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Editorial Group

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Submissions to the Journal

We welcome papers, articles and reviews from both academics and practitioners. Papers may be submitted in hard copy and on disk, in any mainstream word processor format or via the Internet. We ask that papers are between 3,000 and 5,000 words. Diagrams and graphics for illustration are encouraged. Authors will be asked to provide an abstract and brief biographic and contact details for publication. If you are considering writing for the journal, contact Ann Wilkinson at CHST.

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Up Front

The common thread which flows through the papers in this issue is the impact of new technology on the presentation and use of information.

In March 1995 we tentatively introduced the notion of having live links to the World Wide Web at our UK Conference, *Computers in Social Work Education and Training*. This step was taken with some trepidation when it was first planned in late 1994 as we had only recently moved into the development of World Wide Web pages. The experiment was successful and popular. Since then WWW developments on the Internet have moved at an extraordinary pace and been the focus of unprecedented media attention. 1995 has been the year that many Social Work Teaching Departments, community groups and Non Profit organisations have developed a presence on the web and each day we receive news of new material from colleagues. What is seen at present is the presentation of information about groups and institutions and their activities. In the Human Service domain there are few examples of electronic publishing, teaching modules or searchable databases. Bryan Glastonbury, at the Centre, has become involved in teaching a module on the Social Impact of Information Technology on an Electronics and Computer Science MSc at Southampton University which is being delivered on the WWW and colleagues in other countries have contacted us with plans to develop electronic journals. In this issue the focus of the paper by Jan Steyaert on *the Challenges of the Internet for Social Work* and the work-shop reports by Debra Hiom and Mark Watson are on information handling on the Internet.

Bryan Glastonbury, in a paper presented to the ESRC Risk and Human Behaviour Programme earlier this year, discusses *Risk Information Technology and Social Care*. He sets out the risks of using imperfect systems to inform decision making and argues that as the use of IT increases in agencies the importance of an ethical base for using IT becomes paramount.

Information handling is approached from a different perspective in the third paper by Laurie Chisholm. She introduces Geographical Information Systems (GIS) as a tool for Human Service workers in planning their work. There are few signs that Human Service organisations have discovered the power of GIS as a tool to present sets of data and seek patterns and trends. One of the results of the increasing use of information technology is that the acquisition and transfer of data on local areas becomes easier. It is possible to envisage human service workers using GIS to plan community care services. Can GIS be used to improve efficiency in locating needs, handling them in the community context and ensuring that some of the high profile problems are tackled?

Looking forward

Our next issue of *New Technology in the Human Services* will be the updated software directory and we hope to bring you the best of the latest software developments and new reviews. The next issue also brings us to the end of volume 8 and for volume 9 we have to announce a number of important and exciting changes.

New Technology in the Human Services will be published and edited in a joint venture between The Centre for Human Service Technology and Causa, Hogeschool Eindhoven. Your editors will be Ann Wilkinson and Jan Steyaert. As a team, we will try to bring to you interesting and challenging articles and news items regarding the use of information or information technology in the human services. We will be establishing an independent panel of referees to review academic contributions but will continue to publish shorter reports and reviews from practitioners where the editors consider submissions will be of interest to readers. It is our aim that to continue to have a short cycle from initial submission of papers to final publication as we value our ability to present research and practice information while it is current. The use of information technology in the human services is growing and this journal aims to remain in touch with developments and provide a broad based commentary on both the ethical and social impact of IT. The new editors are eager to encourage contributions from all parts of the world and will accept unsolicited manuscripts for blind peer review.

Ann Wilkinson

Risk, Information Technology and Social Care

Bryan Glastonbury

Introduction

This paper is about risks and risk-taking in the context of using information technology (IT) in organisations. The spotlight is on a particular type of organisation, though some of the agenda, observations and conclusions may have wider relevance. The North American term 'human services' or the rather more cumbersome British 'personal social services' ranges over a complex inter-relating array of agencies, small and large, national, regional and local, professional and voluntary, public and private, mostly not seeking profit for owners or shareholders though with a growing for-profit sector. What they have in common is a mission to help everyone in our society to live normal self-dependent law-abiding lives to the maximum of each person's individual capacity. The further objectives are in many instances to make provision for those who cannot live their own lives, and to inform and influence changes in social attitudes and living environments for those who have special needs or suffer from discrimination.

Except in organisations with a specific commitment to furthering voluntarism or focusing on self-help agendas, the work force in the personal social services is dominated by sets of professional values, of nursing, social work and others. These 'front line' workers are the equivalent of the skilled staff of a manufacturing industry, except that their qualification equips them with recognised authority within their professional arena, as well as channels of loyalty to professional standards and values, and possibly also to a professional association. Of course this generalisation does not go unchallenged, and groups like teachers, nurses and social workers have regularly passed through times when they have felt their professionalism to be undermined and themselves undervalued. Nevertheless, organisations employing significant numbers of professionals are different in the sense that power does not reside wholly in a formal management structure: rather there are two locations of power, within the management system and within the boundaries of professional autonomy, though in the latter power is often described in non-managerial, non-confrontative terms such as, in social work, 'discretion'.

The position of IT in organisations where there is a division of power is complex. The tasks of management and administration can be served by office automation and other uses of technology as in any other organisational setting. However, many professional groups are extremely sensitive to the intervention of IT in areas of professional judgement, and worried about the risks involved (Hampton, 1994 and Newton, 1993, for example, are detailed studies of the attitudes and anxieties of hospital nurses towards the computerisation of nursing processes). In the USA concern about IT risks has extended into the area of responsibility and legal liability. If a decision affecting a human life is made by or with support from a computer, and then emerges as a wrong decision with damaging consequences, who is responsible - the professional, the manager who instructed the use of the computer system, the computer system designer, the person who entered data into the system, or who?

This paper will focus primarily on one of the bigger groups in the personal social services, local authority social services departments. These organisations have responsibilities ranging from child abuse to the lifestyle of the oldest people in our society. The extensive legislative structure to which they work spans child

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care, juvenile delinquency, chronic illness and disablement, mental disorder, and most recently community care services. Their size is dependent on the size of the local authority they cover, and the extent to which they follow a policy of direct provision or sub-contracting to the independent sector. The largest professional group of employees (albeit not a majority of total staff) hold social work qualifications, and many managers have a social work background. The extent of IT use varies widely, as therefore do the risks taken with IT, but the position is somewhat obscure because no systematic data has been gathered in the UK since the early 1980s (LAMSAC, 1982). What is openly observable is a massive increase in the development and use of computerised information.

The first part of the analysis in this paper will range over some of the history of social work and social services. The reason for this is that much of the current situation regarding the uses and risks of IT in social services departments has been moulded by the human factor in agency and professional decision-making, and this human factor has in turn arisen through decades of formulating, modifying and integrating attitudes about 'the right way' of professional caring for people.

Social Work, Social Services and IT

There is a long-running, albeit somewhat esoteric debate within the social services as to whether the task of the social worker is an art or a science (for example see England, 1986). The origins of the matter are diffuse, drawing in such dichotomies as the committed volunteer and the knowledgeable professional, the empathising warm helping personality and the systematic skilled operative, or the individualist and 'organisation man'. In each of these contrasts the former has something of the artist, the latter not perhaps of the scientist as such, but assumed to be more attracted to scientific approaches. At its heart is an attempt to achieve a balance between, on one hand, the notion of social work as about helping relationships, family dynamics and individual self-awareness, and on the other the social work task as involving a rational, structured assessment of needs, and a relevant, just provision of services.

This particular debate came to a head in the UK around the formation of social services departments (1971 except in Scotland, where the change came a little earlier). Up to that point it was possible to argue that a coherent view of social work could be contained within the parameters of client/worker relationships, and the ability of the client to understand and achieve personal change. The challenges thrown at social workers towards the end of the 1960s made up a pincer movement, on one side pressure to recognise and respond more fully to needs with material or environmental origins, on the other to look outwards at the totality of social need within a community. The Social Services Act which came into force in 1971 added a further significant impact: it merged a range of small agencies (only the biggest of these had more than 200 staff) into large organisations (often with several thousands of staff), and so created irresistible urgency to move away from cosy management and administrative practices towards arrangements more suited to large-scale operations.

The spread of tasks, responsibility for 'whole population' approaches to need, and increased scale of activity forced consideration of technology-based solutions. At first these did not seem to challenge the principles and practices of established professional caring: rather they were focused on administrative and management concerns, like how to run a client card index with 300,000 cards if it is not handled electronically, or how to speed up the calculation of the myriad of annual statistical returns required by central government. Only later, when it became apparent that social workers' case records could no longer be free-flowing works of literature (or scruffy hand-written notes) but instead had to fit into a structured form and language for the purpose of computer entry, was there a growth of resentment based on awareness of the restrictions of technology.

It took over a decade, well into the 1980s, before the art versus science issue became more pointedly 'art versus IT', more vocal, more widespread, and more heart-felt. It is tempting to suggest that social workers, along with other caring professions, were so slow on the uptake that the battle was lost before it was properly engaged; but we should not think of IT as presenting the opportunities and challenges, or having the all-pervasive presence, that is now commonplace. When computers were first used in social services they were cumbersome, expensive, unapproachable mainframe machines in air-conditioned surroundings, guarded by their own obscurantist priesthood. As often as not the social services department only became a user because the local authority computer had surplus capacity looking for an occupier. Micro-computers and word processors had not been invented, so the conceivable horizons for IT were strictly limited.

This summary of history, which is much more fully documented elsewhere (Glastonbury, 1985), has been offered for the purpose of identifying a number of features about the relationship between the caring professions and a burgeoning IT. Groups like social workers have been and frequently remain unconvinced that IT, excluding word processing, is suited to a helping process which has more of art and humanity to it than of science or technology. Reservations and reticence, allied to the personal aptitudes

(like non-numeracy) which draw people into 'social servicing' rather than 'industry', have led to IT use growing quite rapidly in administrative and management areas, but much more slowly in professional practice. Pressure to conform to a standard framework to suit the computer information system (in the structure of case files, for example) cuts across long-standing and tenaciously held beliefs in the uniqueness of each individual client. The skills needed to form a therapeutic relationship, such as an appreciation of body language and other forms of non-verbal communication, the ability to empathise and interpret underlying feelings, or handle highly stressful situations, are widely viewed as beyond any form of artificial comprehension. In short, IT may be highly valued by managers and administrators, and have some limited use in professional practice, but it is also a usurper, an unproven 'Johnny-come-lately', neither well understood nor wholly suited to the caring context.

Risk and Social Care

If IT is the newcomer which social services staff are not sure whether to welcome or spurn, risk is a familiar presence, well appreciated as a threat and challenge, needing skill to handle effectively. Making judgements and taking risks is an everyday task of care workers, whether in high profile situations like leaving a child with parents who have a record of child abuse, or in more frequent but less publicised circumstances, like judging the appropriate extent of supervision of a confused elderly person. In essence risk-taking for front line staff in the personal social services is about human lives rather than such matters as potential profitability of an investment, but both share the element of trying to forecast future developments. However, the particular and dominant feature of social services risk-taking is about control. How much or little structured supervision and protection should be offered to a vulnerable client, say an abused child or an adult with serious learning disability? What control should be exercised over someone who may possibly cause damage to self or others? How should an order imposed by law, such as for the supervision of an offender, be interpreted on a day-to-day basis? In each of these instances, and others like them, the professional approach is to take the greatest possible risks within the context of sound judgement, with the aims of holding to a minimum interference with personal freedom, keeping at arm's distance a further risk of client over-dependence on welfare provision, and promoting a stronger self-image or sense of self-sufficiency within individuals, families or groups. Increasingly in recent years, now that front line workers are expected to be sensitive to the costs of their decisions, a further aim has been to take all possible risks of non-intervention in the interests of holding down the demand on scarce resources.

A standard analysis of risk in the personal social services (Brearley, 1982) contains a distinction between *risk* and *hazard*, in a context of clearly defined boundaries. Illustrated succinctly, a hazard is a hole in a pavement; a risk is the likelihood of a frail elderly person falling into the hole; and the boundary is a strong fence round the hole, a sign warning to cross to the pavement on the other side of the road, or personal guidance to, perhaps some supervision of the elderly person. The policy of agencies is to reduce the risk of harm by cutting down on hazards and making sure everyone knows the rules and boundaries. Much of this gets the label of 'preventive work', and as such has been strongly encouraged and poorly funded by government, often simultaneously. However, the dominant public arena is taken up with risks that have been taken and failed, whether through flawed judgement or through what in retrospect is called negligence or oversight. In a very small number of instances these have been tragedies, involving the loss of human life, usually a child, with a subsequent detailed enquiry and much attendant media coverage. Whether the reality in these events is of forgetfulness, negligence, poor judgement of justifiable risks, shortage of staff and funds, wholly unpredictable circumstances arising, or something else, the end result is that risk and risk-taking is an area of day-to-day practical importance and very considerable professional and political sensitivity.

