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## From the Editor...

### Computers and Social Work Conference 1986

This year's conference was attended by over 100 people and was a great success. I would like to thank all of you who helped with the organisation, in presenting papers and for your contribution by attending. I was left with the strong impression that the informal exchange of information and debates were as important as the formal papers & workshops. Please do give us feedback on what your needs are to help us organise similar events in the future.

Future events will include workshops on a variety of topics, and of course the International Conference on Human Services is to be held in Birmingham during September 1986. We already have people from 16 countries on the planning committee and sponsorship from the Birmingham Polytechnic, Birmingham Convention Bureau and the British Tourist Authority. We will of course keep you informed of developments through CASW but if your organisation wishes to sponsor the event or you wish to contribute in some way then please drop me a line.

How do you like the new format? Please help us improve CASW still further by informing others of CASW and persuading them to subscribe, if you are a personal subscriber please ask your institution to subscribe - up to 50% discounts can be made for bulk purchases. (Some organisations have found this a useful aid in enabling their staff to be more aware during the introduction of computing systems).

### Contributing to CASW

CASW is interested in hearing from you about your experiences, your thoughts regarding the many issues raised by the use of computers in social work, etc. whether they are in the form of articles, software reviews or letters. Software reviews can be particularly useful, but please limit your reviews to between 200 and 300 words. If you are submitting articles or software reviews please send three copies of your contribution which should be typed and double spaced.

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**Stuart Toole**

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**ISSN No. 0267 1980**
Software Development in the U.S.A. Walter LaMendola, University of Denver

IN THE ARABIAN NIGHTS, there is a story concerning Aladdin and his magic lamp. Aladdin is led on by a cunning magician, who arms him with a candle and tells him to enter a series of underground chambers, grab whatever is at the end and bring it back. Aladdin descends to the underground and, after a series of adventures, finds a lamp. When he returns to the entryway, he discovers that his exit is blocked. Aladdin remains buried for three days until, after much prayer, he accidentally rubs the lamp, freeing himself and his magic. Aladdin cannot intuit what is inside the lamp -- the container is an effective barrier to the discovery of its contents. But the contents of the lamp are the source of his rebirth and resurrection. Through its magic, he gains material wealth. The manner in which he becomes wealthy is through the ability of the genie to exploit material resources in miraculous ways. For example, Aladdin wants a house. The genie builds the home in a matter of days. A window which the Sultan’s craftsmen struggle with over a few months is crafted by the genie overnight. Aladdin's search for meaning is the ideal of materialism. As he gains wealth, others value him more highly. He marries the Sultan’s daughter. When his dominance is complete, he becomes Sultan.

The Modern Aladdin

Consider the Aladdin of today. His resurrection is accomplished by melted sand. The silicon chip contains a photograph powered by the elemental form of electricity. The genie exists within the photograph, but the photograph does what it is a picture of. The genie is controlled by the image of what it is and what it must be. Unlike the genie of the lamp, the modern genie is both the container and the contained. In a magical electronic dance, how we know and what we know are joined. The personal, the sensible, and the conscious are valued by Aladdin in his search for meaning. The source of his rebirth and resurrection does not present him with material wealth. Instead, he is presented with possible knowledge, knowledge resolved into pattern and relationship. Each part of the world that he can now access somehow involves all other possible worlds. Each world is arbitrary and differs by implication. The window he can now craft overnight is a subtle mixture of matter and movement through which he can, like Alice moving through a looking glass, actualize his self. The new Aladdin's genie, unlike the devil of Faust, premises knowledge not upon unholiness and ultimate damnation, but upon communication, spirit, and globalism.

Today, electronics is a luxury Technology...
..In the third world it has been used as a tool of material exploitation

The story of Aladdin is, of course, a myth, but myth is a primary manner in which we develop meaning signification in our everyday life. What can we say about the everyday life in an information society? The information society is a paradox. Today, electronics is a luxury technology, afforded by the corporate and the rich. In the third world particularly, it has been used as a tool of material exploitation. It has reinforced patterns of poverty, disempowerment, inequalities, and social divisions. It has changed cultures and they have lost myths. The information age, if I might call it that so early in its history, is a chronicle of discovery and empire, of human failures and fraility, of the marvellous. Social work has had a role in that history. But, in retrospect it is a confusing one.

Social Work and the Information Age

When social workers in the United States initially encountered the information age, they rejected it. They rose against computing with vigor and challenge. The illusion of precision and promise it presented was easily exposed as shallow. The new age was, for social workers, without human values. In their opinion, its practitioners acted impersonally and used computing to dominate, disempower, and capitalise. This was largely true. Social workers were correct. The revolution they perceived was not one of participation, globalism, or social value. It was one in which business, industry, banking and commerce consolidated their grip in the most short sighted manner. Again, they were right. Unfortunately, social workers stopped there while the information age changed. Elements of the personal, the human, and the humanly evocative flourished. Corporate and governmental participants have used the tools of the information revolution to reinvent social justice. IBM, not first but most formidably, introduced the United States to personal computing. Social workers in America had, until that time, generally disdained the technical preparation and critical thinking required to influence information age history within the context of their professional, social, and ethical values. The mainstream social worker in the United States had disempowered herself once more. She had become a member of another minority. She was a third world stereotype, technologically dependent, impoverished of tools for local development, unable to communicate in shared languages, her practice tools confined to more primitive times. I would like to be able to say that in the
United States such a rendering is a stereotype. However, it will be some time until the stereotype can be disregarded. That I cannot reject this image speaks to the need for technology capability development within social work. The transfer of technology from other disciplines discourages the profession from building its own technological skills and contributing independently to technological innovation. Because technologies are not value or organisation free, imported technologies bring values and organisation with them. These values and organising principles become a part of the accepted reality among technologic dependents. It deprives them of their ability to generate ritual, myth, and tradition around the development of the tools of their culture. Imported organisational and value realities must be recognised in order to be accepted or disregarded. What we value, how we value, and how we organise to support and attain those values are essential pieces of cultural formation and personal freedom.

Creating the Social Work World Model

Like the myth of Aladdin, each world we build, each reality we perceive is arbitrary. The world which we build in social work includes a focus upon the individual and their transactions with the social environment. Our purpose, which distinguishes us from other professions, is an intention to support human coping and adaptation through values of participation, social justice, and humanism. This purpose and the world it represents has not been modelled or captured in any way for the information age. Yet it has much to contribute there. The manner in which such world models are captured by information technology is in what modern jargon has demeaned to term "software". Software is that set of human constructs which inform and direct devices of information technology, such as computers. Of particular interest to social workers is software oriented around the areas of database and artificial intelligence. It is here worlds which directly influence our social purpose are constructed. Software developers construct worlds. Worlds which we experience, consider, are enfolded by, and discover. Software development is the foundation and force upon which social work can build an ability to participate in information age world construction. Software development is slow, costly, subtle, and inexact. A software developer belongs to the guild of our age. She is engaged in a mystical, secretive, labor intensive activity producing custom made goods. The tools are magical, the language arcane, the results alchemous. Social work in the United States has few people in the guild. There are few for many reasons. They face difficult and serious problems.

