This accounts for the relative absence of useful statistical analyses or summaries of juvenile cases processed through the justice system.

A problem with even more serious implications has been the excessive time typically required to process the usual juvenile investigation. The extensive time-lags which can occur pose serious problems for youths, their families, and probation workers alike. Particularly damaging are those instances where lengthy and expensive assignments to "diagnostic"

or detention centers are deemed necessary. While such delays are partially a consequence of insufficient financial resources and manpower, they are, to a considerable extent, the result of cumbersome investigatory procedures as well. Deliberate attention to streamlining the collection and distribution of information is needed to process efficiently information which is accumulated at varying times from varying sources.

Manpower Problems

The question as to whether one has sufficient personnel is a relative matter, since it depends upon what it is one is seeking to accomplish, and the qualifications deemed necessary to complete the task(s).

Pursuit of current methods of juvenile investigation have clearly generated what appears to be an overwhelming, if not insoluable, manpower problem. The field has adopted a kind of social-work model of operation, wherein the probation worker operates on a case-by-case basis with troubled youngsters who are struggling with the entire range of behavioral difficulties. Adherence to this model calls for a trained professional with specialized knowledge of the diagnosis and treatment of problem-laden children; this has ordinarily been provided only by post-baccalaureate training.

The National Council on Crime and Delinquency (1967) has noted, however, that most of the country's juvenile courts currently employ probation workers who lack such professional training; not only have such professional workers been generally unavailable and more expensive than the typical court budget could afford, but it has also been particularly inappropriate to expect specialists in law enforcement and corrections to become skilled in probation diagnosis and treatment as well as in their own specialized functions. Moreover, the number of new cases to be investigated in the typical agency, in combination with the supervision of cases already processed, would result in a work assignment three times the recommended standard. As the National Council on Crime and Delinquency appropriately concluded:

> Correctional manpower problems are so massive, however, that any expectation of solving them by recruitment of personnel with appropriate graduate degrees is completely hopeless (1967:50).

Clearly, the model which has been pursued is inappropriate to the scope of the problem; manpower problems will persist unless a very different approach is developed.

SOME BASIC REQUIREMENTS OF AN OPTIMAL SYSTEM FOR JUVENILE INVESTIGATIONS

We have progressed from an initial recognition of a difficulty, viz., a failure of the juvenile courts to achieve their objectives, to an analysis of an important aspect of that difficulty. It has been argued that an important source of the problem has stemmed from the utilization of unsatisfactory methods for the analysis of the behavioral and environmental situation of youths in trouble. Any proposals for solving such problems must first consider what would constitute an optimal or acceptable system of data-collection and analysis for the purposes of juvenile investigation.

Conceptual Requirements

The development of satisfactory and useful information concerning the status of any particular youngster should be directed toward fulfilling the following sets of criteria. An information collection procedure needs to be designed so as to be:

1. *comprehensive,* in the sense that it would survey the youth's status with respect to all significant aspects of his development (physical, intellectual, emotional, educational, social, etc.);
2. *selective,* and pointed toward the collection of data from various domains of the person's life which can be considered to be both essential and pertinent;
3. *developmentally oriented,* featuring not only an historical analysis and an assessment of his current status, but also an analysis of his circumstance in relation to his aspirations, goals, and estimates of his future prospects;

4. *contextual,* in that the occurrence of his behavior would be studied in relationship to the situational conditions under which he is functioning; and ;
5. *integrative,* in providing a common conceptual and language frame within which a wide range of observational reports concerning the youngster could become synthesized into a coherent summarization of his situation.

An additional requirement of an optimal juvenile investigation is what should be designed generically. There is no substantive evidence that adolescents who become adjudicated delinquents are consistently different as a group from other sets of troubled or even "normal" youngsters. Procedures, then, which become developed in the context of the juvenile justice system should be of considerable value in other areas of human services such as mental health or public education, where there is a comparable concern for the constructive development of young people.