Risk and IT

The impact of IT on the risk scenario in the personal social services is mixed. Information, as long as users feel secure in its accuracy and currency, is welcomed as aiding professional judgement. Computer-initiated suggestions, or anything perceivable as computer intervention in decision-making is resisted. In a few specific instances, such as calculating eligibility for welfare benefits, which is complex and difficult as a manual activity, there is something close to accepting a computer-assisted decision: in the broad span of work, however, only professional judgement is valued, backed, if at all, by a second professional judgement.

Returning to the earlier view, that social services departments are part of a group of organisations characterised by a dual location of power, in the formal management structure and in professional service-giving, counselling, therapy, or however it is described, then it becomes possible to make some general statements about the varying impact of the human factor with regard to IT and risk:

- Managerial staff have planning and quantitative service delivery tasks which require substantial information sets, and hence many will take for granted extensive use of IT. However, the majority have not progressed

through management careers, starting with a degree in the subject, but have moved into management posts after demonstrating their ability in the professional arena, usually social work. For this reason they may not be knowledgeable or skilled in relation to information management or technology, and they may feel some insecurity, especially about technology management. They may also carry over some of the reservations and suspicions about IT that they will have experienced during their social work practice.

- Social workers have a long-standing resistance to seeing their professional judgements and assessments, and the face-to-face quality of their work with clients, jeopardised by what they may see as the damagingly mechanistic, standardised, impersonal character of IT. At the same time many of them are not only gaining experience of the benefits of IT in mainstream uses like word processing and electronic communications, but also of the value of computerised client information and of some proven computer-based tools to help in their work with and for clients. As with their managers they lack adequate training, so often feel insecure as IT users, and while outright resistance is weakening, the move is more towards scepticism and ambivalence rather than support for new technologies.

- Managers and professional staff in social services departments are accustomed to looking out for, assessing and taking risks, but their preoccupation is very much with risks to people. They are less likely to have experience of risk management in relation to IT or the wider administrative setting.

Given an agency mission which is highly information-dependent, a staff group with strands of anti-IT feeling as well as lack of IT knowledge and experience, and an approach to risk which is people-based, all in a context of potential tension between managerial and professional priorities, then it is hardly surprising that managing information systems and the technology framework are areas of relative weakness. While the first part of this paper has tried to argue that there are risks inherent to the overall inter-relationship of a 'people-focused' organisation and the IT it uses, the remainder will concentrate of three specific risks around information management, concerned with control, accuracy and potential abuse.

Risk and IT Control

A typical pattern in local authorities is for a general IT services group to provide for all other departments. The origins of this position are in the formation of the highly specialised staff groups needed to operate early mainframe computers, where the assumption was that staff from departments like social services would not have or be expected to have IT expertise. The initial range of tasks undertaken by the computer tended also to be shared across departments, like salary calculations and payments.

Tensions have grown between social services and IT services from two directions. One relates to a gradual appreciation within planning and management teams in social services departments of the sorts of tasks computers could undertake, leading to expressed wishes for specific applications, such as for client information files containing many more screens of information than a conventional card-index approach. Such applications were not necessarily of interest to IT services, suited to their timetables, or consistent with their own planned directions, and in any event inexperienced social services staff often had difficulty giving a clear specification of the systems they wanted, or what they expected to do with them. While some social services departments (such as Hampshire) responded to frustration by setting out to hire their own IT staff and develop their own in-house expertise, many others simply backed away, seemingly taking the line that IT would forever be a mystery to them, and something for which they would not be responsible.

The next tension arose as the focus of a unified IT staff group, the mainframe computer, began to disappear from the scene, to be replaced by desktop micro-computers, local networks, and arguments for system devolution. Alongside the change in technology came fundamental new opportunities for users, most of which are now taken for granted aspects of IT structures and uses - word processing, spreadsheets and databases, software to design attractive presentations. The old practice of requesting output from the computer and waiting for its delivery some time later was replaced by 'on-line' services giving instant access to data processing and information, and all the other accessories of 'interactivity'. People in social services departments, as everywhere else, wanted these facilities for themselves, especially to transform office administration. IBM and the other computer companies made direct contact in pursuit of their marketing outlets, while machines and software could be bought off the shelf, so the need for dependence on an IT services group diminished.

Staff of IT services felt themselves under threat from these changes, and still worse found that many of their skills, such as programming in mainframe computer languages, were fast becoming obsolete. However, while they could adapt themselves to new skill requirements, learn to write in the new micro-computer languages, and join in the rush to 'connectivity', the concept of devolution challenged their existence and had to be resisted. In the tug between centralisation and devolvement at local authority level, which has ranged much more widely than IT alone, IT services staff tended to see survival firmly along the lines

of structuring centralised functions and tenaciously clinging onto them.

The impact of these tensions on some social services departments, mostly the larger ones capable of making significant investments, was to force the issue of in-house provision, leading them to employ or sometimes train their own staff to handle IT developments and management. Other departments continued to defer decisions or yielded to pressure to maintain support for central IT services. Relatively few agencies have been able to build up the tradition of in-house provision over a sufficient time and with a sufficient focus of managerial attention to ensure that well informed decisions can be taken and risks minimised.

During the 1990s many agency managers have faced choices about their IT across a spectrum on which all the possible stop-off points are high risk. At one end is what critics will see as the Luddite approach, doing as little as possible, often because there is no trusted person with enough IT knowledge and experience to make the relevant arguments or draft development plans. Professional staff in the agency, for reasons already outlined, are unlikely to challenge this strategy, yet the impact on the overall staff group, as well as on organisational efficiency, is debilitating. Staff feel de-skilled, part of a backward looking agency, outside the mainstream of developments. A paralysing interaction builds up in which the feelings of IT inadequacy reinforce the reluctance to take risks on IT investment, or such risks as are taken get undermined by the absence of motivation to make use of new opportunities (how often has the story gone around of the computer still in its box in the corner, unused and unwanted).

At the other end of the spectrum is the risk of inadequately or incorrectly informed action on IT. Managers who feel ill-equipped to plan and decide themselves can buy in the service, whether from IT services or from a commercial company or external consultant. Those who have followed this path have mixed experiences, though it is difficult to uncover evidence in any systematic way. The risks are varied. Here are some examples:

- Having a system installed which does not do what was wanted of it.
- Problems with ongoing support.
- Insufficient training for all projected system users.
- Lack of clarity about who are the preferred users (often a bit of a dispute between professional and administrative staff)
- Lack of sufficiently strong feelings of ownership.
- Being sold over-priced or obsolete equipment.
- Being contractually tied in to a single manufacturer or sales outlet.
- Finding that the 'consultant' is not independent, but has a product range to push.

However, the overall risk taken is that of installing an IT system to handle important aspects of the department's functioning in circumstances where the management team feels ill-equipped to exercise appropriate control, and a new power group is formed, made up of technical staff serving as the sources and gatekeepers of the information flow. This is an especially high risk if it is an externally contracted group without direct loyalty to the social services department, but whether internal or external these are not likely to be people who have a good understanding of the information needs of the organisation. Modern management, particularly in high information sectors like social services, requires close integration of the information generation and service planning functions, as well as a unified managerial overview.

If these are the risks facing a de-skilled management team, working with a less than fully motivated or loyal professional service group, what are the ways preventing or overcoming the problems? Part of the answer focuses on training, aimed at giving agency managers in particular a clearer understanding of the IT on which they are depending, and greater confidence in relating to IT staff.

Other possible solutions are partly dependent on external action. Perhaps because of the speed with which new technologies have been brought into use, and the linked scarcity of suitable consultants to help with IT planning and implementation, practices have grown up with a dubious ethical basis. Specifically the notion of the independent specialist consultant has made little headway in this sector: instead a proportion of 'consultants' have a vested interest in solutions which lead the social services agency towards particular products and suppliers. Commonly the association of consultant and IT company is explicit, so that the agency's anticipated outcome is a link with a particular manufacturing or distributing firm. On some occasions the wider interests of the 'independent consultant' are less clear. The results have often been the same. Whether fully aware of what is happening, or being unwittingly carried along, many agencies have found themselves tied into purchasing and maintenance arrangements which are not necessarily in line with a competitive and open market.

Whatever routines may have been justified in the hectic early days of IT, there is no real justification for keeping with an approach in which the consultant is also the salesperson, or works closely with a company's sales staff. The IT industry is likely to engender resistance, resentment and a feeling amongst social services agencies that some risks are scarcely worth taking if it does not foster the establishment of a genuinely independent and well-informed body of specialist consultants in whom agency managers can feel trust.

Guidance from central government level for local government services would also be beneficial. Leaving the IT field clear to the private sector, or local initiative, may be in line with market economics, but one result has been serious fragmentation in IT applications. Much software used in social services departments is constructed in-house or substantially customised from commercial products, and may not be used in any other agency. Outside the standard range of office products (word processors and so forth) and a very small range of more specialised programs (like *Maximiser* and *Lisson Grove*), there is little standardisation. This is especially harmful with the largest scale social services computer application, the client information system, where numerous non-compatible systems operate across the UK. The impact of such fragmentation is that expertise in any of these applications is confined to quite small groups, sometimes one or two individuals. The manager often has little if any choice of IT expert to use in a given situation, and much of the knowledge and experience built up by the manager is not transferable to another agency.

To an extent this is an argument trying to move against the prevailing tide, which favours 'tailor-made' rather than 'off-the-shelf' IT solutions. Nevertheless, where there has been a central co-ordinating initiative, as the Home Office showed for many years with *PROBIS* (Probation Information System), more broadly based expertise has grown up, and with it less pressure to hand control to technical staff. In other examples, as with Denmark's *Kommunedata*, the pendulum has swung entirely in the other direction, towards what is effectively a monopoly provider of IT applications to state and local government care services. This degree of centralisation allows widespread transportable expertise to develop, but introduces new risks, for example about the social services being saddled with computer applications which may not be the most technically up-to-date.

Risk and Information Accuracy

The phrase 'It must be true because the computer says so' has become a familiar one in modern societies, but so has the understanding that computers make mistakes and sometimes seem to behave stupidly. As mentioned above, the largest area of information in the personal social services is about clients, and concerns about accuracy have a long history. Within IT the much-used explanation of inaccuracy is GIGO - 'garbage in: garbage out' - the view that flawed information is caused by mistakes at the point of data entry, commonly made by clerical staff. An early indication that reality was more subtle and complex than GIGO, certainly for the social services, came from a Californian study (Dery, 1981) which suggested that not all inaccuracy stemmed from errors by data entry clerks. In this research it was found that the intended uses of computerised client information, for example to enable calculations of the volume and location of workload in order to set levels and deployment of staff, influenced the quality of data submitted for entry. Fearful of seeing workloads increased, or perhaps some staff discarded, those who filled in the forms used for data entry to the computer seem to have given in to the temptation to categorise cases as more severe or demanding than they really were, to keep as 'live' clients who had passed elsewhere, and perhaps even to have embellished some files. What Dery's study did most effectively was to show that computer information could be rendered almost useless if those responsible for the material going into it, that is the front line professional workers, did not have a vested interest in an accurate and up-to-date system.

Following this research, and comparable insights in many other locations, agency managers realised and acted on the need to ensure that staff gained benefit from client information systems and did not have evidence of such systems being used to their detriment. Both measures helped all agency staff to feel a commitment to accuracy. It came as something of a shock, therefore, when another American study (Harrod, 1987) found error levels averaging nearly 20% in some of Michigan's Children's Protective Service files. These were not mistakes of interpretation but of fact, and were not in 'backwater' cases, but in high profile current child abuse files.

The possibility that these were one-off maverick findings has been dispelled by UK research (Barnes, 1993) which sought to replicate Harrod's study. Taking 376 child care cases, all of which should have been given a computer file, Barnes first found that 25 (6.6%) had no computer file at all. For those with a computer file he checked on 11 factual indicators, as near as possible to those used by Harrod, and found an average error level of nearly 24%. There was wide variation - the child's name, for example, was right in all but one instance, while in 2 of every 3 cases the name of the child's doctor was wrong.

To the level of inaccuracies in an individual file has to be added faults in the system as a whole, such as records of clients who have died, moved to another area, or ceased to need help. Overall the risk of inaccuracy is high, whether

the system is being used for composite statistics (although there may be some 'swings and roundabouts' compensation here) or in relation to a specific individual. The onward risk stemming from such a scale of error is of incorrectly informed planning and resource deployment decisions, and mistaken awareness of the circumstances of individual clients. Inadequate information is a frequently identified causal factor of failures in work with clients, such as child tragedies.