Social Workers as Software Developers

The systems problem has already been mentioned in Third World terms. Human service computing has often been described in terms of potential and possibility, technique and procedure, but experiences are a history of difficulty, failure, and blame. The perception of computing as a solution to intractable human service problems, such as the determination of effective service delivery, continues to exacerbate the situation. The increasing withdrawal of the US Government from social work services is disruptive. In the end, it may help social work to leapfrog a number of developmental steps landing us squarely into the stage of end user computing -- a stage which supports decentralised service, technological independence, and participative decision making. But technology transfer, as I have described it, has deprived us of the opportunity to develop the systems framework necessary to support the landing -- few social workers know what end user computing is all about; there are few computer seasoned social service administrators; there a few computer-using social work practitioners; few social workers are software development craftsmen. Most social workers would use manual index card files if they were allowed to do so. They are unlikely to see an Information Centre approach mounted in social work as one possible solution to our social work information processing dilemmas.

..technologies are not value free, imported technologies bring values with them

We have an education problem. Our curriculums have failed to capture the notion that information technology is a technology both appropriate and critical to the core of our practice. Educationally, social workers must begin to understand that information technology has to do with everything we do with our clients - collecting, gathering, analysing, advising, referring, recommending, evaluating - whatever activity underlies social work practice is subject to information technology. It is also true that information technology has altered the social environment, the individual, and the transactions between both. As such it not only influences practice and its social purpose -- that which distinguishes us as a profession - but it has also influenced and altered human development, social justice, and ethical realisation. Until these fundamental conceptions become a part of the social work coursework, the field...
work, and, ultimately, the practitioner's reality, social workers will fail to refract contemporary practice issues through the lens of the age in which we live.

The Technology Gap

There is a technology gap. Computing has only recently begun to be able to deal with the problems of serving humans as humans. Cognition and knowledge are difficult issues with which the technology could not even begin to deal with until recently. Computing could not meet the needs of social workers because their work demands a more complex, more capable technology than that which presently exists. Even the ability to process text is a relatively recent phenomena. Such a seemingly benign development has farreaching implications. For example, in Japan, the complexity of the printed languages supported a culture around the human contract which is quite different than the one in the United States. When a Japanese contract is developed, it is done by all involved persons discussing everything that is intended and meant by the contract in face to face meetings. Only after agreement is reached in this manner is the contract reduced to text. The development of word processors capable of imaging the Japanese text before the human process of agreement is complete will surely have profound cultural implications. So it is in social work. Many of the new programs available to social workers will produce a written report based upon the input of a series of one word responses, or pre-specified choices, to a series of questions. This is to reduce the chore of paperwork. However, consider that the social work history, as a written work, conveys individual meaning, nuance, and purpose. Word selection, situation description, and use of language seems critical. In what manner can this be considered routine? If the social work history is one core of social work's present information technology, how will this be altered by automated report writers? Is it not true that the social work culture itself will be altered? Is there not an ethical choice implicit in the meaning that is conveyed by such reports?

The Applications Gap

There is an applications gap. Applications generally developed and available to researchers and administrators, insurances and airlines, manufacturers and accountants, do not fit neatly into social work. So called "generic software" is the first wave of non-social work developed software to begin to meet social work service needs. Although applications developed by social workers are of interest here, few social work pieces exist. However, hundreds of software applications for the human services exist. One need only to read the latest issue of the Computer Users In Social Services Network Newsletter which I edited to see the range of what is available to social workers. Generally, areas of routine decision making are subject to more rapid application development. For example, there is a gaggle of testing and assessment software available. These are, however, tangential to the conduct of social work.

Political Problems

There is a political problem. The politics of social work in the United States still insist that investment in computing is irrational, an event of conspicuous consumption, only to be justified by possible cost benefits or worker accountancy. Businesses who have invested in computing for these reasons could teach social workers that computers are not cost effective in monetary terms, neither do they function well as policemen. They supply instead the possibility of improved decision making and improved information taking, but only if they are implemented as a part of the political economy of the social work organisation. This means that they must be subject to the "goods and services" of the service transaction, the social work that is being done. They must be implemented as a risk of negotiating the environment, an environment bounded by the notions of organisational participants about service and needs. Social workers handle human information daily. Social workers understand the value of information and know that information value can be intangible but nonetheless real and necessary. In the United States, the political economy of the social services has worked to identify computing as an ethical issue. Of course, there are ethical issues in every choice of appropriate tools. But ethical issues have been used in this context to foreclose argumentation and forestall experimentation.

Organisational Problems

There is an organisational problem. Information technology, in order to be applied, must use organisational concepts, some of which will be discussed later in terms of software development. These organisational concepts do not fit with the practice wisdom, needs, skills, and social forms found in the social services. In this sense, information technology applications can create new problems without solving old ones. In weak organisations, it can dominate the development of the organisational format. For example, it may emphasize paper based qualifications and traditions, or it may denigrate certain worker skills.

Data Model Gap

There is a data model gap. The foundation of applying information technology successfully in an organisation is to build the data model, or construct the world I spoke of earlier,
on the logic in use in the organisation. The data model consists of all of the entries in the world of that organisation and the relationships between and among them. An entity is an idea, construct, or noun about which organisational members process information. By building this data model, and I am simplifying matters for the sake of example, the organisation begins to build information resources. The manner in which data model construction proceeds has been described as one in which the organisation does strategic planning, which leads to the specification of goals. It is from this process that a beginning model of the world is developed. In other words, the driving force in this approach is the goal establishment and direction provided at the highest levels of the organisation. I am critical of this model when applied to the human social services on a number of points. the typical social work organisation in the United States is not large, certainly not in the sense that corporations understand size. Those which are larger are usually governmental, and therefore may experience a different set of constraints than comparable business corporations because of the difference in sanction and lack of profit motive. Size, sanction, and motive are three critical differences which influence the manner in which strategic planning takes place.

The Social Work Organisation

The social work organisation has multiple constituencies which influence and, to some extent, determine its goal direction. For example, US governmental standards in services to the developmentally disabled continue to shape the organisational format in which such services take place. A number of years ago Dorothy Smith called the social work organisation a front line organisation. She meant that the workers were geographically dispersed and acted autonomously. She demonstrated that the workers held a great deal of organisational power. Today's organisational spokespersons would call social work organisations decentralised. The important decision making roles are held by the worker, not the administrator. In what manner do I mean this heretical statement?

The service function is the technical core of the social work organisation. The service function has been shaped and formed by social work practice. It is the social worker who makes the everyday decisions concerning the client, client progress, and agency service. If the purpose of the organisation, the reason for existence, is to provide service to the client, then a decentralised type of control structure is the predominant form of organisational goal movement.

The important decision making roles are held by the worker, not the administrator.

Information is the basic element in the exercise of effective control. The workers create a communication structure with differential access to messages and differential opportunities for initiating messages. There is usually no reference to administrative communication networks in worker decision making, so this structure may initiate policy as well as influence it. The worker will also have a great deal of autonomy.

