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New Technology in the Human Services

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Knowledge Bases and Expert Systems

Assessment for Care Management

A Social Researcher Analyzes Agency Databases

Technology for People with Disability

Videodiscs for Staff Evaluation

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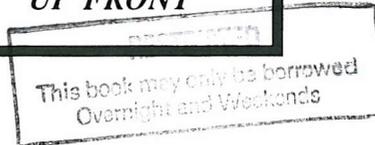
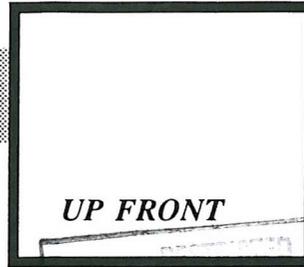
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1992, recognised as a year of suffering for so many people, of unemployment, homelessness, disastrous and unnecessary violence, may also be remembered within human services IT as a year of two significant developments. Both were born of recession, of efforts to make scarce resources go further at a time when the edifice of Britain's health, social and education services seemed to be crumbling away.

One initiative could go down in history as a mixture of good sense and eccentricity bordering on idiocy. The sensible part is the commitment to care in the community. Whether motivated by a view that community care is the cheaper option, or a genuine belief in the importance of helping everyone to live within their family and neighbourhood, the policy is a clear statement of principles which have been part of informed debate for two centuries or more. The curious, politically directed component concerns the mechanism for achieving greater efficiency in the use of resources, whether in community care or in running the institutional infrastructure, like hospitals and old people's homes.

A feature of 1992 has been the bemused questioning of so many human services staff - "Am I a purchaser or provider?" Time will tell if a system which distinguishes between purchasing and providing tasks, and which grew organically in the USA to cope with the multiplicity of agencies, some funders, some service givers, can be imported to the very different British scene and operate primarily through an internal market within the health, and social services.

Whatever the outcome, however, the combination

of community care and austerity has posed a real challenge for IT staff, to provide the information to enable new systems to run. In some ways this just extends existing information services about clients and resources. Other aspects are new, most significantly showing, at the time care is being planned with each client, what is likely to be most effective and least costly.

The second initiative in 1992 seems more distant from the human services, and its impact will be felt more slowly. It is the decision to seek greater productivity in higher education (that is more students per teacher) by a significant step up in expenditure on computer assisted learning (CAL). The first round of new projects did nothing for the caring professions, concentrating on the sciences and those areas (like languages) where the prospects of saving appeared greatest. Yet it cannot be long before subjects like social work and nursing attract attention because they have some of the desired characteristics for CAL investment. There are common syllabus elements which could be used across a range of student groups, like communication skills and counselling. There is enough similarity in the syllabus for social work or nursing between colleges to make transportability feasible. Overall student numbers are high.

For the present interest is centred on the academic component of courses, not the vital fieldwork. But is the apprenticeship model the only one for learning practice skills? Is there a future for computer simulation or even virtual reality?

Bryan Glastonbury

Knowledge Base as a Preferred Alternative to an Expert System

Ken Manning

Artificial Intelligence research is about creating machines that think. Although this is some way off yet, branches of this research have resulted in the development of Expert Systems (ES) and Neural Networks. These in part are programmed to perform reasoning tasks in an attempt to emulate human experts. ES can be applied to any type of problem and today they can be found in almost every discipline. Wherever they are being used the story is much the same, that ES perform better than inexperienced people. The purpose of this article is to consider whether knowledge based systems are better for social work than ES.

An ES has been described by the British Computing Society of the Specialist Group on Expert Systems as:

"... the embodiment within a computer of a knowledge base component from an expert skill in such a form that the machine can offer intelligent advice or take an intelligent decision about a processing function. A desirable additional characteristic, which many would regard as fundamental, is the capability of the system on demand to justify its own line of reasoning in a manner directly intelligible to the enquirer. The style opted to attain these characteristics is rule based programming" (1984, p126).