Within agencies there is a growing tendency, particularly amongst professional staff, to treat computerised client details with some scepticism (while recognising that traditional paper files, often part-typed, part-hand-written are just as flawed, and sometimes unreadable). However it is doubtful whether managers or professionals would conceive that their computer files have such levels of inaccuracy. Indeed, the fast growing dependence on computerised information generates strong pressure to function in practice as though the information is correct. There is also considerable political sensitivity about an agency admitting to a possible 1 in 4 level of mistakes. Overall the setting is one in need of much more extensive research.

The threat of serious difficulties, in extreme instances tragedies arising because of flawed computer information is high because staff will not or do not want to acknowledge the possible level of error, and are increasingly obliged to make decisions based on this information, whatever its quality. Nevertheless, there is growing sophistication in awareness of the likely causes of inaccuracy, and the solutions, as many managers have realised, cover a plethora of quality-enhancing activities, all of which can be expected to have some impact. Here are some of the main perceived problems and potential solutions:

- The initial idea of poor clerical work at the point of data entry is still pertinent, though not so dominant as first assumed. What is recognised is that a long chain of transmission risks errors entering at each stage. It is not uncommon, for example, for a social worker to take rough notes of an interview with a client, and later to use those scribbles as the basis to fill in a data entry form for the computer. The hand-written form is then keyed in by a clerk, and after the harassed social worker has made a brief check the new file or addition to a file becomes part of the information system. Shortening the chain, ideally to the situation where computer data is entered by the social worker at the point of interview with the client, offers a chance of more accurate entry, as, for example, with Hampshire's ACMS system which is designed for direct data entry by the professional (in this instance the care manager).

- A client/worker interaction, whether for the purpose of something broadly based like generating a social history or an assessment, or for some specific task, offers itself most conveniently to be written up as a descriptive and analytical document, seeking at all times to convey the nuances and uniqueness of the particular circumstances. In contrast a computer system is made up of standardised categories alongside factual data. Very often considerable manipulation is needed to fit the specifics of the interaction into the standard categories required by the computer, and the risk is high that such manipulation introduces error. The solution, still only a little achieved, has been to design information systems capable of holding both standardised and individualistic data (commonly in 'free text' sections). They thereby become longer and more complex as well as a more accurate reflection of reality.

- Social services client information systems are dynamic because the circumstances of clients change all the time. Many errors arise from out-of-date material. Agencies have been forced to recognise that the only solution to this is substantial investment in system maintenance, to ensure that files are regularly updated and reviewed, and that past records are placed in an archive or destroyed. The build-up of system maintenance costs is nevertheless acting as a deterrent to developmental IT investment (Whitehead, 1995).

- While agency managers rely almost exclusively of computer data for composite information for planning or evaluative purposes, or for annual returns, front line staff have retained paper files alongside the new computer records. This may be a transitional situation, perhaps stretched longer than necessary because social workers have not wanted to lose paper files which they possess in a personal sense through holding them in their own filing cabinets. Yet as long as it exists it is possible for front line staff to hold the view that it does not really matter if the computer files are full of mistakes - the paper files are always there instead.

None of these actions will, on their own, take away the risk of error, though they may contain it at more acceptable levels. This may be the best that can be obtained from dependence on computer-based information, just as in the past agencies have been reluctant to depend on their paper files alone. If so, then we are forced back to what has always been a delicate but vitally important balance in caring for people, between information and professional judgement.

Risk of Information Abuse

If risks about accuracy have been kept a little under wraps, those about abuse have received international attention. Most industrial nations have data protection legislation in place, and most care organisations have their own in-house security measures. In the UK there is the additional right of clients to see what is held on file about them, unless it falls into a protected area (police sensitivity for the most part). The issue of security is important in the personal social services because systems made up of detailed information about people's lives, most often about times of stress, vulnerability and inability to cope, are so humiliating if they become public, and are valuable commodities in the information industry, for example to credit-rating companies.

The risk recognised by social services agencies is primarily that computerising client files exposes confidential information to breaches in security. There is a long lasting concern in social work theory to establish that what a client tells a social worker in a one-to-one interview is private to the two of them. Details may have been set down in the client paper file in the worker's office, accessible to some other staff in the office, but a reasonable level of privacy could be ensured. This position was slightly weakened by a government decision that confidences given to social workers did not have the same protected status in law as those given to doctors, but has been thoroughly challenged by computerisation and telecommunications. Within agencies there are now many more staff with authorised access to computer files than ever had access to paper files. At the same time the move to network computers, and increasingly to take advantage of the 'information superhighway', creates still greater risks.

The problem once again is of gaining a balance between taking care of people's right to privacy, and taking risks in the interests of better services. Politically and organisationally the pressures pull against giving highest priority to personal privacy. Better quality and more cost effective services are seen as depending on relevant information, for example of an individual's level of eligibility for help in a policy framework dedicated to targeting services to where they are most needed. Cross-agency and intra-agency teamwork are valued, inevitably bringing up the issue of information exchanges between, for instance, health and social services. The political thrust to encourage and contract with an independent sector means that, for example, an elderly person's social history may be circulated around a number of private nursing homes in an attempt to make a suitable placement.

Much of this issue, as can be seen, is not directly related to IT, but IT is more and more the medium, the route which makes tasks like intra-agency sharing much easier to achieve. However, while sharing information to get better services is a justifiable objective, other uses of information are more questionable or seen as more threatening to agency staff. Work evaluation, staff supervision and appraisal, and quality monitoring can all now be informed by computer files in a way which was not feasible with paper files. A manager can log onto the computer and look at the state of a front line worker's files, or work with particular clients, without the staff member being aware that this is happening. The traditional approach to the client/worker relationship offered privacy to the worker as well as the client, and this has been largely swept away by computerisation. The risk of exposure is greater for front line staff, but so are the pressures placed on managers who can no longer hide behind the statement that they did not know what their staff were doing.

In short private personal client information is now part of the currency of agency management and quality control systems, thanks to the build-up of IT. Can it be long before that information becomes a commodity in the wider information industry? Will it always be morally and politically unacceptable for an impoverished welfare agency to sell the names and addresses of clients with bad money management records to a credit-rating company? Or for a law and order agency to sell lists of offenders in the interests of combating crime?

These are issues which people in the caring professions can influence, but not determine. Yet even to have influence the personal social services need to clarify where they stand in relation to the needs of the information age. Training is vital on a wide range of IT linked matters if uncertainty, confusion, lack of confidence, suspicion and resentment are to be replaced by understanding, overall grasp and a willingness to 'own' the social services' part of a new technological era. At least the need for training, and more of it, is widely recognised if not yet funded (MESOL, 1994). Trust is also important, especially in the relationship between front line workers and their managers, not only to avoid the sort of misbehaviours catalogued by David Dery (Dery 1981), but also to ensure that within social care there is a shared vision and action plan for the effective and ethical use of IT.

The Greatest Risks

Of the specific risks discussed in this paper arguably the most important one concerns working with poor quality information sets. The limited amount of current research suggests a disturbing proportion of inaccuracy which can be countered if the computer system is no more than a backup for more embedded manual information sources, but becomes increasingly relevant as manual systems decline.

At a more general level the greatest risk for the personal social services is to be left behind, picking up the bits after all the important IT decisions have been taken elsewhere. Masuda, the intellectual leader of Japan's information age planning, makes a telling argument (Masuda, 1981) that far from being a scientific matter IT affects all of society and its cultural features, and impinges on society's whole ethical framework. IT is scientific, but it is also artistic, and part of the broad sweep of what he sees as the 'ethics industry'. A later Anglo-American effort sought to place the concept of an ethics industry in the context of a western industrialised society (Glastonbury and LaMendola, 1992), arguing that while the artistic and cultural elements of society could not take a lead in scientific development, they could and should lead in the social integration and ethical positioning of IT. As people concerned with the welfare of society as a whole, and of the troubled and less privileged sections of it in particular, the staff of our social services, managerial and professional, have a key role in the ethics industry, and through that in influencing the use of IT.

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Challenges of the Internet for Social Work

Jan Steyaert

Introduction

University life has often been the subject of non-fiction literature. In one of the classics of this genre, David Lodge's *Small World*, a junior academic named Rodney Wainwright is struggling towards his first conference presentation without a clear set of conclusions. In the novel, Wainwright is saved from disaster. Writing about the Internet and its challenges for social work puts one in a similar position to this young Wainwright. The developments in networks are happening at such a speed that written publications are in danger of being out of date by the time they are printed and reach their audience. Even just a few years ago, people reacted with disbelief when connectivity of computers was proclaimed as the next major issue. Yet, here we are today with a situation in which working on a remote computer is as easy as working on one's own computer and relying on electronic mail is more effective than fax for contacts and information exchange with international colleagues.

In this article, we will try to present some background information on the current and possible future developments regarding the Internet, outline some of the expected applications as well as the current advantages and disadvantages. We will end by describing the ENIT*H*'s world wide web as a case study and try to assess the challenges and threats that the Internet carries for social work as a profession.

The Internet as the current 'hype'

In the past decade, we have seen much 'hype' in the area of information technology, it looks as if industry and especially computer magazines need at least one sensational item running to boost sales. Over the past years, we have had major focus on decision support systems, neural networks, multimedia, etc. Some of these have been integrated into the workplace, but far more simply faded away never to be heard of again. All dominated the contributions in computer magazines and enabled those to publish new information and interesting articles for their readers, even if real life applications of these technologies were often scarce and in prototype form. The current 'hype' is the Internet, not only omnipresent in computer magazines, but crossing the boundaries into other media.

The Internet is quite simply a network of networks in which there are no hierarchical levels. Each network communicates with each other network on a level basis and the user need never know whether they are linking to a home based server or a multinational organisation. Whilst five years ago one computer network found it very difficult to communicate with another computer network, today it is hardly noticeable that the Internet is not a single monolithic network but a whole array of bits and pieces working together. Another major development has been the introduction of electronic mail in the academic world, providing free use for individuals. Within these settings, the advantage of the use of electronic mail for fast information exchange and editing work was rapidly recognised. Other sectors became aware of the developments and gained access; first the higher education institutions, followed by governmental and non-profit organisations, and now commercial firms and private households. A final major development that facilitated the introduction of the Internet is the availability of cheap and good software. A program such as *Mosaic*, enabling one to navigate

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through the world wide web, has introduced many to the ease of travelling on the Internet.

References to the Internet can now be found in numerous places; including news-media, journals and newspapers. In the UK, you cannot open Thursday's *Guardian* without being confronted with the Internet. You cannot buy one single computer magazine without being overwhelmed by information about it. Moreover, the media are actually being represented on the Internet. Nearly every European country has a selection of daily newspapers offering information and daily news through the Internet. Journalists publish their email addresses to get into contact with sources and readers, and an increasing number of job vacancy announcements include not only phone and fax addresses, but email addresses as well.

It is also influencing government policy. Al Gore, currently vice-president of the United States, started that a few years ago by labelling the Internet developments with the catchy phrase *information highway* and promoting it strongly from his position in the White House. We have the European counterpart in the form of the Bangemann report. The European Commission has strongly committed itself to establishing a free market in telecommunications as soon as possible. While these are basically political developments calling for an open market, they do illustrate policy's interest in the Internet. Several Western governments are also using the Internet to attempt to bridge the famous gap between citizens and politics. Britain (http://www.open.gov.uk/) and Belgium (http://www.online.be/belgium/) are just a few of the countries providing government information by using World Wide Web. Other groups are already thinking ahead, and see Internet, once well established in every household, as a tool to replace parliamentary democracy with direct democracy.

Industry now catches up in the form of Bill Gates (MicroSoft) dreaming about his own network that reaches out into every (Western) household, to be launched jointly with Windows 95. Within most Western countries, small business companies are finding market niches and becoming so-called Internet providers. They enable the general public to dial into the Internet using their computer, a modem and a telephone connection. As competition grows among service providers and national telephone companies join in, prices drop at a considerable rate. The big break through is however not expected until 1998, when an open European telecommunication market enables cable television companies to expand their services with telephone services, video-on-demand and computer networking.

The use of the Internet all started, in the academic world, with a small number of universities and a small number of users, parallel with hobbyists working on small and often unreliable networks such as FIDOnet. It has moved far beyond that now with an ever increasing number of applications and an increasing number of users. It's a relatively safe prediction to state that in a few years, fax machines will only be used for the odd document or for communications with developing countries, as once was the status of the telex shortly after the introduction of the fax.

Apart from the growth in applications and users, it is noteworthy to mention the speed of the growth, which is unrivalled by previous innovations in Western society.