All of these characteristics argue that the driving force for organisational goal setting and strategic planning may not be provided at the highest administrative level. It may be at the worker level; or, as is often the case, administration and the workers may be in conflict. For the purpose of information resource building, building a real data model on the basis of administrative directives or pre-specified organisational goals may be impossible in a social work organisation. Instead, it is probably a better strategy to build the world view upon the service transaction - the interchange between the worker and the client during which a service is produced. It is the function of the social work record to record that transaction. The record must reflect 1) the reasons for, substance, and consequences of the worker decisions and actions, 2) descriptions and assessments of the client, the environment, and the service transactions, 3) the knowledge, values, and ethics of the profession, and 4) the linkage of time order to practice documentation. The elements of that content have been summarised by Jill Kagel. She points out that the service function, as recorded in the record, is central to social work organisations. It is also the core ingredient of strategic planning. As worlds are constructed and evolve based upon the service function, the organisation must simultaneously 1) develop rules for system development which permit interchange of data between and among organisational members as well as clients, and 2) free users to employ their own initiative in creating the system they need. There must be a common data model and a common network path.

The Information Society Organisation

The dominant social work organisation in the US is an organisation very much like that which the futurists predict will be the bellweather organisation of the information society. For example, it produces information values not material values. It is characteristically an uneasy system of participatory democracy. The organisational
participants work with people, their problems, and citizen movements, which, in the information society, are the forces of social change. The social work organisation has supported and helped develop voluntary communities, for example, in the form of self-help groups. But more importantly, the organisational format of the bulk of American social work is termed voluntary, such as the United Way and their agencies. These types of organisations are described by Masuda as the basic organisational form of the information society. These are to be the primary human socio-economic group, not the enterprise or corporation. The most advanced stage of the information society is high mass knowledge creation. Social work organisations and practitioners work daily with problems of self-knowledge, awareness, and the human knowledge content of transactions between persons and their social environment. Finally, the information society ethic is globalism and social contribution. Only here is there a difference in primary goals, stemming from the differences inherent in the social work commitment to serve populations at risk. Social workers value globalism and social contribution, but within the context of social justice for all.

First steps in Software Development

World construction based upon the organisational situation I have described is the first step in software development. The purpose of the world model of the software developer is to describe the conceptual world of the user. In fact there is no field of knowledge which provides a discipline or guidelines for describing arbitrary parts of a world in terms meaningful to an arbitrary level of abstraction. The world model needs to represent the user's expertise, but, in the case of social work, the language of the social worker is not well defined. Social work is not an academic discipline. It consists of practice wisdom that has only slowly been formally organised. Social work experts are those who work in the field every day; they are experts as a result of their everyday labours. The language they speak and the ideas, concepts, and constructs that they deal with have not been thought through very carefully, and are often derived from many conflicting intellectual traditions. This is not to say that they are not complex, sophisticated, grounded and important.

Software... must encourage exploration and play to be successful

It makes world modelling a difficult chore. Yet this is the world model that must be written, for it will lead to a specification of software requirements. Once the requirements have been identified, one is already stepping away from social work practice. Once the software is written and becomes an internal representation of the social work world, in other words, exists within the machine, it is three steps from practice and more difficult to alter. In addition, the inherent representation interacts with humans and other software external to it in unpredictable ways, shaping and influencing actions. In the example I gave of the automated report writer, imagine the social worker who finds that the responses presented by the software do not fit with the verbage she would use to describe the client and the situation. She considers the difficulties of doing the job otherwise, then allows the internal representation to map her encounter. She has now permitted an imaginary encounter to be represented by the program, which will, in turn, be used as though it represented the real encounter. Such difficulties only compound the problems of a practitioner attempting to formulate their practice decisions based upon their own perceptions of an event. And what of the client? The client has possession of another perception of the encounter. Where will these perceptions transform each other? To whose benefit? Whose rights are primary?

Dick Schoech's Typology

In order to examine software development in social work Dick Schoech has proposed a beginning taxonomy in his work which I have adapted here. The taxonomy delineates five areas of development: 1) policy/planning, 2) agency management, 3) direct service, 4) education and training, and 5) client based. In policy and planning software there appear to be four areas to be highlighted: fundraising, project management, project planning, and demographic or marketing software. In the area of agency management, there is financial management software and accountability reporting software. In direct service, there is software which is directed toward enabling the worker to manage their resources - time, service events, networking. These include information gathering and record keeping, scheduling and service monitoring, and networking. There is software which is directed toward assisting the worker in the conduct of her practice. This includes advocacy, group decision making, testing, interviewing, information and referral, assessment, consultation, and treatment. In the area of education and training, there is computer assisted and computer managed instruction. In the area of client based software, there is software directed toward self-help, training, insight, treatment, and information.
Such a taxonomy is extremely useful, but I would like to approach software development through a consideration of what I consider to be the three primary software design principles. The first is abstraction. Abstraction has been discussed earlier in terms of world construction. Abstraction denotes the activity of creating a representation of a complex reality which retains all of the relevant and relational properties of a perceived reality, yet simplifies it. In software development one must consider other abstractions as well, for example, the software program, and the computer. Appropriate abstraction aids understandability and reusability of the software. The second design principle has been termed encapsulation. Encapsulation requires that only the functional capabilities of the software are known to the user of the design. It implies that the design can be considered to be just a collection of independent units. It also implies a third design principle, modularity. Modular software is organised into separate parts, each of which has a set of capabilities which are encapsulated. These Three design principles support the usefulness, reliability, modifiability, and economy of the resultant software. I shall demonstrate these design principles in action today by looking at examples of social work software. In doing so, I will emphasise three issues: 1) presentation to the user, 2) the world map; and 3) play.

Types of software

Presentation to the user involves the intentionality of the author. If Brooks typology is used from The Mythical Man Month, four types of programs are possible. The first is the program written for the use of the author only, called a fundamental program. The second is called the program product. It is designed for others' use and is both maintained and documented. The third type is the programming system, which is a set of fundamental programs to do specific functions. The fourth type is the programming system product, which is a programming system with human and user interfaces. As one moves up the types, the cost of development becomes extraordinary. Brooks typology is very useful. It not only tells us what cost may be associated with which effort. It also tells us that the intentionality of the author must be openly expressed. For example, if one were to purchase a piece of software to do project management, the expectation may be that the software is intended to be a programming system product. Imagine the anger and disconcertment if the software is a fundamental program. The second issue is that of the world map. A part of the demonstration today is to trace how mapping from data flow or data structure determines software content. The example of a volunteer registry system is one that most social workers have experienced. The final issue is that of play. For a tool to be of any significance, it must encourage play. Play is fundamental to engagement. People who cannot experience play with their tools are alienated. Software must be evocative. It must encourage exploration and play to be successful.