Procedural Requirements

The foregoing criteria make reference to primarily the nature of the data that should form the basis for an optimal juvenile investigation. There are, in addition, the requirements that the information-collection process should be:

6. *standardized,* so that systematic data could become collected which would be uniform across subjects, variations in response would then be clearly the result of the youths themselves rather than a function of the methods of data-collection employed. The comparability of data collected in such standardized fashion would make valid comparative analyses possible;
7. *prompt,* so that the time lag between initial contact and disposition would be held to an absolute minimum; and
8. *cost-effective,* in that the amount of money required to process the juvenile investigation would not prove to be prohibitively higher than current costs, unless the benefits derived from such an approach were deemed of sufficient utility to justify the investment of greater amounts of money per individual case.

Manpower Requirements

Since it is probably unrealistic to anticipate substantial changes in either the number or the level of training of extant probation personnel, an optimal system for juvenile investigations should prove to be:

9. *pragmatic*, and within the domain of the typical baccalaureate-level youth worker or probation officer who could implement it readily and effectively with a minimum of in-service training; and
10. *prescriptive*, suggesting particular avenues of remedy which could and should be considered in relation to each of the different problem areas which would come to be identified.

APPLICATION OF AN ON-LINE COMPUTER IN THE IMPLEMENTATION OF AN OPTIMAL SYSTEM

Inspection of the foregoing characteristics of an "idealized" juvenile evaluation system clearly indicates that adherence to established or traditional methods and technologies would be grossly insufficient to the task. The conceptual characteristics of an optimal investigation call for the collection, integration, and processing of large masses of information concerning youths in need of help. The simple task of ordering, synthesizing, and processing such encompassing amounts of information would strain, and undoubtedly overwhelm, the intellectual capacities of even the best-trained professional. Moreover, the cost of retaining such professional personnel would be staggering. Fortunately, the appearance of recent computer technologies brings the implementation of an optimal juvenile investigatory system within reach.

A New Tool in Data Management and Decision-Making

The use of computers in complex systems of organization is certainly not new. Within the Administration of Justice system itself, computers for the storage and retrieval of large masses of information have become commonplace (Silbert, 1970; Waldo and Chiricos, 1970; Collins, 1974).

However, most of these data systems are designed primarily for management and data storage and retrieval functions. What is being suggested in this context is the utilization of an on-line computer system in the juvenile investigation so as to capitalize on the capability of such systems to go beyond simple data storage and retrieval, and to process (e.g., to summarize integrate, synthesize, and evaluate) highly varied kinds of information of exceedingly broad scope.

Since Lord Bowden sold the first digital computer on the commercial market in 1951 (Bowden, 1970), the technology of computers has become remarkably advanced. The computers of today are far more reliable, compact, and retain greater storage and processing capacities than the computers of 20 years ago. Perhaps more importantly, however, medium-sized and small computers are presently available which can do more work in less time than the largest computers of only a decade ago, and which are relatively inexpensive and hence within the reach of medium-sized business and governmental units. As a result, many organizations are presently employing dedicated computers, i.e., computers employed solely in the service of a particular agency. However, the existence of time-sharing computers enables even occasional or relatively small users of computers to have immediate and unrestricted access to a computer, when it is needed. It is the time-sharing computer that could prove to be the effective vehicle for the accomplishment and delivery of comprehensive juvenile investigations.

Time-sharing, or on-line, computer systems operate in such a way as to permit a dozen or more clients of the computer to use it at the same time without having to wait for the computer to become available. This is accomplished through the computer's capability of working for a fraction of a second on one job, then on another and another, until every user has been serviced. This occurs at such incredible speeds that none of the users have any impression of waiting. The medium of communication with the computer is the interactive or on-line terminal which is usually operated through telephone lines. Consequently, the user of an on-line computer system can effectively utilize the system whether he is right beside the computer itself, or hundreds of miles away.

The interactive computer terminal is unique in that it permits genuine interaction between the computer and the user; the user can both receive and transmit information. Furthermore, interactive terminals have been refined to the point where they are no larger than an ordinary typewriter, and their operation is sufficiently simple that the user can be taught to operate them within a few hours.