The Internet is likely to be more than a 'hype'

Although the Internet is definitely the current computer 'hype', it is very likely to be more than that. There are a few significant differences between the Internet and the other, short-lived innovations previously mentioned. These differences make the Internet more likely to become part of our lives. Firstly, the Internet is basically low technology. It involves a number of cables, a copy of already existing shareware software and one is ready to step into 'cyberspace'. For this reason, it is likely to attract far more people than any other high technology issue, such as artificial intelligence. Secondly, the Internet is low cost but has the potential to yield high profits. It is low cost because the infrastructure is minimal and the cost of one unit (receiving or sending a message) is trivial. American electronic discussion lists often see messages with phrases similar to 'here's my 0.2 $ contribution to this discussion....', illustrating the low costs. However, the profits are expected to be high because those many small units at trivial costs add up to an enormous market. While computer manufacturers struggle to survive in a highly competitive market, telecommunication companies flourish.

Present and future stakeholders in the developments are telephone companies (telephone machines and enormous volume of calls), computer manufacturers (computers, modems and software), cable television companies (numerous calls and Internet access provision) and publishers (providing information). All are expanding their existing services into the Internet with new products that can be labelled value added network services. These may well become decisive competitive arguments in the battle for the customer's favour.

The Internet: numerous applications

The Internet is in sharp focus at the moment but there is a huge potential for further expansion in its applications. As a network interlinking thousand of computers and millions of users, it enables a set of applications to be used by an ever growing number of people. Its uses include first and foremost the use of electronic mail. Increasingly, business

cards not only include names, addresses and telephone/fax numbers but email addresses as well. These take the format of name@place as in J.Steyaert@fz.hse.nl

Based on the use of electronic mail, numerous discussion lists (listservs) have developed on which people with similar interests gather to exchange information and ideas. Several of these are relevant for social work, such as the generic social work list. There are also a growing number of special lists, on fieldwork, social work students, applied measurement or philosophy of social work, to name just a few examples. Communication through these discussion lists is characterised not only by its speed, but also by its informal nature. Status of participants hardly play a role in electronic communications and attention to messages is paid for their contents rather than the status of their senders. Electronic mail replaces ascribed status with achieved status. Other applications of the electronic mail include electronic journals (cutting into the market of printers and publishers, but reducing the time needed to disseminate information).

Apart from the important applications based on electronic mail, it is possible to transfer text and binary files through the use of ftp (File Transfer Protocol) and remote access to computers through *telnet* or *gopher*. The latest and very popular application of the Internet is the World Wide Web (WWW). Started in 1990 by Cern Laboratories in Geneva, its number of information servers numbered lower than a hundred, until the introduction of the free Mosaic software in the spring of 1993. The number of present information servers is counted in the thousands with more than 50 new ones every day. WWW consists of a relatively easy 'hypertext mark-up language' (HTML) to edit and lay-out information pages, server software (available for several platforms such as UNIX, DOS or Windows) and browser software (available for several platforms, with Mosaic and Netscape being most popular at the moment). Thousands of individuals and organisations provide information on their activities or interests to an anonymous audience of Internet users.

Apart from these existing applications of Internet, it is predicted to grow and embrace new applications. While developments are rapidly leading to full multimedia capacities of the world wide web, the future applications will include electronic banking, video on demand (experimented with since 1994 in e.g. Berlin and Colchester, London), tele-working (raising several industrial relations issues), tele-shopping and many more. The interests of daily newspapers already being present on the world wide web are oriented towards a possible scenario of electronic newspapers that can be tailored to one's individual information needs, electronically delivered to your electronic address and only including articles that match the information profile you yourself constructed.

The Internet: advantages and disadvantages

The Internet as we now know it and as it may develop in the coming years has several advantages and disadvantages compared with more traditional ways of communications. The advantages include the already mentioned informal way of communicating and the very interactive and up-to-date communications which might endanger professional journals such as this one. A major advantage is also the free access to an incredible amount of information provided by thousands of world wide web sites.

Disadvantages are of a technical and substantial nature. Technical disadvantages presently include the lack of a good search and reference instrument. Loads of information is available on the Internet, but it might take a while to find. The transaction cost of locating a needed piece of information can be substantial. As new search tools are being developed (try http://webcrawler.com/), these transaction costs will diminish (an August 1995 search on the keywords *social work* resulted in no less than 6.500 references but many of these were not related to social work but to separate uses of the words 'social' and 'work'). Substantial disadvantages of the Internet include the domination of the Western world both in users and information providers, as well as the domination of English as the main language. This may be a stage in the innovation cycle of new technology, but is certainly a threat for equal opportunities of non-Western countries and non-English speaking people.

Another major disadvantage of Internet, already mentioned as an advantage as well, is the informal nature of communications. Because every individual is free to provide information through Internet, either by sending electronic messages to discussion lists or by providing information through the world wide web, classical quality control mechanisms such as editors, refereeing and publishers are by-passed. This implies that each user is faced with the task of assessing the quality and reliability of the information. While availability of information might have been a quality guarantee, it is no longer so on the Internet. The availability of information does not mean that the data is correct and up to date. The rare examples of refereed electronic journals on the Internet do not change this overall characteristic.

A final significant disadvantage of the Internet is the concern regarding privacy and copyright. What happens if you participate in an electronic discussion list and raise some of your ideas, only to find them in a publication by a different person some time afterwards. The privacy issue not only includes the concern that messages you might receive or send are not read by other people than those they were intended for, but also the danger someone might distribute opinions or information in your name. Only

recently, the discussion list SOCWORK distributed a message signed by Hillary Clinton originating from the address Bitch@whitehouse.gov. While the address and the contents of this message made it clear to most readers that is was not genuine, the possibility of hackers distributing mail in another's name is a concern.

The Internet: ENITH WWW as an example

ENIT*H* is the acronym of the European Network for Information Technology in Human services. It is an association of individuals and organisations from different European countries who are all concerned as producers, users or academicians with the way information technology is being used in the human services, specifically social work. The aim of the association is to promote the exchange of ideas, projects, information, networking, new developments and research and evaluation in the field of information technology within the social and human services. This aim is worked towards by the publication of books and articles, a quarterly newsletter, the organisation of annual European conferences and participation in the international HUSITA conferences. The newest instrument in the attempt to achieve the above aim is the use of the World Wide Web. Since January 1995, ENIT*H* has provided information on the use of information technology in human services through it's WWW-site.

Contents

The World Wide Web information site of ENIT*H* consists of nearly 1,700 'pages' of information, available to all WWW-users world-wide. Everybody having access to WWW technology (through browsers, email) can link to the ENIT*H* pages at the address http://enith-www.uia.ac.be/enith The introduction page indicates some of the options and available information. Apart from information on ENIT*H* itself (aims, membership, activities), this www-site offers three main features of interest to those who are concerned with the use of information technology in social work. These are a reference page to related Internet initiatives, a software directory and a comprehensive indexing and abstracting service.

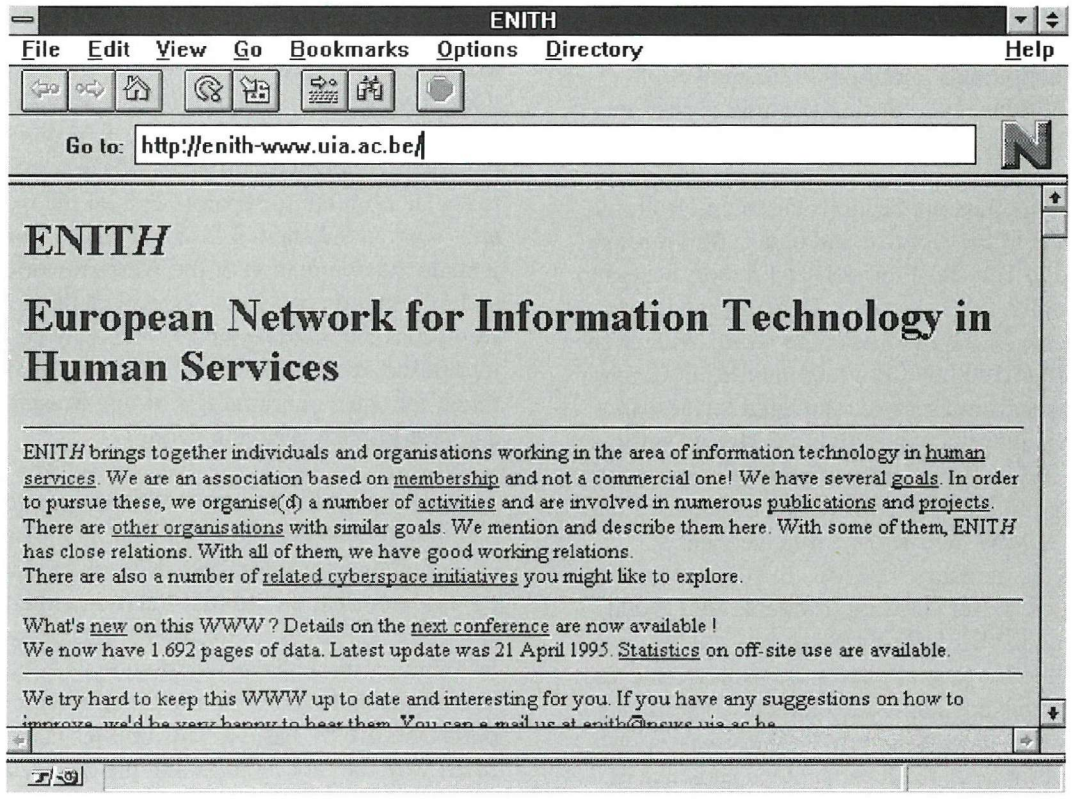

Figure 1 ENIT*H* WWW page

The first of these features, the *reference page to related social work cyberspace initiatives*, includes links to other known world wide web sites or discussion lists related to the use of computers in social work, social work as such or schools of social work. While the American dominated discussion list SOCWORK has long been the only Internet initiative related to social work, it is nowadays difficult to keep track of all new interesting sources of information. No wonder this page is often used.

The second of the interesting feature is a *social work software directory*, based on the directory published in this journal in the previous volume. It lists human service

software and describes the main characteristics of well over a hundred software packages. The notion is that this electronic version of the software directory is maintained more regularly than the paper based version. The aim is also to link the software directory with uploadable demonstrations or full-working versions of the programs. Technically, this is fairly easy as illustrated by the available software from Walter Hudson. It however involves getting permission and programs from the software publishers, which is not easy. The ENIT*H* WWW pages do already provide a link to the CUSSnet WWW-site, offering a variety of human service relevant North American shareware software.

Production process

The production process of information for a WWW-site is relatively simple. It is similar to other hypertext environments in that data needs to be fragmented into small units (called 'pages') and links or references need to be inserted between these pages and relevant pages at other WWW-sites. These links show up underlined or in a different colour when a reader retrieves a page, and indicate the possibility to click on the reference to jump to other pages of information. Often this includes jumping to other sites in other countries. Readers however cross national borders without necessarily being aware of it.

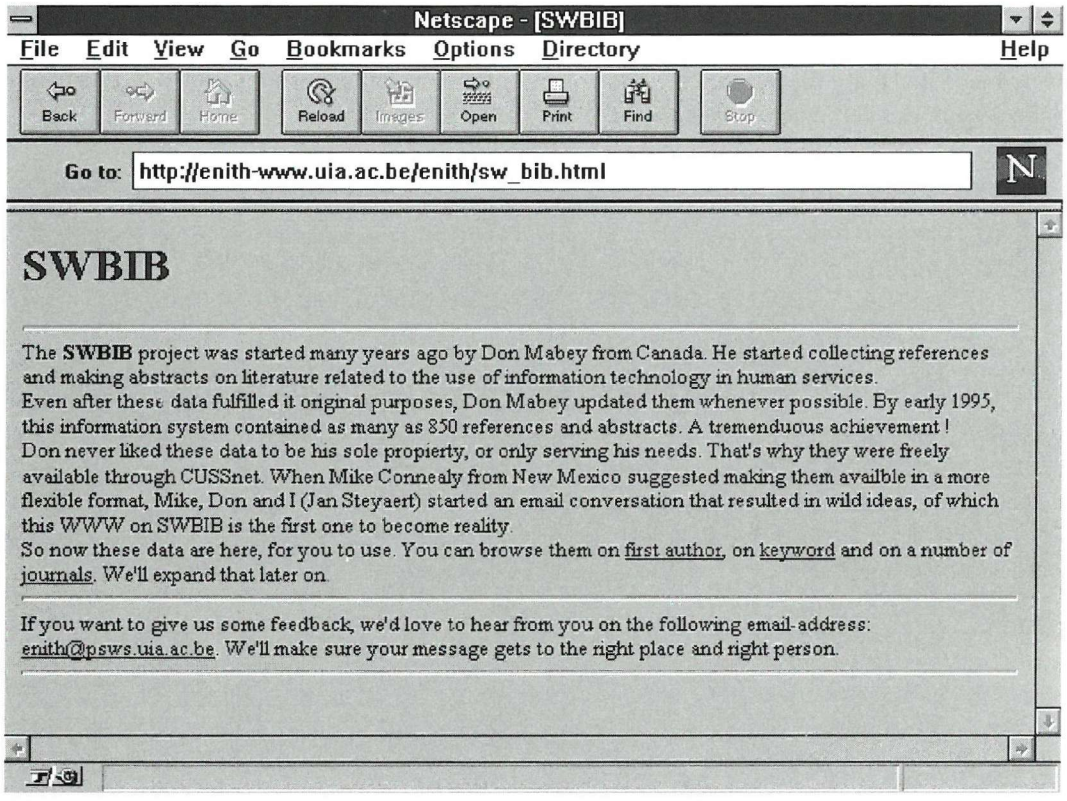

Figure 2 with the SWBIB page

Finally, the ENIT*H* WWW pages include a comprehensive *indexing and abstracting service*. This includes nearly a thousand references and abstracts to publications on the use of information technology in the human services. It is based on the work done by Don Mabey from Canada, but makes his achievements available to a great many users. It is one of the most interesting parts of the ENIT*H* pages, but also the most difficult to maintain. While technically the whole process is quite simple, the effort needed to track all the literature, make references and write abstracts is quite considerable. In the coming months, the references will be expanded to include not only English literature, but also Dutch/Flemish and German publications, as well as publications from the Nordic countries.