Perceptions of the future

The myth of Aladdin can contribute much to our perception of the future. Aladdin's projection was of a world where the physical and the material were key ingredients of meaningful life. We face a world where the physical and the material are a necessary foundation upon which meaningful life can be possible, but meaning is to be derived from knowledge and knowledge creation. In my opinion, meaning and meaning signification in the information age cannot be reduced, as it has by many futurists, to intellect intensiveness or knowledge creation. These notions are only a part of the whole. Contemporary information age writers have not openly taken a holistic vision, but such a vision is required. The concept of intellect intensiveness must include our totality, that which is manifest and that which is implicated. It must include the irrational as well as the rational. It must include feeling, emotion, spirit and myth. By dealing with the interaction of people with their environment, social work software development is of critical importance to contemporary thinkers. On a philosophic level, it can be argued that examining the interaction between humans and their environment is the basis for understanding the nature of the universe. Of course, social workers have more limited goals, just as Aladdin did. They are able to work on a practical level because what they do works well enough to satisfy them. Nevertheless social workers must entertain a deep, unrelenting concern that the construction of their world represents an approximation of their beliefs, values, traditions, myths, and spirit. Rilke turns us to the same conclusion in Das Stundenbuch when he writes:

I live a life in growing orbits which move out over the things of the world.
Perhaps I can never achieve the last, but that will be my attempt.

I am circling around God, around the ancient tower, and I have been circling for a thousand years, and I still don't know if I am a falcon, or a storm, or a great song.

Walter La Mendola is Director of Information Technology at the Graduate School of Social Work, University of Denver.
We have as many software applications as you have departments.

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We should be talking to each other.
Attention all Macintosh owners!

Whilst I was attending the very stimulating CASW conference in Birmingham this Easter I became involved in conversations with several people who were using, or who were preparing to acquire Macintosh computers. Apple Inc., through the dealer network, support MacUser groups which I have found to be incredibly helpful when trying out new software, or experimenting with a piece of hardware. Members have become a real learning resource in terms of helping the newly converted and old hands to overcome problems and identify short cuts with bits of software.

It crossed my mind that there may be some enthusiasm for starting a MacUsers in Social Work group. There is no doubt that the Mac (in its various forms) is so versatile and user friendly that a whole range of functions could be performed. Aiding clients to assess themselves, keeping data-base information to help with the evaluation of services, managing files and preparing reports are only some of its possible uses. I am hopeful that social work users might well have generated a whole range of applications which they would be prepared to share, or at least talk about.

If there is any interest in this suggestion, drop me a line or send a disc (which I will return!) identifying what you would want from such a group and we can see if there is anything to be gained by forming a MacUsers in Social Work group.

Contact Ian Chapman, at Dorset Institute of Higher Education, Dept. of Nursing and Social Service, Wallisdown, POOLE, Dorset, BH12 5BB.

Wanted!
your reaction to computerisation

Dear CASW,

I am currently studying for a Research Degree at Lancaster University with Professor Tutt. Computer Application is an important part of the course.

At present, I am particularly interested in social work reaction to Computer Application. I am interested in receiving any literature on the subject and would be pleased to forward any remittance and postage costs that may be incurred. I would be grateful for any assistance that CASW readers may be able to give me.

David Smith, Social Worker.
Lancashire County Council,
District Team Offices, South
King Street,
Blackpool, FY1 4TR.

Canadian contacts wanted

Dear CASW,

I was interested to receive information about CASW and details of the international conference which was held during March this year. It was very heartening to hear that an organisation such as yours exists.

After enquiring through a number of professional organisations, it appears that there is not an equivalent association to CASW here in Canada. If, however, such an assumption is false, I would be grateful if CASW readers could inform me of any contact person with whom I could make contact.

Benoit Dupois
Teaching Master, St. Lawrence College, Saint-Laurent, Windmill Point, Cornwall, Ontario, CANADA, K6H 4Z1.

Using computers to allocate student placements

Dear CASW,

I teach social work on the four year degree course with Professional Studies at North East London Polytechnic. I have recently acquired an Osbornel computer which I am still coming to grips with!

At present I am attempting to computerise the allocation of student placements in London. Do any readers have any information or ideas which would help me with this daunting task?

I would be most grateful for any help received.

Cordelia Grimwood
12 Howitt Road, London.
NW3 4AL. TEL (work): 01 590 7722 ext. 5025.

Don't Forget

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Managing the Social Services Computer System
Some Problems and Pitfalls - Bryan Glastonbury

Introduction
Computing in social services departments has almost as long a history as the departments themselves. Just a few inherited computer plans in 1971, but many more started up shortly afterwards, driven as much as anything by the urge to make some kind of cohesive sense out of the diversity of manual information systems operated by children's, welfare and the other departments which merged into social services. Local government reorganisation in 1974 gave another boost to new technology, specifically in those departments faced with mergers and increased size. It has been a matter of observation that social services departments have slowly but surely made good use of the potential of computers, confirmed by the first LAMSAC survey (1982), yet senior managers have been remarkably reticent on the subject. Admittedly there has not been a great volume of literature or public utterance on the subject, but the paucity of comment from the directorate has been striking.

There is nothing suspicious behind the silence. In the majority of instances senior staff were simply keeping quiet in acknowledgement of their own ignorance. Even now it is easy to find administrators who back away from computing, claiming to know nothing about it. Some have perhaps been as fearful as their field staff; others, one suspects, have found it convenient to cultivate the role of computing simpleton as a veneer to a developing acuteness. It took time to pick up the jargon, and avoid looking foolish at meetings where computing was discussed. More importantly, it needed both time and a wider experience of computer applications, before managers were able to reflect with authority on the role computers could play in agency management and service provision.

The process is a continuing one, but after a decade or more of computing experience, there are growing signs of the integration of new technology into the whole system of service management. There are also signs that some of the senior managers now have the knowledge base and the confidence to give their views on how computing has worked, and challenge the dominance of computer specialists. In a recent article (Lingham, 1986) the Director of Social Services for Cornwall offers a number of highly pertinent reflections on the teething troubles of computerisation, perhaps most tellingly reminding service chiefs that introducing computers will both perpetuate existing bad management practices and give an opportunity for new ones to develop.

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Computer Developments in Social Services
As a prologue to answering that question it might be useful to describe and define what sort of computer developments are being prepared for social services departments. As Richard Lingham pointed out, the early phase was one of slotting into some spare capacity on a mainframe computer, but with an involvement that was 'respectful and distant'. What emerged from that experience was both an appreciation of the value of computers and a determination that future developments would be more closely geared to the needs of social services and more closely under their direct control. The advent of the micro-computer has coincided with a growing wish to have a social services computer policy, rather than a local authority policy which accommodates social services on a grace and favour basis. Technological progress has made this feasible. The size of systems is now almost infinitely variable, so can be scaled to the needs of each department. Communications within systems have been expanded from the limitations of dumb terminals linked by the umbilical cord to the mother mainframe, to wide ranging scope for networking. Micro-computers can double as self-contained machines for individuals or local offices and terminals to headquarters. Much more useful software is available, and even if specialist programmers are not employed in social services departments, there is growing evidence of enough expertise to make use of 'off the shelf' generic programs. The increasing ability to apply expert systems and expert system shells will also offer useful opportunities.

What then are the pitfalls? From the very beginning a number of themes have been highlighted in publications (reviewed in Glastonbury, 1985), based less on actual experience than on fears...
of what might happen. What will the impact be on confidentiality? Doesn't the computer dehumanise services, and force each unique client into the straight jacket of standardisation? Will jobs be lost? Will computers be used to control rather than enable service provision? Will computer information systems generate extra work for field staff, who will get little benefit in return?