The Optimal Juvenile Investigations: An Illustration

The foregoing has been an attempt to review problems in current juvenile investigations, to develop a framework for an optimal juvenile investigation, and to describe a technology for accomplishing it. The authors' basic underlying premise has been that the juvenile investigation occupies a central role in the court's efforts to bring to bear the full resources of the community upon the task of channeling children with deviant or troubled behavior patterns into more constructive avenues of development. It has been asserted that the technology for developing an optimal juvenile investigation is presently available. There remains the work of applying the necessary technology in the development and implementation of such preferred investigatory procedures.

The development of such a "computer-assisted" evaluation system (even if one is confined to building a basic prototype) is clearly a formidable, although not insurmountable, task. Staff commitments are required, since it calls for a truly multidisciplinary and multiprofessional effort, involving researchers and practitioners, as well as specialists in the areas of medical and psychiatric diagnosis, educational assessment, family evaluation, community and neighborhood assessment, and many more. It calls for the commitment of substantial resources over a sustained period of time. The efforts of this team of workers must then be translated into the logic and language of computers by another team of specialists, system analysts, and programmers. However, the end product can be a powerful new tool for probation workers that not only helps them to perform their work better and more efficiently, but also upgrades their professional knowledge and capabilities, and substantially

contributes to more effective work with youth.

During the past three years (1971-1974), the present authors have been engaged in the development of a prototypic computer-assisted juvenile investigation, fashioned after the conceptual framework presented in the present paper. The project is known by the acronym CARES, which stands for "Computer Assisted Regional Evaluation System" (Vondracek, Urban, and Parsonage, 1974a). In the last year, three county probation departments used the CARES procedures on a trial basis. They were tied into the system through remote-access computer terminals, which in turn were connected to the computer via telephone lines. Thus, although the three probation departments were geographically dispersed, they had direct computer access through on-line technology, made economical through the time-sharing method.

It has been argued that effective dispositional decisions concerning youth are only as good as the informational substrate upon which they are based. A predominant emphasis during the initial years of the project was placed upon a specification of the kinds of information concerning the developmental status of juvenile which should be gathered, the identification of the reportorial sources from which the information should be sought, and the formats within which the information should be collected.

It was decided that both comprehensive and detailed, selective information could not feasibly be collected within the same procedural steps; hence, a two-stage investigatory format was developed, one which called for a "band-width" approach as a first step scanning across all domains of the youngster's life-circumstances in an effort to identify those areas of his development which called for further inquiry; to be followed by a second step, emphasizing "band-fidelity," in which modular patterns of inquiry could be pursued in an effort to develop more detailed information into only those aspects of development in which it was judged to be needed. Thus, survey items of inquiry were developed for Level I intended to sample every facet of the youth's situation, viz., his physical, physiological, neurological, intellectual, emotional, social, educational, vocational development. Multiple sectors for detailed investigation within these various areas were relegated to Level II interview units. So

as to place the information concerning his present status within a developmental framework, items were constructed to provide data indicative of both historical antecedents to the youth's current activities, as well as goal-oriented consequences toward which the youth's activities seemed to be directed.

In order to avoid the error of focusing entirely upon the development of the youth per se, evidence concerning the situational contexts within which the youth might be functioning was sought by means of interview items about his home, family, neighborhood, school, and work settings as well. Finally, multiple data sources were sought, with information being solicited from youths, their families, school officials, teachers, and probation personnel themselves. Integration of this information from varied observers of the youth and his situation was provided by the characterization of each informational "bit" in simple, straight-forward, everyday terms; with an explicit eschewal of abstract, connotative terminology, and a search for information in specific, denotative language, with a corresponding avoidance of judgmental and inferential estimates on the part of youths and others. A deliberate effort was made to acquire information which would constitute direct observations by multiple persons on the one hand, and observations capable of being directly interrelated on the other. Selection of everyday terminology for all information placed the data-collection process within the range of pre-baccalaureate and baccalaureate personnel as well.