The lay-out of the pages can be done by any normal text editor. It comes down to inserting codes to indicate title, bold, italic, references, and the like. These codes take the format of <B> and </B>, <I> and </I> (begin/end bold, italic) or similar codes. The editing task is facilitated enormously now word processors such as WordPerfect and MS-Word include tools to write WWW-pages, as well as separate editors becoming freely available.

Overall, the production process is fairly easy and not labour-intensive. The main challenge is to structure the information into a number of pages and to search the world wide web for other relevant sites.

Usage

Is it being used? This is of course a vital question for a new communication medium that draws attention for it's world wide accessibility and promises new dissemination challenges. The WWW-server software we use for the ENIT*H* world wide web keeps track of usage by maintaining a log file. Each time someone from around the world retrieves a page from the WWW site, a line is added to the log file. In it, the date and time are noted, as well as the address of the computer retrieving the information and the name of the retrieved page. The identification of the user can normally not be deduced from the machine address, but the country can.

Between the start of the ENIT*H* WWW on 20th of January 1995 and the analysis for this article on 25th of July, 11,224 entries were made in the log file. Of these, 1,656 originated from the developer's computer and cannot be considered usage in the real sense. This leaves 9,568 retrieved pages which were retrieved by a total of 976 different computers, mostly from European countries or North America with a few users in Australia and New Zealand. How many real life people this figure represents is difficult to estimate. One computer can be used by more than one person, but similarly one person might use more than one computer during the 6 months of analysis. The figure of 976 origins of requests needs to be seen in perspective however, as only 218 computers requested 10 pages or more. It is probably safe to consider computers requesting fewer than 10 pages cases of 'web surfers' or users who are only browsing through the information without actually using it. The conclusion is that the information has been retrieved by 218 computers for substantial use. Stated in non-technical language, 218 users have read our published information while another 758 users browsed through our pages. Compared to the two leading journals in this field (*New Technology in the Human Services* and *Computers in Human Services*), this is probably not too bad. One can only guess how many of these journals' copies are browsed through or actually read.

Finally, it is to be expected that usage will increase as more schools of social work and social service agencies gain access to the world wide web and the existence of this site becomes more known to potential users.

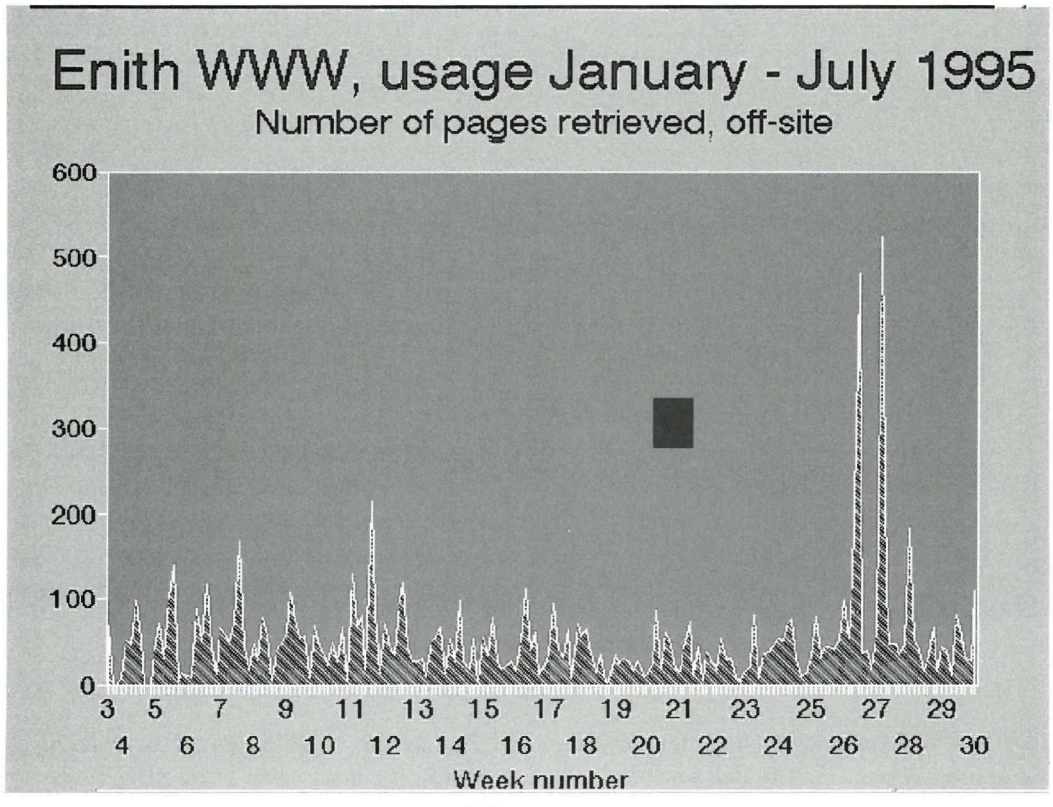

Figure 3

Challenges and threats for social work

The increased capacity of information provision that comes with the various uses of the Internet offers both challenges and threats for social work. While access is currently limited to educational organisations and a few service organisations, it is likely to increase and expand to all citizens once the competition between telephone and cable television companies starts seriously. One can

already envisage a situation where citizens can access Internet through their television set (as already done in one part of the Netherlands), thus creating a situation similar to France's *Minitel*, only on a more user-friendly and global scale. Such a situation would increase the importance of Internet developments for service providers and social work educators.

For social service providers, Internet challenges can take different formats. While many now provide community information through leaflets or automated systems (e.g. through public libraries in Flanders and the Netherlands), they can look forward to an accessible technology to provide their information directly into the home of every citizen, thereby expanding their audience significantly. One can also think about the establishment of electronic offices through the Internet. This is being experimented with through the use of 'information pillars' in public places. However, there is no reason not to open these electronic offices directly from homes. In this sense, a major challenge may be awaiting citizen advice bureaux and other information and referral agencies. In the Netherlands, several cities have already established an 'electronic city' in which citizens and tourists can wander around to collect information on culture as well as social services.

In the light of the international development from service provision in kind towards service provision in cash (as in care management in the UK or the personal budgets in the Netherlands), a major Internet application might be developed around welfare benefit calculation systems. While these now take the form of software programs operated by social service professionals, these also could be made available through the Internet and become accessible for every household with a simple television set. The empowerment this gives to clients and citizens could be overwhelming. See http://www.ferret.co.uk/index.html for a first world-wide example of this.

Several European regions are experimenting with new alarm and remote monitoring systems, making use of Internet developments to serve people with disability and the elderly,

For the social work educator, as well as all other educators, the current Internet developments open up important challenges regarding the use of distance learning and offers an excellent multimedia platform. One course organised last year on the Internet drew as many as 80,000 participants. There is no longer a need to have both the educator and the student in the same country, let alone in the same room.

One will also have to pay attention to the new methods of gathering information for one's profession. While traditional methods of library and colleagues will continue to exist, new methods such as electronic discussion lists or thematic WWW-sites can become an efficient and effective alternative. As indicated earlier, the communication of knowledge through these media is characterised by its informal and interactive nature, being close to person-to-person communication, these media may well fit better with the learning styles of human service professionals.

Threats coming from Internet developments come from the questionable privacy of information on the Internet, as well as from the extreme democratic nature of the Internet. Everyone is free to supply any information he or she seems fit, and no quality control whatsoever is available. This increases the need for users to make their own assessment about the quality of the provided information. While this was not an easy task with traditional knowledge dissemination through publications and conferences, it might prove unmanageable through the Internet.

Conclusion

Conclusions regarding the Internet and its possible use by social work necessarily need to be temporary. Current developments could barely have been envisaged a year ago, and who knows what next year might bring. Still, it is relatively safe to conclude that the Internet is here to stay and will become an integrated part of our daily living very soon. As this becomes true, the number of applications in this area will grow and complement or replace traditional ways of disseminating information. This growing number of applications offers several challenges, as well as threats for the social work profession and social service provision.

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Geographic Information Systems: a tool for human service professionals

Laurie Chisholm

Introduction

Almost all private and public sector human service activity has the ultimate aim of evaluating, producing or delivering some type of goods or service to people. It would appear that a necessary and fundamental prerequisite to efficient and effective production of goods and services is, in the first instance, a sound and detailed knowledge of the target population, and in the second, access to appropriate and timely demographic and socio-economic data. Recent years have seen the increase in the development of geographic information systems (GIS) as an efficient new tool for the analysis of such data for the human services.

Digital databases have been widely available for several decades. Established database management techniques, developed originally for business applications on mainframe computers, have provided many useful tools for the design and use of large numeric databases. Techniques for accessing and manipulating traditional tabular format data are widely available. However, relatively recently, databases have begun to proliferate in which the spatial characteristics of the stored data are at least as important as their non-spatial characteristics. Such systems are termed 'geographic information systems' (GIS).

Spatial, or geographic, characteristics are very different from other types of measurement. The relationships between phenomena in space become quite important. Which objects are closest together; which route would I follow to get from here to there; what objects can be found within 1/2 km of this place? Thus, while spatial databases have much in common with traditional tabular databases, they have additional traits that require that spatial data be stored and manipulated in unique, new ways. Essentially the digital map now serves as a spatial framework to which other data are 'snapped' and databases containing additional characteristics of interest can be attached.

GIS technology can be used for a very wide range of fields in the human service arena (Bracken and Webster, 1990) ranging from community care policy and development control, population distribution and activities, settlement, and transportation, to 'service' fields such as education and health planning, and the analysis of social problems as a whole.

In particular, the role of GIS in human service applications has expanded substantially in recent years. This is largely attributable to the availability of population census data in digital format, as well as up-to-date, detailed information on the location of infrastructure and on administrative boundaries. GIS can provide useful and actionable information as an input to management's decision-making process.

GIS is an important area where computers have greatly strengthened the choice of tools to deploy in any planning effort.

What is a GIS?

In the strictest sense, a GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, ie. data identified according to their locations. It is commonly envisaged as a set of map

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layers that are all registered with respect to a common cartographic frame of reference (Tomlin, 1990) as depicted in Figure 1.

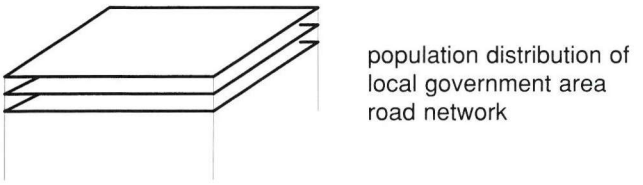

Figure 1

How Does a GIS Work?

Different kinds of data in map form can be entered into a GIS. Figure 2 represents a GIS file consisting of postcode boundaries. A GIS can also convert existing digital information, which may not yet be in map form, into forms it can recognise and use. For example, tabular census data can be converted to map-like form, becoming layers of thematic information in a GIS (Figure 3).

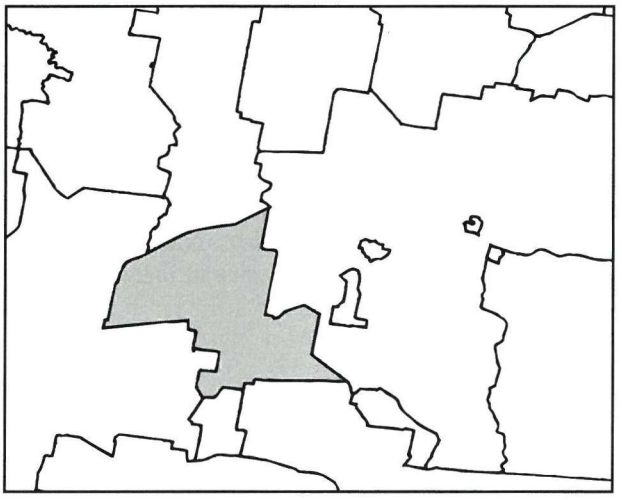

Figure 2. Map of a shaded postcode area

ID	KEY	TYPE	DESCRIPTOR
1	colldist	CHARACTER	census collector district number
2	owned	INTEGER	number of homes owned
3	purchase	INTEGER	number of people purchasing homes
4	rented	INTEGER	number of rented homes
5	unkn_hom	INTEGER	unknown house status
6	preschl	INTEGER	number of preschool students

Figure 3. Portion of a census data file:

A knowledge of where people live and work and how the numbers and characteristics of the populace as a whole relate to other parameters is a very powerful analytical tool. On the basis of census and other information, the effects of policy, planning and infrastructure provision can be monitored. Such knowledge of population also often forms the basis of resource distribution from the nation, to states and then local government.