Wider issues

With the benefit of hindsight these questions have not gone away, but neither have they been answered in ways which impinge exclusively on social service departments. Confidentiality is now accepted as part of the wider issue of data protection, demanding broad political responses, and leaving social services managers the less difficult task of maintaining a reasonable code of conduct for the use of computer files. The problem of standardising client files, and possibly dehumanising the approach to customers, has been shelved, partly by allowing computerised and traditional manual records systems to run side by side, and partly by keeping computers primarily in the managerial orbit rather than as part of the service-giving process. By the time computer use is extended to the task. The threat to jobs remains a major national issue, but social services are on the side-lines, and it has been impossible to separate the impact of new technology on employment from the effects of recession.

The tendency of social services departments to shuffle rather slowly into computing over the last decade has dampened other fears. If computerised Big Brother manager and Robot social worker are ever to arrive, they still seem as far away as they were a decade ago. Troubles have not come as thick and fast as were expected, because computer development can now be seen as a more organic and gentle process. Nevertheless some issues remain, particularly surrounding the potential of the computer for close managerial control is reconciled with the professional social worker's need for flexibility and autonomy. And other problems have emerged. One concerns computer take-off, and the tasks involved in transition to a computerised system. Another involves inaccuracy and the the subsequent risk of data contamination. A third has to do with the cost of extending computer systems beyond service headquarters.

Computer take-off

Most social services departments have by now experienced the two most common problems of introducing computers, even if only a small part of the overall administrative system is being computerised. One is the realisation that the administrative system itself has, at the very least, to be changed and tidied up, and may have to be substantially altered as a pre requisite of computerising. A computer system is structured, standardised and explicit. Preparing for it will expose existing inconsistencies, informal procedures, sloppy categorisation, and so forth. The second is the existence of a major obstacle to take-off, in the form of the workload for setting up the computer system (like entering all client files), which has to be done before staff can be redeployed from running the previous manual system. Failure to budget for this has led to computer systems coming in bit by bit, with frustration and scepticism all round.

These are the immediately obvious problems of 'take-off', reflecting the difficulty of answering two fundamental but practical questions. One is 'What is to be fed into the computer?' Take, for example, much the most common application, the management information system. In this case the answer is likely to be, amongst others, client data. But who is a client? Is the client an individual, or can it be a family or a group? Is the client someone who has come seeking help, or, for managerial purposes, is a client someone who appears on the caseload of a member of staff (remembering that the latter may include, for instance, foster parents and others who need resources, but are not seeking assistance)? Is someone who asked for help, but been refused or put on a waiting list, nevertheless a client? Once it has been agreed exactly who is a client, what information will be put on the computer about each of them? The list of supplementary questions is almost endless, and, of course, wholly familiar. Every time an individual social worker receives a new referral, or a team reviews its workload, such questions are posed. The point about computerising is that it denies the comfortable habit of allowing each team or office or division to do its own thing, and forces clear and precise answers which must stand for the whole agency. The process of deciding which of the variety of existing practices to accept, if any, is complex, fraught, time-consuming and unpopular. Some of the odium which attaches to concepts like 'standardisation' and 'centralisation' originates from computer-provoked efforts to give the agency a common set of working definitions and practices.

Setting up the system

The second question is 'Who will set up the computer system?' The practical answer to this, in the experience of many social services departments, has not been altogether satisfactory. On one level the agencies have often been forced to depend, for hardware and software installation, on staff from a specialist computer services group. Inevitably such groups have been knowledgeable in
their major activities, commonly various forms of accountancy, but not in the idiosyncracies of social services clients or staff. On another level, the agency's own trusted clerical staff could often not be freed from their work of maintaining the manual administrative system, so the job of keying in vast sets of client and resource files has again gone to people who lacked a social services knowledge base. In essence the experience of many social services departments was that they had to depend, more than they would have wished, on getting the computer system set up by staff who had no depth or continuity of involvement in the department's general functioning. One result was a degree of distrust of the viability of computer 'take-off'. Another was a proneness to inaccuracy, which will be looked at next.

Garbage in the system

The GIGO relationship may well now be widely understood, but it is too simplistic for the purposes of social services information systems. It implies that a false entry to the computer (garbage in) will lead directly to nonsensical output (garbage out). Part of this is useful, in the reminder that data entry is the origin of inaccuracy, which the computer is normally unable to query or correct. But there are some difficulties. What, for example, is a false entry? If a client is aged 21 and the keyboard operator types in 65, there are no doubts. If the client has to cope with very stressful circumstances, leading to a few visits to a psychiatric out-patient clinic, how accurate is an entry which ticks the column marked 'mental illness'? Keyboard errors are a nuisance, and very likely to occur when large information systems are being set up in a hurry; but false or dubious categorisation is more insidious. Furthermore, the 'garbage out' may not be at all obvious (in the sense of provoking clearly silly output), and may become embedded in the files, with risks of wider dissemination (Glastonbury, 1985; George, 1977).

Another feature of both client and resource files which makes them open to error is their potential for change - reflected either as a turnover of files, or as new developments within a case. Social work offices are full of jokes about the computer system being cluttered with dead clients! The task of keeping the system up to date is a daunting one, depending as it does on a continual flow of current information. How topical should the files be? Clearly if they are resource files designed to keep the user in touch, for example, with the latest vacancies in the residential sector, they must be very up to date. But what is reasonable when there is no built-in need for immediacy? It is arguable that computer systems get criticised for inaccuracy because expectations are unreasonably high. Looking, for a moment, at manual client files, it is not uncommon to find them several months out of date, with some entries in illegible hand-writing, and some data missed out altogether. We have come to expect them to be difficult to review, and not particularly reliable; but for some reason we have also come to expect computer files to be almost perfect. In reality, computerised client files are full of mistakes, but are nevertheless a lot more accurate than manual ones.

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First stages

As has been well documented (an early instance is Derbyshire 1974), the first stage often involved renting some of the spare capacity of an existing mainframe, at an artificial cost which generally excluded any part of the original capital expenditure. Later stages have forced social services departments into direct equipment purchases, from a base line of, for example, three or four terminals at headquarters, through a small mainframe and a dozen or so further terminals to serve outlying offices, to an additional cluster of micros for headquarters and area team use. As well as equipment costs, considerable expenditure is needed for networking, training and servicing. Most social
services departments will now be finding that computing (including word processors) costs more than all other

Are departments taking best advantage of the fall in equipment prices? There has to be some doubt about this given the very strong foothold of the high-price computer manufacturers. Hampshire, for example has just equipped area offices with IBM ATs, at a price which (even after heavy discounting) would have bought two or three times as many AT compatibles. One problem, which can cause frustration and powerlessness in social services, is the continuing control exercised by the computer services group over all aspects of computing. In many local authorities the social services department is still not able to make its own expenditure decisions with regard to computer hardware, being restricted to whatever range is permitted by computer services. In the early days of computing it made sense to have a separate specialist services group. Suitable staff were scarce and could best be pooled. Most of us knew nothing about computers, and depended on experts for everything. But times have changed. The computer is a much more integrated part of our common knowledge base. Social services departments, like many other agencies, have their own ‘in-house’ staff, able to make sensible purchasing decisions in accordance with the needs of the service. Could it be that computer service groups are aware of this demystification of their expertise, and are struggling by all available means to hold on to power? We cannot be far from the point where having a separate computer services group will sound as silly as an independent department of typing.