Knowledge for an ES can be acquired in several ways, all of which involve transferring the expertise needed for high performance problem solving. The source is generally a human expert but it also comes from empirical data, case studies or from other sources where experts have acquired their knowledge. The knowledge is related to a specific domain, for example, Child Abuse. The information within the program should be quite comprehensive although it is limited to this narrow topic area. The knowledge is structured in accordance with a set of rules and procedures which are generally followed by experts when resolving a specific problem. These are translated into a sequence of questions which help to guide a person through a program. By answering the computer generated questions

in order, it eventually arrives at a conclusion and may recommend a plan of action. It then becomes the task of the worker to determine whether to implement the plan.

As a result, programs that reproduce an expertise can perform with impressive competence. In theory, this appears an ideal way of providing guidance and would seem a much better alternative to allowing inexperienced people to fumble along in the dark. But ES have dependency on a narrow or limited scope of knowledge. As such they are not winning the confidence of people who can remain concerned about:

- intelligent decisions being made from narrow or limited fields of knowledge;
- whether the information is comprehensive and reliable;
- how individual differences can affect the outcome;
- the need to view a situation from a wider perspective.

These concerns also give rise to ethical dilemmas for social workers as noted by Cwilkel and Cnaan (1991) who argued that:

- some practitioners may accept the computer generated recommendation without question;

-
- other social workers may have difficulty explaining or justifying the recommendations;
 - conflicts could arise if the client or worker wanted an alternative approach to that specified by the ES, and in such a case who would take responsibility if things go wrong?

ES appear to perform well in identifying concepts of action and causality. This operation is controlled by a sequence of rules and procedures styled in the form of formal and fuzzy logic. For example, *A* implies *B* and given *A* one may infer *B*. This style of logic eventually can result in a conclusion which is true or correct. The bone of contention with ES is that this type of program usurps the role of human reasoning, which is a slightly different function to that of logic. Social workers do not work from pure logic in only wanting what is true or correct. They use reason to structure an argument (for or against) something depending on their values and what is in the clients best interest. Visser (1992) provides an example where a Dutch University developed a good social benefits ES. They carried out an experiment: one group used the ES which resulted in the best formal outcome according to legal standards, but the lowest benefits granted. The other group consulted a social worker and were awarded a higher number of benefits. This was because personal circumstances could be considered and choices made in favour of the client. It also involved the group's values, norms and convictions.

Perhaps ES are better suited to problems that have consistent properties such as Bridge Building rather than real life situations which tend to be a mixture of factors that cross the boundaries of sensory and personal information, local and worldly knowledge. Live situations need plenty of commonsense and creative thinking when evaluating reactions and modifying responses. Unfortunately, ES are not good at creative thinking, nor are they easily able to cross boundaries of knowledge. These

limitations raise more concerns about the use of ES and perhaps slows down their acceptance.

It is clear that ES are not autonomous thinking programs and should not take over the function of human thinking. However, if information technology is to become more integrated into practice, then there is a need to develop software which enables practitioners to argue at an informed level, that enhances skills and facilitates their performance.

Anderson (1980) distinguishes between people who are very successful in a problem area and those who are not, by the acquisition and practical application of a lot of knowledge relevant to the problem area.

Therefore, one option would be to develop a knowledge base system (KBS) which could be defined as:

"... a computer program embodying the knowledge of a specific domain which may be accompanied by a form of problem solving procedure but without the automated logic sequence of an ES".

The knowledge can be presented in the style of an electronic book with the information organised into different segments and layered in terms of depth. This is displayed through a series of branching menu and text screens. The first menu of each program is much like the contents page, in that it outlines the main chapters of the program. Further information can then be obtained by selecting any of the menu options allowing movement into the text pages. Knowledge base programs like ES are limited to a specific domain. However, it is possible to inter-link between programs making it feasible to design a structure of inter-related programs centred around one main subject area.