A GIS uses geographically referenced data, as well as non-spatial data, in a computerised system for the analysis of any spatially distributed phenomena. It has often been stated that GIS are an invaluable tool for multidisciplinary problem solving and has been seen as an 'enabling' technology for a wide range of disciplines (Goodchild, 1991; Morrison, 1991; Lauer et al, 1991). Indeed GIS is an integrating technology. It links together diverse types of information drawn from a variety of sources. Such integration not only provides users with a unified perspective of their data in ways not previously possible, but enables analysis and interrogation of the information as well.

Data integration

The ability to assemble a variety of information on population and related socio-economic data is an invaluable trait of GIS, not to mention it's capabilities for data collection itself and subsequent analysis.

A property ownership map might be at a different scale from an industrial zoning map. Map information in a GIS can be manipulated so that it registers, or fits, with information gathered from other maps (Figure 1). Before the digital data can be analysed, they may have to undergo other manipulations that integrate them into a GIS. Since much of the information in a GIS comes from existing maps, a GIS uses the processing power of the computer to transform digital information, gathered from sources with different characteristics, to a common base.

A GIS makes it possible to link, or integrate information that is difficult to associate through any other means. A GIS can use combinations of mapped information to build and analyse new information.

An example of data typically held in a GIS would be the post code boundaries shown in Figure 2, or property boundaries for a housing subdivision. A GIS can then be used to analyse land use information in conjunction with property ownership information using data in the same format.

What's Special About a GIS?

There are four basic areas of activity for people who use geographic information: to observe and measure parameters, to develop maps to represent parameters, to monitor changes in space and time, and to model alternatives ('what if' scenarios).

The manner in which maps and other data have been stored as layers of information in a GIS makes it possible to perform complex analyses. Spatial analysis functionality can be used to model, make predictions, and reach conclusions about problems of interest. Such analysis involves combining data from multiple spatial data categories and performing analytical, statistical, measurement, and other operations on GIS data sets suitable for a particular application.

For example, distance measures can be generated to calculate a number of accessibility measures. Other factors, such as labour force measures, can be aggregated by relevant census areas. The interactive use of GIS analytical and display capabilities enables decision makers to retrieve and combine the relevant spatial information needed to arrive at the appropriate decision within acceptable time-frames. Furthermore, unlike the situation where a static atlas of maps forms the information base, the decision maker in this case, can pick and choose the information that is relevant to the particular problem and can easily modify items of interest.

Information retrieval

What do you know about a particular residential area? With a GIS you can 'point' at a location, object, or area on the screen and retrieve recorded information about it from off-screen files (Figure 4). This kind of function allows you to draw conclusions about the data accessed. For example, it is possible to retrieve and display in colour those areas where the average income exceeds $100,000.00 annually.

Attribute report for active ID 10
Linear units are METERS Area units are HECTARES

ID	postcode	population	income	education
	2650	52,000	30,000	high school - O Level

Figure 4.

A crosshair pointer can be used to point at a location stored in the GIS, in this instance, the shaded postcode boundary in Figure 2. The GIS retrieves the information stored about the location, in this example, the population, and average income and education level within that postcode boundary.

Such information comes from census data. Before the advent of computer-assisted data retrieval, census data was used very much on a one-off basis due to tedious, manual access. Now census data is available in digital format, often adding to the level of detail at collector and enumeration district levels available to users, in addition to users accessing such data at a disaggregated level for local use.

Spatial analysis

Distances between sales and service delivery points and the households and other units they service can be calculated in a range of ways. Distance can be measured 'as the crow flies', or more appropriate measures such as road distance or travel time can be used.

Location-allocation problems can be solved which concern the provision of a service to satisfy a spatially dispersed demand. This combines the location factor, where to put central facilities, with the allocation problem, which subsets of the demand should be served from each site. This method can be used for retail locations, emergency facilities, schools, warehouses, regional offices of government departments, and recreation facilities.

Often with data in vector format, we wish to know if one area representing education level intersects with another representing unemployment, in this instance, to assess socio-economic status. The operation referred to as 'overlay' will form a new map, typically including new data entries which represent the combination (coincidence) of the two categories.

As a further example, using maps of demographic information and urban infrastructure, the GIS might produce a new map which could determine which sites provided adequate service of a particular nature to a specific age group.

Data Output

A critical component of GIS is its ability to produce graphics on the screen or on paper that convey the results of analyses to the people who make decisions about resources. Such graphics allow the viewer to visualise and thereby understand the results of analyses or simulations of potential events. This ability enables visualisation of data previously viewed in tabular form only. The visual impact of spatial data display alone has encouraged use of GIS, particularly for non-technical users.

GIS Implementation for Human Services

A geographic information system can easily be implemented in numerous human services settings. For example, in the determination of appropriate food coupon distribution and accessibility to inner-city food stores, an

important issue is whether to recommend additional food stores to open, or to increase the distribution of government surplus foods in those areas thought to be in need. A GIS can be used to examine the extent of the problem in a geographic sense. In this case the GIS could provide address-specific data on all participating food stores and combine this dataset with a sample of 20,000 participating households. From analyzing households falling within various distances of different types of food stores, it could be found that the existing coverage of retail food stores presents considerable choice for most areas concerned. In this sense, the GIS is being used to address one of the most important issues for human services: how to measure and depict the accessibility of services. The GIS can be used in the same manner to plan service programmes for individual clients or groups, such as the aged, by finding needed service sites that are accessible by public transportation or within walking distance.

Examples of GIS Applications

Policy making and planning

There are many issues relating to population which are significant in social and economic planning, for example, ethnicity, locational disadvantage, socio-economic status, and many others. Overlaying two or more relevant data layers results in the production of a new map defined from the user-defined rules of union and superimposition. Socio-economic status may be assessed and analysed by overlaying distributions of income, health, education level, unemployment, etc. When a number of such variables are overlayed onto a geographic base such as postcodes, zipcodes, or census divisions, a measure of multiple disadvantage can be obtained.

Friel (1991) used environmental data, census data, and specialised socio-economic data based upon zip-code boundaries, to characterise the demographics of retirement for policy makers. Zip codes were used to distinguish between metropolitan/non-metropolitan study areas, with GIS analysis used to identify and classify different types of retirement communities based upon specified criteria. Results of these operations revealed the proportions of elderly communities in the areas, followed by the estimation of age-specific migration. Each of the resulting migration configurations generated different elderly populations. This information had specific implications for service delivery and economic development.
A study of public transportation efficiency was conducted by Graham (1993) using a GIS for optimised school bus routing and scheduling. Geocoding based upon address-matching, combined with a transportation database containing student characteristics were used in an optimisation model which addressed primary concerns. This method successfully minimised the number of buses required, the total travel time for all buses, and the number of stops resulting in substantial cost reduction, yet optimal service for this form of transportation.

In addition to determining the geography of retirement and optimal bus routing as described above, the GIS can be used to identify the most under-serviced areas and be used to make recommendations regarding the opening of new facilities. This can be particularly important in areas where locational disadvantage has been determined, whether in remote or rural areas, or within low socio-economic and areas of the urban fringe. GIS technology is used for varied applications related to policy making and planning, from funding school districts, redistricting colleges, assessing solid waste recycling, and modelling property values.

Service locations

A GIS approach is also useful for the private sector to improve the bottom line of profitability and cost efficiency by identifying areas of greatest potential demand for the goods and services they supply (Hugo, 1993). Demand and need are influenced by a range of characteristics, of which age and income are generally the most important (Hugo, 1991).

Typically the approach is to use marketing surveys to identify target groups and then use census data to establish their spatial distribution. This process of relating knowledge of market segmentation to spatial distribution of population with different characteristics is a major commercial application of GIS (Coppock and Rhind, 1991).

Site Selection

Kerfoot (1993) cites the use of GIS for regional shopping mall site selection, both to evaluate new development opportunities and to demonstrate the results to potential lenders, investors and tenants. A demographic database containing data at the census tract and zip code level was developed to access population, income, education and occupation variables in relation to a mall's potential size and tenant mix. This was analysed in conjunction with a database containing 'competitive' data on shopping centres of approximately the same size and constituency. Charge card data, combined with the demographic and competition databases allowed the GIS to be used to determine market gap analysis, eg. where an opportunity exists for mall establishment. In this manner, GIS improved the development process and increased understanding of relevant market factors to the management's advantage.

Legal and political adaptations

Computer systems have been used for years to solve spatial partitioning problems. Such boundaries include school districts, emergency response areas, and sales territories, as well as electoral precincts (Haggett et al, 1977). Integrating demographic data from the census, geographic data, and election data, Astroth (1991) outlined the development of GIS for electoral redistricting which takes into account the shape and size of the districts, fair representation for minority groups, and political interests.

Health Care

Researchers have long been interested in patient travel time to health care facilities (Furbee and Spencer, 1993). In conjunction with other datasets, travel time can be used to identify medically underserved areas, to decide where new health care services are needed, and to design marketing plans for existing facilities. In most cases, a GIS can perform such analyses more accurately and quickly than previously used manual methods.

Many organisations have the task of assessing the health risks to citizens living near chemically contaminated property and waste sites. A GIS can be used to aid analysis of the health assessors by overlaying a map of sites and population demographics in order to locate the at-risk populations.

GIS has an important role to play in determining the causes of spatial differences in mortality and morbidity (Hugo, 1993). This is done by overlaying distributions of relevant population, environment and service provision variables against the incidence rates of particular mortality levels, for example, infant mortality, child mortality, and of different types of sickness and identifying overlapping distributions.

Conclusion

Organisations within all segments of our society must quickly respond to complicated problems involving a wide variety of geographically referenced data sets (for example, socioeconomic, facilities management, or natural resource data). Traditional methods of acquiring, storing and analysing spatially referenced data are proving too costly and inflexible in meeting these growing needs. GIS can improve efficiency in locating needs and handling such factors in a defined context, whether at the community, local, regional or national level. It would seem that GIS offers the only established methodology which facilitates the integrated analysis of population, environment and infrastructure variables that are needed for such assessments. Computerised geographic information systems are emerging as the spatial data handling tools of choice for the human services.

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Reports from the Conference *Computers in Social Work Education and Training* March 1995

Using SOSIG to Support Social Science Research

Debra Hiom and Nicky Ferguson

Abstract

The Internet can provide an invaluable resource for supporting education and research in the social sciences; it offers access to people, data and resources on a hitherto unparalleled scale. However it is as yet a far from an ideal work environment. The sheer enormity of information available and the corresponding lack of organisation of this information can prove an effective barrier to potential users. The Social Science Information Gateway (SOSIG) allows social science researchers and practitioners to discover and easily access relevant high-quality networked resources and services world-wide. The paper will look at the background to the project and the current status of the service. It is based on a presentation given at the Computers and Social Work Education and Training workshop in March. Since the workshop there have been a number of developments to the SOSIG project which have been included at the end of the paper.

Introduction

The basic definition of the Internet is a global network of computers that can exchange information. What this actually provides you with is the ability to communicate and exchange information with over 30 million people across the world. It provides a method of communicating with people locally, nationally or internationally in a way that is both fast and economical. The culture of the Internet is still very much one of co-operation and a readiness to share knowledge and expertise with others. Whatever a persons interests or specialisms there will be groups of people who share those interests on the Internet.

The Internet also provides access to information resources. The amount of information on the networks has grown exponentially over the last few years. Traditionally academics have shared resources such as working papers, articles, library catalogues, data archives, etc. and the number of these has grown as publishing information on the networks has become easier. However as more commercial institutions and businesses are becoming involved in the Internet a whole new range of information and services are also appearing. The result of this growth in material is that is becoming increasingly difficult for network users to successfully find their way around the network and locate information that is of interest to them.