Computers and good management

This paper has tried to focus upon some of the difficulties to be faced in implementing a policy of computerisation, under the stimulus of some reflections from Cornwall’s Director of Social Services. He suggested that while computers make a valuable contribution, they can perpetuate and promote bad management practices, if not used properly. Of course this begs the question of what constitutes good or bad management, but it is helpful to work from the simplistic statement that a good management is that which leads to an effective service. Continuing the simplification, an effective service is one which implements policies and statutes on a sound value-for-money basis; it is aware of the conditions of the local population, and responds with a ‘needs led’ provision. Does computing help or hinder this? There is no definitive answer, but from the USA, where the process is further underway, the omens are not good. A study of over 500 local authorities (Kraemer and Kling, 1985) concluded that computing investments appear to be orientated toward governmental efficiency and enhancing the choices of top-level administrators, rather than toward direct service delivery and increasing the choices of citizens (p.77). What are the British prospects of treading a different path?

We cannot be far from the point where having a separate computer services group will sound as silly as an independent department of typing.

References:


LAMSAC (1982): Survey of Local Authority Social Services Computer Applications


Bryan Glastonbury is Reader in Applied Social Studies, at the University of Southampton.

Computer Training for Social Workers?

Take a look at Birmingham Poly's 'Pick-Up' Programme
See page 15
Help us with this exciting experiment

Compulink of Guildford who run an IBM user board using a system known as 'Fido Net' have offered CASW an area on their board. Programmes of interest to CASW subscribers, text files, etc. can be stored and retrieved by CASW subscribers. In addition messages may be left for individuals or for all to read and replies can be left on the system linked to the original message.

What is FIDO?

FIDO is an electronic Bulletin Board which runs on IBM & MSDOS machines written by a team in the USA headed by Tom Jennings. FIDO is 'Freeware', i.e. it is free of charge to those who only charge for the calls etc. and are not running the system for profit. Unlike most bulletin boards FIDO is capable of networking with other FIDO boards at night and exchanging messages across the country and all over the world. As FIDO compresses files into discrete packages for each country, electronic mail becomes very cheap, as several messages can be transferred for the cost of a single three minute phone call. FIDO is the only network challenging the monopoly of the multinationals; there are over 800 boards in operation worldwide, each used by hundreds of individuals.

What equipment do I need to access the system?

Any computer with a modem which uses 300, 1200/1200, 1200/75, baud connected to the public service telephone network (an ordinary 'phone line with one of the new plugs). You do not need an IBM to contact FIDO boards - only to run one yourself. The computer must also have a terminal emulation or communications programme (usually supplied with the modem). (Editor's Note - I have had no difficulty in using the system on 300/300 but with my set up I have had problems with the 1200/75.)

How much does it cost?

For an experimental period there will be no charge but if you use COMPULINK's facilities regularly the charge is £10 per annum. If you wish to use the intercontinental electronic mail facilities you will also have to pay for these (at a fraction of the usual commercial rates).

What is the Telephone Number?

0483 573337(8) (Modem connection)
For those of you who are conversant with electronic bulletin boards and who wish to use FIDO, the following information should give you an idea of how the board is structured.

**Introduction**

The *FIDO* Bulletin Board system is a copywrited public domain telecommunications package whose development was begun by Tom Jennings in 1983. *FidoNet*, which is the core of *FIDO*, allows unattended mail transfer between "Nodes" during night hours when long distance calls are cheapest. A node, in this case, is another *FIDO* B.B.S that is interlinked through *FidoNet*; *FidoNet* is the electronic mail portion of *FIDO*. Since *FidoNet* uses the TELELINK file transfer protocol, text, or binary, files may be transferred with that message. Also, messages (and files) may be sent to one, some, or all nodes without having to re-enter the message for individual nodes. Charges for *FidoNet* mail depend on the local System Operator's (the Sysop's), preference. *FIDO* now runs exclusively on MS/PC DOS machines.

**FIDO Sub-Sections**

To the users, *FIDO* has 3 sub-sections.

1. User information & systems maintenance.
2. Message system to list, read delete, post & reply to messages. Up to 99 separate message areas are possible.
3. File system to upload and download text and public domain programs. Up to 99 file areas are possible.

The following menus help explain *FIDO*. Help can usually be obtained by pressing the "?".

**Technical Details**

**New Users**

Since each node operates independently, new users may not see or use all the menu options, for example, they may not be able to change file or message areas or send long distance mail until they are properly registered with the local Sysop.

The nice thing about *FIDO* is that it is usually a local call and therefore you can learn to use it at cheap local rates (free in the US! - Ed). A more complete manual and updated node list can be downloaded from one of the files section.

**Important - Electronic Mail**

Remember, to send mail, you must know a person's node and how *FidoNet* knows them, e.g., to check for mail *FIDO* matches on first and last name.

Please let us know how you get on.

If you have any problems please phone Stuart Toole at CASW (tel no. page 1)
International Round-Up

Another journal has started up in the USA. Called 'Computers and the Social Sciences', it is published by Paradigm Press, Inc., of Osprey, Florida, and edited by Ronald E. Anderson of the University of Minnesota. The four issues of Volume 1 are mainly given over to a review of the social impact of computers, and the first two are already available. 'Social' is defined broadly enough to include political and organisational subjects, and the resulting mix offers something for everyone. Number 2, for example, reports on empirical studies of the use of computers in service agencies, and the discrimination against women and minorities in micro-computer advertising.

Meanwhile Computers in Human Services' has reached Vol.1, No.3 (Haworth Press). This latest issue is of particular interest to those using or wishing to use computers in health-based settings. Indeed, the groups of workers included in the American definition of the 'human services' link social workers with psychologists, psychiatrists and other clinicians, so there is always likely to be material of interest to medical and medical health social workers, as well as child guidance staff. This is a useful journal for the libraries of hospital social work teams who can take pleasure from the fact that, for a change, area teams do not hog the coverage.

The third offering from the USA is the latest issue of the 'Human Services Software Directory' from the Computer Use in Social Services Network (CUSS). Co-ordinated by Walter La Mendola from the University of Denver, this is now a substantial document cataloging a wide range of software.

Prof. Dr. Ursula Koch from the School of Social Work at Emden has sent notes on who is involved with social work computing in Germany. As well as Emden she mentions Berlin, Hamburg, Hagen, Frankfurt, Reutlingen and (across the Swiss border) Bern. The information and addresses she has sent are held by Stuart Toole.

Longman has announced a new book for mid 1986. It is 'Social Welfare and Computers' by N.J. Smith who is Director of the Human Resource Centre at La Trobe University, Melbourne, Australia. British readers may recall his article (with Parmar and Paget) on 'Computer Simulation and Social Work Education' in the British Journal of Social Work a few years ago (Vol.10, No.4).

Bryan Glastonbury

Are you Interested in Educating/Training Social Workers in Computers and New Technology?

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If you are employed in the LEA FE sector, this qualifies you for both reimbursement of course fees and for VT provision to cover your teaching from the 'pool'.