An example of such knowledge linkage might follow through a theme in relation to its societal, local, personal behavioral and personal sensory contexts:

<i>Personal Sensory</i>	<i>Personal Behavioural</i>	<i>Local</i>	<i>Societal</i>
Non-verbal communication	Stealing	Agency procedures	Law
	Parental care	Case planning	Court work
Anxiety	Violence	Interventions	Problem solving

The nature of a knowledge based program endeavours to provide support for decision making rather than replacing it. The aim is to increase awareness and improve understanding of a particular area. The content of a knowledge base can vary in type and length. The acquisition of the knowledge tends to rely heavily on researched information (books) which might also include case studies and suggested procedures. The time and effort required to acquire the knowledge and construct it into a good knowledge base is often grossly underestimated. This information may also be accompanied by a form of problem solving strategy such as:

- a straight forward problem solving process,
- assessment and intervention leading to the problem being resolved,
- suggested strategies or methods of approach,
- understanding the problem from an explanation.

By presenting the information in this way, it enables social workers to select, read, reflect and decide what is appropriate. It also enables them to determine how the information and advice is integrated into individual cases, without surrendering the right to make decisions. In reading about a particular area there is an effective transfer of knowledge to the person which later serves to develop skills, increase awareness and improve proficiency.

It is suggested that knowledge based programs will become more widely used during the 90's. One significant contribution would be to convey information directly to work locations, thereby

easing the traditional training bottleneck. However, at this point it is difficult to know whether Social Services management will be pressured into developing ES as the technology based decision making process appears safer. This does not necessarily mean that ES are in the best interests of practitioners who may feel uncomfortable about relying on rule guided decision making programs. Perhaps as they are the ones delivering the service, they may prefer to make their own decisions if they were given access to the same expert information.

To conclude, it is without doubt that the provision of good information and advice is essential in order to understand and resolve problems. It would also appear that ES are not always the best way forward for social work. But perhaps knowledge based systems would provide a better alternative as they facilitate practitioners' personal development as well as being in the long term interests of social work. Therefore, if social workers could access expert knowledge and advice from an information system, it might help them to understand problems, formulate plans, justify their reasoning and hopefully perform with impressive competence.

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An Expert System to Advise on Sexual and Marital Discrimination at Work

Joe Ravetz and Sheila Quaid

The paper describes the basis of a simple expert system to support counsellors advising individuals who fear that they may have been denied promotional opportunities by virtue of their sex or marital status. The program can be used by potential clients to arrive at preliminary evaluations of their cases in law.

Four key considerations governed the design, architecture and choice of programming language.

1. The system must simulate decision making in a limited but important domain of knowledge in the Human Services. It therefore must possess a dialogue, an explanation facility, and a facility to offer a trace of the logic sustaining the inference generated by user answers.
2. The system must be easily expandable and capable of incremental development with a view to augmenting the program's utility.
3. The system must be readily available to anyone that may find it of benefit.
4. The system must be cheap or nil cost. Ideally producing useful software should entail the same commitment as writing a journal article, a desire to spread knowledge, to contribute to an intellectual debate, and not to expect direct financial gain. The users should be able to treat the system in much the same way they would treat an article; draw out the utility, evaluate any benefit, incorporate it into practice and index the system for future reference.

Description of the program to advise on Sexual and Marital Discrimination in Employment

The system is written in LPA Prolog Version 3.5 and compiled for distribution. The program runs on a b/w or colour EGA/VGA compatible monitor, XT/AT/386 based PC. Normally the program offers a blue window with dull green text that is restful to the eyes.

The core of the system is a set of questions called up selectively which require *yes* or *no* answers. There is an explanation facility to clarify ambiguity, provide additional diagnostic help, and to present comparable scenarios to guide the user to an answer.

A sample question for which a user may want guidance before answering is: *Were domestic arrangements or other issues pertaining to marriage alluded to in the interview?* Below is the explanatory text linked to the above question.

Sample questions that may be inappropriately asked.

1. *Do you have children?*
2. *Do you intend to have more children?*
3. *Are you pregnant?*
4. *If your children are ill, which comes first, them or the job?*
5. *Do you think married women with responsibilities can cope with this type of post?*
6. *What does your husband do for a living?*
7. *Does your husband have any involvement with this company?*
8. *If you were successful how would it effect your husband?*

If questions are asked relating to children, husband, or ability to balance domestic and career choices these questions may establish a case of discrimination.