Background to the Project

In 1992 the Economic and Social Research Council (ESRC) appointed a Networked Information Support Officer to examine the potential for the use of networked information amongst the UK social science community and to encourage further development. There was a perception that the social science community were not reaping the benefit from networked resources in the same way as their colleagues in the natural and physical sciences. Through holding training sessions and workshops it became clear that researchers found a gulf

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between being guided around the Internet with the use of documentation and an instructor and having to incorporate these newly acquired skills in their work. Once the mystique of using networks had been dispelled, the path led quickly from excitement to frustration as researchers found it difficult to navigate around the networks and locate material of interest to them. Most academic researchers are unwilling or do not have the time to spend time searching the Internet for information. It was decided to try to provide the social science research community with an easy way to find their way around the Internet in order to locate information and data they could use in their work. The project that grew from this idea was the Social Science Information Gateway (SOSIG). A pilot service of the gateway became operational in June 1994.

Use of World Wide Web

The basic objective of the project was to set up a 'one-stop-shop' for UK social scientists, to connect the user seamlessly to relevant resources regardless of their location. World Wide Web was chosen as the software tool to deliver this solution for various reasons. It provides the consistent easy to use interface that was required. It is almost certainly the fastest growing NIR (Networked Information Retrieval) tool, with development work being carried out in Europe and the United States. It also allows access to many other processes and protocols such as gopher servers, ftp sites, telnet sessions and many more.

Structure of SOSIG

There are over 700 links to social science resources on SOSIG at present. Unlike many other gateways or subject listings, the project tries to maintain a level of quality control. A resource does not appear on SOSIG until it has undergone the following process.

Collection

A variety of resources are scanned including:

- Mailing Lists and Newsgroups - various lists and newsgroups are scanned for announcements of interesting social science resources, some of these groups are subject related but others are general lists set up specifically to monitor and disseminate information about new network resources.
- Printed guides and Catalogues - these often provide a good starting point for identifying resources within a particular subject area.
- Networked search tools - there are a number of tools or robots that aim to build indexed catalogues of resources available over the Internet, such as Veronica, Archie and Lycos.
- Other networked services - following links from other services on the Internet.

The project also has a number of volunteer LIST'eners. These are generally subject specialists in the social sciences who can advise on the quality of resources. In addition to recommendations from the LIST'eners the project also regularly receives recommendations from the users of the service. A form is available on the web for users to e-mail suggestions and additions to the gateway, these are subject to the same quality checks before they are added to SOSIG.

Filtering

An important role for SOSIG is to filter out 'junk' - resources that are of little or no use to our users. Resources are chosen according to a selection criteria that includes areas such as relevance, reliability, stability and currency.

Recording

There is very little meta-data or descriptive information about resources available on the Internet, often no more than a file or directory name. This can result in users choosing a link or downloading a file, waiting while it transfers to their system (often from the US) only to find it wasn't what they wanted at all. All the resources that appear on SOSIG have been catalogued using a standard pro-forma or template. This template which includes a description of the resource, underlies the search mechanism which is available on SOSIG. A keyword search will provide you with a list of resources that match your criteria, each of which will dynamically link you to the resource described, wherever it is in the world.

Classification

Each resource is classified using the Universal Decimal Classification (UDC) scheme. Use of this scheme was agreed with two other national service providers NISS and BUBL to allow for collaboration amongst the projects. Although the UDC underlies the organisation of the resources, a strict hierarchical scheme is not enforced, so if a subject has recently become important enough it can find a place on the top menu. Individual resources can also be cross-classified so that they can be found under several different subject areas. The subject categories can be viewed alphabetically (the default) or according to the UDC.

Developments

SOSIG has recently received funding from the UK Electronic Libraries Programme for two projects. The first is an extension of the SOSIG project to employ a training and documentation officer. The training officer will provide hands-on training, documentation and self paced

learning materials specifically tailored for social science librarians, other social science information support staff and users of networked resources in the social sciences. Evaluation of this training and the general effect and usefulness of subject based services will also be undertaken.

ROADS (Resource Organisation and Discovery in Subject based Services) is a two year collaborative project to design and implement a user-oriented resource discovery system. This will allow users to find and use networked resources (documents and interactive services) of interest to them without leaving their routine working environments. This will build and extend upon the work on resource descriptions already in process on SOSIG. Furthermore the project will implement a system that allows users to search across several different subject based services seamlessly. The system will initially be piloted on the SOSIG service, the OMNI (Organising Medical Networked Information) service and the Electronic Libraries Information service at the UK Office of Library Networking (UKOLN).

The ROADS partners are:

SOSIG Project, University of Bristol
UKOLN, University of Bath
Department of Computer Studies, Loughborough University of Technology
Bunyip Information Systems

For more information about the ROADS project contact the authors or see the URL:
http://ukoln.bath.ac.uk/roads/

Access to SOSIG
Users with World Wide Web (WWW) clients such as Mosaic or Netscape can access SOSIG by typing the URL (network address) **http://sosig.ac.uk/**

Users without WWW clients can access the service using the Lynx client. This will give you a text only based interface to the service.

Make a telnet call to:

sosig.ac.uk
login as: **sosig**

On-line, CD-ROM and the Internet - new opportunities for social work education and practice.

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Introduction

This report of a workshop presented at the Computers in Social Work Education & Training Conference discusses a range of Information Technologies (some more than ten years old, some very much more recent) which offer a number of opportunities for the social work profession. The National Institute for Social Work (NISW) is making use of these technologies in support of its aim of 'raising standards in social work and social care'. NISW is working to demonstrate how they can impact upon the use of 'information' in its broadest sense, and how they can improve practice in the field.

NISW is keen to support the use of information by social work practitioners to enable them to reflect upon, and evaluate, their practice on an ongoing basis, and to have practitioners who through their social work training have developed information skills that can be of practical use in their daily practice. These issues were addressed by Rachel Pierce of CCETSW during her workshop of Paper 30, and by Herman van Lieshout on his workshop of the Hogeschool Eindhoven's move towards teaching Social Informatics rather than IT. *(Ed. note: see Vol.8 No.2)*

Information

'Information' has been on the social services agenda for many years - in the late 1970s there was a 3-year action research project funded by the British Library and the DHSS, which analysed social workers information-seeking and information-handling behaviour. In 1984/1985 NISW held a series of seminars which led to the publication of 'Information Exchange: Swamp or Desert?'. In 1987 the Policy Studies Institute published *New Technology and Information Exchange in the Social Services.*

These research projects discovered social workers, as a rule, find it difficult to keep up to date with information, do little reading, and use team meetings and personal contact to find and exchange information. Unlike other professions, social work seems to lack a culture of practitioners keeping systematically up to date with literature. There have been many studies into the dissemination of research within social work, which find that the impact of research findings on practice is limited.

The three technologies I will discuss with reference to their potential for addressing these issues are the use of on-line databases and bulletin boards, CD-ROM and the Internet.

On-line databases

On-line databases became well established during the 1980s as a wide ranges of databases, primarily bibliographic, and previously available in printed format, became available through on-line commercial hosts.

In 1983 the DHSS-DATA database was made available on-line (previously available in printed format as Social Services Abstracts), as did Social Work Abstracts, the database of the National Association of Social Workers in the USA. A large number of other databases in the broader social sciences, sociology, health and related subjects were also made available on-line during this period.

The drawbacks of these on-line databases were:

- cost - BT costs, on-line host charges for connect time and documents retrieved
- slow telecommunication speeds - it is only within the past couple of years that high-speed modems have become affordable
- the expertise required to use them - their search interfaces were rudimentary and were aimed at professional librarians.

Although some Social Services Departments, notably the large shire counties (Essex & Hampshire) employ professional librarians, the typical SSD 'library' is as often as not a shelf or two of out-of-date books.

Consequently such databases had little impact on practitioners, students, or social work lecturers who were reliant on someone to search such databases for them. It is worth noting, however, the higher profile of the Social Work Abstracts database in the USA - where keeping abreast of current literature and developments is evidently rather more part of the professional culture of social work - perhaps as a result of their more 'academic' model of social work education.

CD-ROM

In recent years CD-ROM has offered an alternative to on-line databases, and found a ready market, particularly in universities, who could not offer on-line searching to students, and for whom a fixed-cost database with a user-friendly search interface was more to their requirements.

The first CD-ROMs published were major ones - the Medline database, Sociological Abstracts, and so forth.

For the social work profession 1994 saw the publication of two CD-ROM databases: Social Work Abstracts, and Volnet, a joint venture by the Volunteer Centre and the Community Development Foundation, whose database had been available on-line through the University of North London for some years.

In March 1994 NISW launched *Caredata*: the social and community care database. *Caredata* contains over 23,000 abstracts to a range of publications - monographs, grey literature, research reports, and journal articles from a wide range of title - both academic and practice-orientated.

This meant that for the first time organisations who previously had difficulty in accessing any resources of this type in the social work field, now had the option to subscribe to a CD-ROM database of the most comprehensive social work collection in the country. Within the first year of publication over 70 subscriptions (half of them Universities running DipSW courses) indicate that *Caredata* is filling a major gap.

The National Children's Bureau subsequently published their database on CD-ROM as *ChildData*, and the Centre for Policy on Ageing are currently working on their CD-ROM - *AgeInfo*.

Now the problem is not the lack of any such resources, but which CD-ROM or combination of CD-ROMs to choose Developments such as full-text on CD-ROM databases

will make them even more valuable tools both in academic and practice settings.

Using the Internet?

Referring back to social workers' preference to get information through personal contact - NISW is currently looking at the 'Information Superhighway' to network individuals throughout the UK.

NISWnet: the National Institute for Social Work bulletin board, was launched in November 1994. Although not 'on the Internet' a dial-up bulletin board has a role to play in that social work practitioners do not generally have Internet access (those that do have access do it from home rather than as part of their work), but many do have access to a PC with a modem in it - all that is required to access NISWnet.

NISWnet offers a range of on-line resources, and a number of discussion forums - and it is hoped that as the number of users builds up NISWnet will become a key resource for tapping into current practice and current issues - something that a CD-ROM or on-line database can not do.

NISW is also offering access to some of its resources through the Internet. However, whilst the WWW offers the potential of an exciting new paradigm for information provision, only 5% of Internet users have Web access, a very high speed modem is required, and there is not yet a great deal of really useful information accessible through the Web - it is more of a 'shop window' for non-Internet resources.

The vast majority of Internet use is e-mail, through mailing lists, Usenet lists, and individual e-mail. NISW has established a listserver (an automated system for responding to requests for information, and for making available a range of text files) which can be used by anyone with only a basic Internet e-mail connection, making available a range of text files - electronic versions of NISW newsletters and our Policy Briefings series.

Conclusion

In conclusion, NISW sees a range of complementary Information Technologies offering organisations and individuals an unprecedented opportunity to keep up to date with developments in the profession, to learn from practice elsewhere, and to use that information to reflect on and modify practice - in short, to use Information Technology to exploit the social work knowledge base.

Postscript

NISW has recently created its own page on the World Wide Web through which a number of documents are displayed. The URL is ***http://www.nisw.org.uk/***

NISW run a discussion list UKSOCWORK which has been established to provide a broad forum for discussion of topics of common interest to those in the social work field. To subscribe to UKSOCWORK send a message to ***listserv@nisw.org.uk*** *with the body of the message (leave the Subject: line blank) reading:*
subscribe uksocwork Your Name e.g. subscribe uksocwork Mark Watson
You will receive an automated response giving further information on using the list.
Messages to the list itself should be sent to ***uksocwork@nisw.org.uk.***

NISWnet, a dial-up bulletin board, is also available 24hrs a day on 0171-388 6982.

PSS INSPECTION AND INSPECTORATES:
APPRAISAL OF INFORMATION SYSTEMS REQUIREMENTS SCOPING STUDY

This scoping (feasibility) study is sponsored by the Inspection Resource Group of the Social Services Inspectorate (SSI) and commenced on 1st November 1995. It has been set up to explore, appraise and report on the value and potential for developing an information system to support inspection activity in the Personal Social Services (PSS).

The study is being conducted by Professor Bryan Glastonbury and Dr Angela Spackman of the University of Southampton, and Di Gilbert of the University of East Anglia. They expect to be gathering data up to Christmas, and then preparing a report and recommendations in January, for delivery not later than February 15th.

This is an invitation to anyone interested to make contact or representations, or send materials to the research team. Contact Bryan Glastonbury/Angela Spackman on phone 01703 593536, fax 01703 592779, or e-mail Bryan@chst.soton.ac.uk. Postal address is Centre for Human Service Technology, University of Southampton, Southampton, SO17 1BJ.