Facilities Provided:

Each student will have the use of the following hardware/software:

- an IPM PC (one per student),
- Framework 2 (software),
- DBASE 3 (software),
- Authorising Languages,
- CAL Packages
- Direct Use with Client' software.

For further details please contact:

Stuart Toole
City of Birmingham Polytechnic
Dept. of Sociology & Applied Social Studies.
Perry Barr
Birmingham B42 2SU
United Kingdom
Protection of Privacy and Ethical Dilemmas in Computer Aided Social Work

Summary

At the 1986 Computers and Social Work Conference Elis Envall and Paul Dolan led a discussion of some of the ethical issues arising from data protection, particularly responding to concerns about subject access. This was preceded by an outline of data protection legislation in Sweden and in the UK, together with some illustrative issues raising ethical concerns.

Elis Envall is Research Secretary for SSR, the Swedish Union of Social Workers, Personnel and Public Administrators, and worked for some years as a family therapist in a Social Welfare Office of a municipality near Stockholm. Paul Dolan is Chair of BASW's Data Protection Advisory Panel, and visited Sweden in 1985 to study practice in respect of open access policies.

Sweden's Data Protection Board

Sweden's Data Inspection Board was set up in the early 1970's, and the original Data Act was amended in 1982. Notwithstanding Sweden's tradition of open government, protection of the privacy of individuals is strictly enforced. The Data Act provides from the position that all personal files represent a degree of encroachment on privacy; the aim is to protect the integrity of the data recorded, and prevent the linking of data from different sources.

Ethical Dilemmas

Two recent examples raising ethical dilemmas and issues had occurred in Sweden.

In the first case, an industrial company wanted to monitor the telephone calls of its employees, using a computer to relate the call numbers to other information held on the employees' personal files. This was vetoed by the Data Inspection Board.

In the second case a longitudinal sociological study of the lives of Swedish people (the "Metropolit" Project) had been linking for some years official personal data on subjects without the knowledge or consent of the subjects themselves. There was a major public controversy, resolved by the requirement to seek consent being imposed on the academic researchers - and the effective cessation of the project.

Employment Implications

Elis Envall saw these cases as illustrating a theme that was also relevant to social workers the temptation to take short cuts when the technical means to do so exist. For example, there might be an inclination to maintain "sophisticated" at risk registers, instead of recruiting enough social workers to work with the people concerned.

Data Protection in the UK

In the UK, according to Paul Dolan, it still remained to be seen whether more than lip-service would be paid to the protection of personal privacy. The legislation in the UK was called the Data Protection Act, and privacy was not mentioned once. There are also some doubts as to whether the Act complied with the European Convention - though ultimately this will have to be tested in the European Court of Justice.

Social work was a particular concern of the Data Protection Registrar despite its special treatment in the Act. So the guidance for social workers is having to come from LAMSAC, whose Ethics and Security sub-group is preparing a Code of Practice for social service computer users.

Access for data subjects

It appears likely that there will be very few exemptions from subject access to personal data, probably only on the grounds that access might harm the physical or mental health of the data subject (in addition to standard protection for the privacy of third parties). Thus the DHSS's thinking has moved towards greater readiness to support the idea of access to data recorded by social services' staff since its 1983 Circular - which endorsed "Protecting social services staffs' professional judgement" as a legitimate reason to deny access.

Conclusions

In both Sweden and the UK, subject access to information recorded manually has effectively followed rights of access to computerised information. Access provisions have had an impact on what tends to be recorded in respect of fact and opinion, although private and secret records continue to have a shadowy existence despite being notionally prohibited. The legislation in both countries has only sharpened, not eliminated, the ethical dilemmas.

Editor's Note:

If you, or your organisation use computers to process information about individuals for business or professional purposes you may have to register with the Data Protection Registrar (under the Data Protection Act 1984).

Registration should have been made by 11th May 1986, although allowances should be made for latecomers. If you have any queries contact the Data Protection Registrar on 0625 53777.
UNEMPLOYMENT MATTERS...

For Willie More and Andrew Howell, unemployment certainly matters... During the last six years in their work alongside the unemployed, they have seen unemployment change from being a temporary problem for individuals and families to what it is now - mass, chronic, long-term unemployment.

“This change has deep significance for us all”, says Willie More. It has become the context in which all caring practitioners do their jobs - social workers, health visitors, advice workers, probation officers - none of them can escape the reality and the effects of their clients’ long-term unemployment’.

But what can caring professionals do about it? “We can’t create 4 million jobs overnight”, says Andrew, “but we can, all of us, extend our repertoire of skills so that we can offer real help and support for our clients whose long-term unemployment is something that they have to live with daily”.

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The Social Making and Unmaking of Mothers by Alexandra Menezes Cunningham

A thorough exploration of the issues surrounding teenage pregnancy. The social work task is described in most practical terms and the options open to a young girl, abortion, adoption, keeping the baby, sterilisation, etc., are realistically discussed. Excessively referenced.

123 pages £4.00 including post and packing.
Expert Systems and their Implications for Social Workers  
Stuart Toole and Mike Winfield

Abstract

Expert systems have been applied to many different fields for a number of years but have only recently been applied, albeit tentatively, to the field of social work and allied services. This paper is based on the findings of the Expert Systems Group at Birmingham Polytechnic, who have undertaken a number of pilot investigations in the application of expert systems to social work (see Winfield and Toole (1)).

Specifically, work has been undertaken on developing an expert system for the management of enuresis and in evaluating a variety of expert system shells. We aim to discuss some of the potential of expert systems in their application to social work practice and also the implications they may have on social work in general.

Implications for the Professional Adviser

For the purpose of this paper, the professional adviser/expert is the social work specialist (eg. adoption officer, group work adviser, etc.) who works together with the computer expert to create the expert system knowledge base.

One of the first obvious benefits of engaging in the development of an expert system is the challenge it makes on a person's basic assumptions about the knowledge which they are trying to incorporate into the system. This helps to clarify the thinking process and is one of the most valuable spin-off benefits apart from the actual production system which the process develops.

One aspect which is often underestimated is the amount of time and effort which has to be invested in the development process. Initial rewards appear slowly at the start, since it is very difficult to get rules produced and into a machine which work and represent the real world as it is seen from the social worker's perspective. It is vital to use a domain expert who is highly skilled in the domain being considered and who is both motivated and articulate. The expert should be capable of finding good solutions to difficult problems especially when it comes to testing the system. Waterman (2) gives a good discussion of these points.

When the expert system is built .. advantages quickly accrue to both the organisation and to individual workers

From the work we have undertaken, we believe strongly that it would be very difficult if not impossible to undertake the development of a social work system by solely involving social workers. There are a number of reasons for this. Firstly, working with people from another discipline is extremely productive in terms of challenging what it is that is exactly meant. We found that on many occasions the social worker was challenged more effectively by the computer professionals and similarly the computer implications were often successfully challenged by the social work professionals. A person is required, who is extremely skilled at developing computer expert systems together with experts who are extremely skilled in the area of that social work practice on which the system is to advise. It is very unlikely that one person would have all the necessary skills. Therefore, it becomes necessary to build a truly inter-disciplinary team. The process of team building requires some effort in itself and social work practice in terms of group work theory can assist in this process. At the beginning, communication may be very difficult as roles, etc. are sorted out between team members.