The configuration of answers is matched against a recommendation. At the conclusion of a set of questions a recommendation is called up. The user is offered a trace facility to review the line of reasoning that led to the recommendation. The

trace and recommendation can be reviewed repeatedly until the user chooses to return to the main menu or quit the program.

The recommendations reflect all lawful possibilities with additional comments on the main theme pinpointed in the dialogue. The following is a sample of a recommendation given at the conclusion of a dialogue. *There is no evidence of discrimination based on sex or marital status for a married woman has been offered the job.*

At any point in the conduct of the dialogue a legal advice facility can be called up to clarify a specific legal definition. The facility is in addition to the explanation facility available to support the user answering the set of questions.

Below is a rendition of the legal advice facility.

Sexual Discrimination Act

To view commission recommendations and sections of the act choose the letter heading text.

- A. *Equal Opportunity Commission recommended employment procedures.*
- B. *General provision on employers not to discriminate.*
- C. *Points in the appointment process where discrimination may occur.*
- D. *Text defining direct marital discrimination.*
- E. *Text defining indirect marital discrimination.*
- F. *Text defining direct sex discrimination.*
- G. *Definition of Genuine Occupational Qualification.*
- H. *Text defining indirect sex discrimination.*

To view commission recommendations and sections of the act choose the letter heading text.

User Profile

The first group comprises those who feel that they may have been objects of discriminatory behaviour.

The program is designed for a lay or professional adviser working in the field of discrimination

who may find it helpful in guiding his/her own reasoning when advising a new client coming to the agency with initial concerns reflecting possible sexual or marital discrimination. The expertise of the adviser may vary, but clearly an adviser unfamiliar with the law would be prudent using the program to draw out some initial views which may form the basis for knowledgeable consultation with a person competent in this area of the law.

The expert system can also be used by the client herself to help her structure her initial concerns prior to seeing an adviser.

The system is biased towards positive recommendations of sexual or marital, direct or indirect discrimination. A recommendation inferring that discrimination has not occurred should considerably reduce the time taken for further consultation.

The second user group comprises those who have responsibilities under the Act.

The program can be used for training. Chairpersons of interview panels, managers and others with responsibilities for selection and recruitment can use the system as a reference to refresh knowledge of definitions and recruitment issues either through use in training courses or as a tool at work.

At the university it is required that individuals who are involved in staff selection have training in the Sex Discrimination Act. With increasing pressure of time on training staff with limited opportunity for role play the program is expected to be used in training exercises.

Human-Computer Interface considerations

The dialogue, explanation and legal help facilities, and recommendations, have been written in a non-technical language and with real life examples as aids whenever possible.

In order to minimise the potential corruption of the output from an incorrect entry, entries outside

a specific set of acceptable entries always listed at the top of the screen call for a further clarifying response from the user. The acceptable entry set has been kept simple to reduce key strokes and thus minimise the likelihood of error.

The menus offer a minimum number of options to avoid the confusion associated with options on a crowded screen. Essential information has also been carefully spaced on each screen to avoid overcrowding, hence user confusion. The window has been designed to bring up discrete *pages* to enhance presentation.

The dialogue is kept simple. Long overly complex dialogues inhibit the ability of the user for fast efficient consultation.

The system is designed so the user can control the pace of the dialogue. The user can move between a question, explanation, and legal facilities repeatedly until choosing to end the consultation.

Concluding Remarks

The expert system possesses a dialogue, explanation and legal advice facilities and a logic trace. The system rests on an inference mechanism which is a set of rules guiding the reasoning. The rule set is open to incremental development.

The system offers the user a consultation tool to facilitate the evaluation of a presumptive case of sexual or marital discrimination. Some initial comments have been favourable with particularly positive comments about the logic trace facility. The system is freely available to those who may wish to use it. The system ought now to be used and evaluated.