Computer programs require orderly and systematic informational inputs for processing, and thus constitute an inescapable stimulus for the development of standardized data collection formats, common descriptive terminology, and integrated and uniform data summarizations. For the CARES system, ten pre-coded, structured data-collection modules were developed by the project investigators in close consultation with experienced juvenile probation workers and judges in order to accomplish uniform, maximally objective, computer-compatible information with respect to each individual youth of concern. All told, the ten data collection modules, representing the initial level of information sur-

veying across the developmental status of the youth and his life-circumstance, offer more than 3500 structured response alternatives, and in addition several hundred options for the juvenile officer to enter important information in free-text form wherever the structured items prove insufficient. In spite of such comprehensive coverage, the entire array of information sought can be collected in less than one day. A detailed data collection training manual, an annual training workshop, and frequent consultation and trouble-shooting sessions with participating probation personnel, has assured the consistently high quality of collected information. Moreover, close collaborative relationships between University-based research and development staff, and practicing probation personnel, has resulted in continuing revisions not only in the data-collection procedures, but in other aspects of the system as well.

Transmission of the information from geographically dispersed probation departments to the centralized computer is accomplished by secretarial and clerical staff who operate the computer terminals. Effective performance was insured by means of a one-day workshop, the preparation of a brief but detailed manual for computer terminal operators, and continuing supervisory consultation by project staff. Since the CARES system was designed so as to obviate the learning of any kind of special computer language, terminal operators employ their own "natural" language and thus acquire the skills relatively quickly. A rapid-data entry system permits the transmission of all the information to the central computer in about 30 minutes time.

In the future, the entire process of data-collection and transmission may be accelerated even further by arranging for youths and others to interact with the computer directly; the feasibility of such procedures has already been demonstrated in the field of psychiatry, where patients have easily and successfully interacted with a computer in producing initial behavioral status reports (Stillman, Roth, Colby, and Rosenbaum, 1969). Advancements along such lines could lead to further easing of the manpower problems in juvenile probation work.

The processing of such an extensive array of information in item form would be prohibitive for the ordinary baccalaureate-level worker, and indeed would tax the integrative capacity of most professional personnel. Fortunately, the capacity of modern computers to process extraordinarily comprehensive amounts of information in a remarkably short time allows for the use of information collection procedures far more extensive than could have been contemplated as recently as a decade ago. The processing of the information is guided by the programs which the computer is instructed to pursue, and these in turn are governed by the informational outputs which are being sought.

It is the outputs, or products, of an informational system to which one's ultimate tests of utility become applied; it is the ordering of informational system to which one's ultimate tests of utility become applied; it is the ordering of information in useful form which is the purpose of the undertaking, and this objective becomes in turn the criterion in terms of which one evaluates its success. A virtue of the contemporary computer is its capacity to provide a varied array of outputs by means of alternate programs for the processing of information. The same informational input can be counted and combined in a variety of ways tailored to the needs of the individual user. Moreover, the most sophisticated professional expertise available for the analysis and interpretation of information pertaining to individual problems of development can be brought to bear in the development of such programs. In this fashion one can capitalize on scarce diagnostic and analytical skill, which is typically concentrated within metropolitan human services programs, and make it available in even the most remote and understaffed geographic regions. Finally, the computer can exercise far more complex analyses than are ordinarily accomplished by the professional worker on a day-by-day basis. In this way, significant relationships among data, which would escape the attention of the typical worker, can be quickly identified and incorporated into the evaluation.

The particular outputs of the CARES system were designed to capitalize upon this unique capability of modern computers and simultaneously to serve the operational needs of ongoing probation departments. Typically, CARES outputs can be received on the system's remote-access terminals within minutes of completion of the data entry process. Depending on the type of terminal used, all outputs can be received in the form of typed, file-ready, multiple copies. The first output of CARES is a "natural language" case summary, printed in free-text form, which supplies the probation worker with a concise descriptive summarization of available data about the youth of concern - the computer thus readily emulates the typical juvenile investigation report which probation workers ordinarily produce at considerable time, effort, and expense.