Advantages

When the expert system is built, and successfully operating in the Department, a number of advantages quickly accrue both to the organisation and to individual workers. These include:

1) A reduction in the number of trivial calls to an expert in that particular field, freeing the expert to spend more time and hence concentrate upon detailed and complex problems.

2) Experts cannot unfortunately be in more than one place at a time although that demand is often made of them. Nor can the expert be expected to be available twenty four hours per day, seven days per week. However, an expert system can cope with these difficulties.

Building efficient systems

If an expert system is to be effective, it must contain a considerable amount of knowledge. It is not too difficult to get a system up and running which looks at first hand to be quite effective and yet contains very shallow knowledge. Such a system could be potentially very dangerous indeed, as the system could be assumed by the user to have more power and authority than it had in reality.

As Goodall (3) acknowledges, knowledge engineering is a difficult
Expert Systems and Social Workers Cont.

process because of the gap between an expert's ability to solve a problem and his ability to explain how he solved it.

Threats to experts

A number of interesting points are sometimes raised by the experts who are giving their expertise; some of these are listed below. If expert systems were applied across the board, could they be a threat to the job of the social work specialist who is helping to create them? Could they present a threat to the expert by demonstrating that the knowledge in certain instances may be quite shallow and not as in-depth as is presented by people who hold positions of power in departments? These are crucial issues which need to be grasped before embarking upon any system development.

Implications for the Social Work User

An expert system would always be available to the social worker immediately, at any time of day or night, and several copies could be available throughout the department. An expert system could be used by a person conversant with the subject, who is in a crisis situation, for checking that every point has been considered. If updated regularly, as it should be, it could prompt the social worker on perhaps new points.

The social worker who knows very little about this particular area of practice would find, again, that advice was always available, helping to instil confidence. It could be used to guide the user through a complex situation resulting in the user being able to present a case to the human expert in a more meaningful manner and save a considerable amount of time.

An expert system will be consistent in operation. If the expert system was designed to advise on, say, operational guidelines in a department, these would remain the same and would not be dependent upon a particular manager, the time of day, or the time of the Social Services' canteen lunch!

A potential problem is that would-be users of these systems could develop a dependence; however, there is no evidence of this having happened to date. Little or no research appears to have been carried out in this area, probably due to the small number of operational expert systems. Expert systems will never match the full flexibility of a human expert; they are not meant to. Such systems should be viewed as a tool, just the same as you use your car, or you use advice books, text books or whatever. They are a tool to be used in your job. Expert systems are not envisaged to replace the professional social work decision making; the social worker will still be responsible for social work decisions. They will not replace the professional social worker. Just as you would not make a professional social work decision purely on quoting from one chapter of a book you should not relinquish full responsibility for decision-making to the expert system; you would use it to guide, inform and advise.

Implications for the Social Work Process

Expert systems would ensure a rigorous and thorough application of the particular social work process which they contain and could be used to ensure a co-ordinated response within a team. They could be particularly beneficial for training in new areas of practice or for new social workers entering a department.

An implication is that a system, by its very nature, would employ only one particular model of social work process. The system would therefore have to be used very carefully, since clearly there are certain social work situations where an alternative model would perhaps be more applicable. It is important, therefore, to build the system in such a way that the particular social work model and the assumptions thereof and the process it uses are explicit rather than implicit.

Finally an expert system which can undertake the above functions has the potential of investigating the social work process itself in ways previously not considered feasible.

Direct Use with Clients

These systems could be developed in a form for the general public. For example, a system could be in the library which would contain knowledge of the problem areas in which social workers may be involved and ways in
which they may help individuals or families. This would help a client in much the same way as the Citizens Advice Bureau (C.A.B.) is able, at present, in order to obtain an answer to the question "Could a social worker help with my problem?" They could probably take this a stage further and elicit important initial information from the client in order that he or she could present this to the social worker. The question arises whether it would be possible for the computer to interview the client in such a way that this really would be a value-free interview. There is some evidence that clients actually prefer, at the initial interview stage, to 'talk' to a machine and put personal information into a machine rather than talk to a human being. This does not mean to say that the machines can replace social workers since, after the initial interview, clients very much need the direct face-to-face contact. The machine is used in much the same way as you may use forms with a client, except that the quality of the information elicited is often better and collected faster.

Testing

The testing of computer systems is a specialist field in itself. With traditional systems, there are tried and tested methods for evaluating whether or not the system could perform or be employed as desired. However, with regard to expert systems, because of their nature and because they are a new development in computing terms, there is no set discipline for their empirical testing. Sell (4) notes that we look upon an expert system as valid if its pronouncement is free from contradiction, if it can tackle any problem within its domain, if it can deliver the right answers, if the strength of its conviction is commensurate with the data and the knowledge on hand, and if it can be used with a reasonable facility by those for whom it was designed.

It is not too difficult to get a system up and running which looks at first hand to be quite effective and yet contains very shallow knowledge

The best way to undertake the testing phase is to evaluate the system rigorously by using a wide variety of staff in a wide variety of situations over both short and protracted periods of time and against known outcome criteria. Both the system developers and users must be involved at this stage. It is worth noting that the failures are as interesting and important as the successes at this stage, as these could be vital indicators of the performance of the system.

Ethical and Social Implications

The first implication to look at is accountability. If a system is installed in a department, who has the responsibility for the advice? Is it the person who created the system, the person who built the machine, the person who gave the machine to the organization, or the person who used it if good, effective expert systems exist and these are not purchased and are not used, if it can be subsequently shown that the use of such a system could have averted a tragedy? This is not an equal ethical point. One thing which is perhaps obvious is that these expert systems have been created from human being's own knowledge and heuristics (rules of thumb). This knowledge and these heuristics are not value-free, both from the point of view of the social work knowledge and the structure which the shells or knowledge engineering have imposed on those who developed the system. You will find values hidden in the system from both of these sources.

Future Potential

It is our belief that expert systems have a future in the social work/human services domain.

Since this is such a new application area for expert systems, we can only speculate on likely applications. However, several advisory packages in specialist client areas could be produced. Specialist advice packages in a wide variety of social work interventions, for example, task centred casework, unitary approach, behaviour modification, etc. Decision support systems could be created to, for example, assist the intake process and ensure uniformity. These could also be used to check one's caseload to make sure that the social worker has visited all the clients in certain categories within the prescribed, etc.

Training packages in, for example, child abuse would be extremely safe from the client's point of view and yet, could be extremely testing to the individual social worker involved in this training, in a way which current techniques cannot be.

In the long-term, expert systems could link together, producing more powerful
Expert Systems and Social Workers
Cont.

systems. The incorporation of different models of social work practice could be included in an overall expert system linking together several discrete expert systems. More powerful and more user-friendly expert system shells will soon be developed. It should be noted that many present day expert system shells have severe limitations. We shall not, in this paper, attempt to discuss the limitations nor advantages of expert system shells since a very good discussion of these points may be found in the paper by Harvey and Baggott (6) to be published in the next issue of CASW.

Both authors are members of the Birmingham Polytechnic Expert Systems Group

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