Joe Ravetz is Senior Lecturer, Department of Public Policy, and Sheila Quaid, Development and Training Officer of the University of Central Lancashire.

Hampshire's Assessment and Care Management System

An Example of User Consultation in an Information System Design

Dr Angela Oakley and Paul Ramsay

Introduction

The Assessment and Care Management System (ACM) has been designed by Hampshire Social Services to support the implementation of the NHS and Community Care Act 1990 and the Care Programme Approach for Mental Health. This computer-based system is designed to be used by a wide range of people including professional operational staff, managers and service users. It attempts to facilitate the processes of needs assessment and care planning, budgetary control and the provision of planning information. However, it is not an *expert* system and there is no attempt to replace professional judgement and experience.

A main assumption behind the design is that most people using the system will be care professionals who need a tool that is easy to learn and use. This tool must be of immediate benefit to all those using it, and must have the flexibility for continuing development in response to user demand and the evolving practice of care management.

Central to the development of the ACM system has been a commitment to user consultation. This article describes the nature and purpose of this involvement and offers some entirely subjective and non-validated conclusions resulting from this approach. However, although the system has not yet been piloted, it has been presented widely and has been met with a very encouraging enthusiasm.

Why Have User Consultation?

Major culture changes are beginning to take place in social services departments in the UK. For example, central to good care management practice is the focus on a needs-based assessment where user and carer views demonstrably inform the formulation and implementation of care packages. The process of engaging the user, listening to their views and valuing their opinions on their needs, and ways of meeting those needs, provides the opportunity for the user not only to receive appropriate care packages but also to have a stake in the whole process.

This concept of user involvement can transfer to the provision of any service with comparable benefits. The development of a system is itself a service, and therefore, for the development of the ACM system, we have attempted to reflect the greater user-centred culture.

Although we describe the user-centred approach as a culture change for social services, it does in fact represent the best of good practice that has been employed by numbers of individual professionals over many years, despite the organisational constraints within which they have worked. Perhaps the main change is that the culture is now to be incorporated explicitly by the organisations that provide community care and by all staff.

Similarly, the concept of user-involvement in systems development is far from new. However, in the social services arena, there are very few examples of systems that are widely accepted and considered useful. Without a suitable comparative study, we cannot conclude why there is currently this lack of acceptable systems. However, we can describe our experience of user involvement and the benefits perceived, and surmise what differences of approach or organisational structure contribute towards these benefits.

By exposing the assumptions and analysis underpinning the system design, and a crude

implementation or prototype, to critique by prospective end-users who have experienced care management, we have attempted to achieve the following:

- i) To acknowledge and consider the professional practice standards and principles of operational staff and the bodies of knowledge of respective disciplines.
- ii) To develop a common language to facilitate communication.
- iii) To validate at a practical level the preceding theoretical business and systems analysis of complex processes relating to the functional and information requirements.
- iv) That the information base that supports good practice can be determined and evolved by practitioners.
- v) To incorporate direct feedback concerning usability.
- vi) To engender ownership and commitment which enables people to realise the pragmatic and immediate paybacks from using the system.

How Have Users Been Involved?

Before describing the lessons learnt so far, it may be helpful to consider the extent and nature of user involvement in this project. It may not be to an ideal extent, since true to form in social services, the project personnel (one person until the last few months) and other resources have been minimal. In particular, it would have been desirable to involve service users to a greater extent than has been possible. However, Hampshire is a large authority, and it is unlikely that practitioner involvement could have been much more extensive or representative than has been achieved.

The roots of user consultation for the ACM

development lie in work undertaken in 1988/9 with the Home Care Service, part of which involved looking at supporting the assessment process. This work involved discussion with operational, administrative and managerial staff. It was soon identified that Hampshire's Home Care Service represents a microcosm of many social services activities, and that the assessment process in particular should be addressed as a process that has much commonality throughout the department's work. Therefore an analysis was undertaken of the wide variety of assessment forms used within Hampshire Social Services and some related health services, and for these services in other local authorities.