The second major output of the CARES system consists of a listing of developmental problems and problem areas identified in the course of the investigation, arranged in relation to likely referral resources (if any). This is an interim output at the present developmental stage of the system; ultimately it is intended that hierarchies of prescriptive recommendations, related to known treatment resources, will be presented in conjunction with the problem summary. In addition to the listing of problem areas, CARES incorporates a syndrome analytic process, although quite limited in scope at this time. This syndrome analysis process consists primarily of an automated matching process, in which the problems of any particular youth are compared with known problem clusters; in this fashion, the probation worker can be informed of the degree of correspondence between the youth in question and known syndromes of medical, psychiatric, or behavioral dysfunction.

In order to complement the problem summary and syndrome analytic outputs and to provide a more balanced and useful report, CARES also prepares a summary listing of the youth's behavioral competencies and situational advantages. Probation workers must eventually prepare disposition recommendations which must capitalize on the youth's capabilities and assets in addition to being pertinent to the youth's problems. Ultimate dispositions for the youth must be based on a thorough analysis of strengths and weaknesses alike.

It should be pointed out that outputs presently within the capability of the CARES system do not represent the maximal outputs of such a system. The elaboration and refinement of a complete and fully operational system is a long-term venture. In a sense, it may never be complete, since in principle it should be open to continuous improvement as more knowledge concerning the phenomenon becomes developed, and technological changes become introduced. Furthermore, a number of outputs presently planned have not yet become implemented. For example, the basic CARES input data is already sufficient for the establishment of an automated, on-line record-keeping and filing system for any juvenile probation or court system. The substantial savings in time, clerical costs associated with typing and filing, and space, as well as the attendant increase in overall efficiency should help to render a comprehensive computer-assisted system such as CARES cost-effective even for relatively small agencies.

CONCLUSION

To construct a full-service system that incorporates the major features of an "optimal" juvenile investigation, a decade of sustained effort is undoubtedly required. Such has been the experience of comparable projects in the medical field. To the author's knowledge, there exist no technical barriers to such an objective; complications of many other sorts are invariably operative, however. Sustained fiscal support is a necessary ingredient; overcoming the natural skepticism of experienced workers in the field who have seen many "schemes" come and go is another. However, the inherent prospect of service systems built around the capabilities of the on-line computer are sufficiently compelling that in time their utilization will likely become commonplace.

The prospect of developing comprehensive, computer-assisted information systems for any purposes raises justifiable apprehensions in a substantial number of individuals and organizations. The collection and storage of computerized information concerning people is of course no different in principle from the practice of developing traditional case files. Perhaps it is the fact that computers have the capacity for holding more information, more accurately than the individual case worker

or agency which has sensitized administrators and the public alike to the potentialities of misuse (Vondracek, Urban, and Parsonage, 1974b). A concerted effort needs to be made to educate such concerned citizenry that computers are in principle no different than other tools, such as typewriters, washing machines, and automobiles, with whose use they are already familiar and that the risks that are run and hence the regulatory controls which are needed, lie more in the persons who use them than in the tools themselves. It is the misuse of information which is the key source of concern, not the computerization of the information itself.

Of special concern along these lines is the issue of confidentiality of juvenile court records. A basic operating principle should be that such records remain accessible only to clearly designated personnel; thus, the question of information security and confidentiality is reducible to the task of safeguarding such information from unauthorized access. Again, computerized file systems are no different in this respect than any other system such as traditional case records and files. The first and foremost prerequisite to security and confidentiality is a set of strict access regulations, a system for their enforcement, and the selection of ethical individuals with a strong sense of professional integrity to work within the system. If that is accomplished, unauthorized access to confidential information will be an unlikely occurrence, particularly in view of the fact that such unauthorized access to computerized information requires much more extensive technical expertise and capital investment than any unauthorized entry into traditional filing systems.

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