Reviews

The Probation Service and Information Technology

Reviewed by Ron Deepwell
Colombi D, (1994), The Probation Service and Information Technology. (CEDR Series), Avebury, Aldershot, 213pp £35.00

Potential readers should not let the title of this book put them off. My initial reaction after reading this book was that a copy should be seen and read by all Chief Probation Officers. This is, however, to do the message of the book an injustice - it deserves the widest of audiences. Although it shows signs of its origins as an academic case study and thesis, it carries a message that goes far beyond the confines of the Probation Service and is one that has a general application for all those in social work and in the 'helping professions' generally. Clearly and concisely written this book can be read at a variety of levels by social work practice, by social work educators, by managers and by all in the Probation Service at local and central level. The writer is specific about his three aims - two of which relate to the Probation Service but in their execution have implications for all statutory social work agencies where matters of local versus central control and resource issues are crucial. The third aim - ' *to explore the potential of information technology to support practice...professional needs....and its use with clients*' while focused on Probation has application to all in the social work arena.

For the general reader and practitioner it offers an immense amount of sheer information. There is a comprehensive run down of the current applications for computer - users - text processing, text retrieval, authoring systems, hypertext, and databases - and on the technical horizon - multi-media and virtual reality and client use programmes - with suggestions how these might be used in practice. The Appendices offer a highly useful abstract of significant literature on human services and information technology, a directory of software programs and a guide to national and international networks.

For managers and other staff faced with the reality of computers in the office, there is discussion of managing change and innovation and models of system design set sensitively within the context of a respect for the individuals effected, and a value position on the need for involvement and participation which accords with social work principles. It is clear that without such involvement and understanding the common feeling that computers are basically a tool for management control or administrative purposes and have little relevance for operational use will persist, and in an extreme case described lead to the inputting of false information.

Indeed, one of the strengths of the book is the author's clear statement of aims, and of the underlying premises informing the work. These provide a conceptual framework which enables him to examine critically the way in which the use of

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technology in the Probation Service has been driven by Home Office demand for statistical data and financial management issues with a correspondingly weak and divided voice from the variety of interest groups in the Probation Service. The account of the history of the introduction of client data systems within the Probation Service, the local variation and initiatives, and the case study of the wasteful employment of outside consultants by the Home Office - estimated at £4.5 million - to evolve an unworkable system of Financial Information Management Information (FMIS) make for very instructive reading. The writer recognises more hopeful signs in the establishment of the Information Systems Strategy Unity at the Home Office, and the development of a single system - The Probation Service National Case Records Systems (CRAMS) - and the setting out of a strategy by the National Probation Service Information Systems Strategy (NPSISS) - whose shortcomings are nevertheless exposed.

While I found the history intriguing and illuminating, for me the major virtue of the book is the prospect it provides for practitioners of moving beyond the narrow bounds of a managerial dominated accounting and administrative system with some coincidental practice advantages towards using '*information technology to support and inform professional practice, training and work with clients*' In offering a range of examples - a number of which have been designed by the author - it is possible to see how the positive virtues of information technology can be used to increase access to knowledge, to develop good standards of practice or in training to make use imaginatively of the resources available.

Most readers, I hope, will respond positively to the writer's enthusiasm for the potential liberation and transformation of effective service through the use of information technology. In particular, as this is set within a clearly articulated value system which aims for the empowerment of practitioners and clients alike but does not ignore such difficult issues as that of individual rights and of confidentiality in the use and transmission of information within and between agencies. The author has, I consider, managed to pull off a considerable feat in combining technical discussion which does not lose a sense of practicalities, a stimulating critique of policy, an appreciation of the human elements involved at all levels, and a vision for the future.

Managing Social Services Information

Reviewed by Colin Barnes

Managing Social Services Information is a module in the Management Education Scheme by Open Learning programme, developed under the auspices of the NHS Training Division and the Social Services Inspectorate. Published by the Open University 1994, ISBN 1 85446 271 7.

Presentation:

The course material comes in a smart plastic case which contains:

- A Guide to the Module 2 audio cassettes,
- Four books of sessions with exercises to develop competencies,
- Computer discs (with 'hands on' personal computing supplement)*; this software requires the student to have access to the Microsoft Works package (Ver. 3),
- A Resource File (for use with some of the exercises),
- A Resource Book (on presenting and analysing data),
- A Portfolio Guide (all the student needs to prepare a body of evidence about standards of her/his performance at managing information),
- Guidelines for mentors*,

(All but the material indicated * has been developed specifically for Social Services' managers. The * material appears to be more general in its coverage and uses example data from health settings)

Comments:

The main finding from the recent SSI inspection of information strategies in Social Services departments was that managers were not confident about their department's information strategy and systems. The inspectors report that to achieve effective information systems requires 'champions' throughout the department, particularly among senior staff (Dept. of Health, 1995).

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The SSI inspectors wish to encourage the development of an 'information culture' which will require Social Services staff training on the use of information within their respective roles and responsibilities in the delivery of community care services. They would certainly want to encourage managers to undertake training of the sort included in this module which is now available from the 'Open Business School' (one of six modules which, together, constitute the course work for a diploma in management).

How, then, does it match up to the recommendation in the inspector's report that:

> 'Training should not be exclusively technical. It should relate the need to collect and use information to staff's roles and responsibilities'?

It is clear from the onset that, although the module has grown out of existing courses for managers in health services, extensive efforts have been made to 'customise' the material to that which Social Services managers will see as relevant to their day-to-day needs. Examples of calculations are based upon analyses of data about phenomena such as the numbers of children on child protection registers or numbers of residential places for people with disabilities. The material, for example, not only conveys the 'nitty gritty' of how to interpret standard deviations and similar mathematical functions, but, by using demonstration data such as 'waiting times' for users before they receive a service, it fires the student's imagination about how to use statistical techniques to make an immediate impact on monitoring service delivery.

This approach is reinforced by the part of the module which seeks to help the user develop a 'portfolio' of material to reflect the evidence of information management tools being used in the managerial job the user normally undertakes. The portfolio work is integrated with the rest of the course and several of the exercises, when completed, contribute toward the evidence which the student is required to compile.

The exercises are designed to incorporate 'live' information from whatever information systems are in place at the student's place of work. An example of the thought which has gone into the design of the package are the 'activity previews' which give prior warning of material which is needed later in the course. These allow the student to approach the course work in the sequence most conducive to acquiring the necessary skills.

There are occasional indications within the package that it has developed from one designed for managers of health services. An example is that it is somewhat limited in the list of references it provides. Those that there are will not lead the student toward the specialist literature about IT as applied to Social Welfare. There are no references to journals such as 'Computer Use in Social Services' or 'New Technology in the Human Services' or any links to organisations such as the European Network for Information Technology in Human Services (ENIT*H*). Instead the student is, more often than not, directed to further reading from the field of general management of health services.

Although it is not mentioned in the documentation *Fastype*, a 'share ware' typing tutor, is included with the course software. This was probably not a good idea as it did not work properly with early versions of DOS. A failure to get the software working could be a unnecessary negative encounter with the PC for someone who may have had little previous experience of using one. The inclusion of the typing tutor, without any guidance in the documentation, might also lead a student to believe that competence at touch-typing is a necessary skill for information management.

On the other hand, the main computer software for use within the exercises is the English edition of Microsoft Works (version 3 is recommended). This is not included within the course material and so the student needs to be able to obtain this software and a machine on which to install it before doing some of the course work. Despite this extra task for the student (or her/his tutor), the advantage of being guided through a real sophisticated integrated suite of software is worthwhile. I am confident that, although the example data supplied to provide a basis for the exercises is very simple, once one has worked on this for a few hours the student will be ready to use applications for data from her/his routine work. Indeed, the straightforward and very readable text (which is very well illustrated) is likely to create an enthusiasm for managers to want to immediately translate their information problems into scenarios for managerial action.

Conclusions:

I believe that there are two groups of managers in Social Services both of which could benefit from this package. There are those who have found themselves promoted into managerial positions without ever having had the opportunity to deal with aggregated data with any degree of sophistication and would like to understand this alongside the other managerial skills of financial controls and person management. The other group (which may, even, include some information managers) are those more experienced managers who need to take a fresh look at how to make better use of modern technological solutions for the fast changing world of UK Social Services in the 'Community Care' era.

References:

Social Services Department Information Strategies and Systems (with reference to Community Care); Inspection Overview', Department of Health August. 1995.

The Pack may be purchased from the Learning Materials Sales Office, The Open University, PO Box 188, Walton Hall, Milton Keynes MK7 6DH. Normal price £160 + VAT. Price for Social and Health Service Organisations (independent, voluntary or statutory) or educational institutions involved in providing courses for staff from these £115 + VAT.

The Social Work & Information Technology Module

Reviewed by Alun Morgan
Rafferty J.et al., (1995), The Social Work & IT (SWIT) Module, Centre for Human Service Technology, ISBN 0854 32 5689

The SWIT module is a resource-based computer package for social work and probation students, developed by Jackie Rafferty and her colleagues at Southampton University Centre for Human Service Technology (CHST), in association with Cardiff University and CCETSW. It is produced using the Guide authoring software and runs on PCs in a Windows environment.

There is a heavy reliance on the mouse and extensive use of hypertext. The programme invites students to become active agents in the learning process by presenting a module structure within which three primary areas of learning are identified. Firstly, basic hardware/software skills; secondly, IT in Practice Agencies; and finally, a more academic appreciation of the subject using source material included in the package which is designed to be accessed individually and by students engaged in small-group project work.

This package is bursting with ideas for course development. It would be possible for a DipSW programme to use the SWIT module as it stands as an 'off the shelf' IT course to be delivered in its entirety; or alternatively it could be included in an existing IT module as a complementary resource that would be useful for students at all levels. The former option would require planned teaching sessions and on-going tutor involvement, as the package is not intended to be entirely student directed. On the other hand, the sheer interactivity of accessing the material enables the student to pace their own learning whilst retaining an overview of the subject. Individual and non-tutored work therefore is possible, but would probably be less effective in practice. The hypertext links throughout the package enable flexible access to all of the resources, including journal articles, book chapters, and ideas for exercises and further study. The assumption is that students will be 'doing' as well as simply sitting at the terminal and reading. Indeed, without the doing component away from the computer, for example the exercise of how to audit IT resources in a placement agency, the package would inevitably present a rather one-dimensional feel. As a model for encapsulating a course module in a discrete piece of software, the SWIT module is an excellent example of its genre. There is a good balance in the construction of the material between analysis, application, synthesis, and reflection, and students can come back to the computer in their own time for individual research and revision. The material will undoubtedly make increasing sense to students as they undertake the various practical exercises.

The Teacher's handbook is informative and sufficiently detailed without being too repetitive. It would enable a tutor with only modest IT skills to plan an effective teaching sequence relatively quickly without requiring much additional source material. There is an expectation that student terminals will be networked and that there will be access to email and the Internet. These facilities are not

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obligatory however, and the module can be run perfectly well on a standalone PC. The only hardware must though, in my view, is that there should be a fairly fast processor and reasonable RAM availability, as on a slow machine the program would quickly become laboured because of the frequent Windows and hypertext links. The material is almost exclusively text-based and there are no constant requirements for the machine to deal with complicated graphic images.

One limitation of SWIT as it stands is that the academic literature base although fairly representative in its breadth, is relatively limited in its volume. On the other hand, this is meant to be an introductory module for social work students and there is certainly sufficient material included in the package for students to make some reasonable attempts in exploring the academic framework of the subject; and after all, this is the first version of the software in a relatively new field.

I received my evaluation copy of the SWIT module on the day after I had completed teaching a two-semester Information Technology sequence with first year Diploma students. I only wish that I had received it six months earlier - I have no doubt it would have saved me hours of work, and I believe that I would certainly have given my students a more varied experience!

Resource-based and collaborative computer- based-learning methods are in their infancy in social work teaching, but the increasing pressure for more with less suggests that we really should look at these applications and give them serious consideration, whilst ensuring of course that we retain the traditional advantages of direct tutor contact. In this regard SWIT already feels like a mainstream product, and where better to peek into the future of teaching methods in Higher Education than in the field of Information Technology? But don't forget: put your mouse into strict training before you start.

This review was first published in the CTI Newsletter No14 in July 1995.

The Social Work & IT module can be purchased from the Centre for Human Service Technology at £50:00 +VAT per single user copy or £200 + VAT for a network licence.

The CTI Centre for Human Services is a national Centre based in the Centre for Human Services Technology. The CTI Centre is one of 23 subject based Centres in the UK whose aim is to enhance the quality of teaching and learning through the appropriate use of educational technology. We do this by:

- producing regular newsletters
- publishing resource guides and reviews of software
- provide on-line information via discussion lists and the World Wide Web
- run workshops and conferences
- answer individual queries
- offer advice to individual departments.

The CTI Centres are funded by the Higher Education Funding Council for England, the Higher Education Funding Council for Wales, the Scottish Higher Education Funding Council and the Department of Education for Northern Ireland.

Staff at the Centre are currently working on the Resource Guide which will be published as V8 N4 of this journal and then maintained on the World Wide Web. A number of new pieces of software have been sent to us in recent months but we are always eager to obtain information about new teaching materials.
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Up to date information is held on the CTI Web site url: http://ilc.ecs.soton.ac.uk/chst/