As the momentum of *Caring for People* (November 1989) and the NHS and Community Care Act (June 1990) developed, the initial work on assessment led to further immersion in the environment of care management thought and theory, and included participation in County task groups, and attending national seminars addressing the implementation of Care in the Community from both an Information Technology (IT) and from purely operational perspectives.

The resulting analysis of requirements led, early in 1990, to the design and development of an in-house computer-based prototype which:

- * tested some of the personal computer technology for a county-wide system capable of integrating with Hampshire's existing centralised mainframe client system,

and crucially

- * permitted social services and health practitioners and managers with "hands on" experience of care management from a number of pilot sites in Hampshire, to offer their critique to guide further development in terms of both congruency with the concepts and practice of care management, and regarding aspects of usability.

Concurrent with the prototype development, a County Reference Group was established with representatives across the range of disciplines and operational and managerial levels. This Reference Group were the first sounding board for presentation of the prototype, and later, for the *User View* document which reflected the redesigned system resulting from the user critique. Some 60 copies of this *User View* were then distributed widely across the department, and shared with health representatives.

In addition, the proposed *Care Plan* document to be produced by the redesigned system was discussed by the Reference Group and by managers, and then a consolidated draft document was commented on by a number of service users. Their feedback is reflected in the latest *Care Plan* version. Currently, this version is being piloted purely as a paper system, and the easy compilation and production of the agreed Care Plan in a clear and easy to read format is an important payback from ACM for both staff and service users.

The sum of feedback from all these activities was reflected in the detailed *Requirements Specification* which accompanied the Invitation to Tender published in November 1991 and was sent to prospective systems constructors.

At this point the County Reference Group was rationalised into:

* a project steering group including representatives from the two prospective pilot sites,

and

* local reference groups.

The local reference groups include care management practitioners and their managers from the pilot sites, and their colleagues from across agencies within the locality.

The main role of the local reference groups is to:

- a) Ensure all client group representatives can influence the future design and development of ACM and that the user experience of the system is effectively fed into the overall project management and development process;
- b) Share and test out knowledge and issues arising from pilot work in the group members' own setting;
- c) Ensure that knowledge of the system is disseminated across the department and across agency boundaries within the locality;
- d) Promote maximum multi-agency involvement with the project;
- e) Help develop the information base (eg. assessment criteria);
- f) Appraise training proposals;
- g) Appraise project evaluation proposals;
- h) Contribute to prioritising amendments to the system arising from the pilot experience;
- j) Contribute towards user documentation and help screens;
- k) Contribute to general awareness training.

The link between the pilot sites, the central steering group and the Department's IT section is supported by the secondment of a practitioner with experience of care management. This project officer has responsibilities ranging from user awareness training, co-ordinating practitioner contributions and responses to the many issues arising, assisting in evaluation, capturing user opinions (eg. through an initial survey), and participating in the reference and steering groups.

As evident from the above, the nature and extent of user involvement have evolved over the last 2

to 3 years and continue to evolve. In addition to extensive user awareness sessions and demonstrations, consultation is ongoing via the reference groups, and consultation with all staff involved will be central to the pilot process and overall evaluation.

Conclusions

A number of issues have been identified and tentative conclusions drawn from our experience of user consultation, as summarised by the following.

Initially, operational staff may misunderstand the nature of user involvement, assuming that IT literacy or even expertise is a pre-requisite to joint consultation. No doubt some IT staff who like to display "expert knowledge" contribute to this notion. The consequence of this notion is that the local "IT expert", who may be an administration assistant, is the person most likely to be nominated to become involved, if indeed anyone is nominated. Continuing effort has to be made to dispel such misconceptions, and to convey the important fact that the greatest contribution is made by those practitioners who can combine pragmatism with a conceptual grasp of professional issues that permits a depth and breadth in their understanding of the objectives and of the processes involved. The inclusion of such people from the front-line of the Department's work has injected a healthy pragmatism into discussion and has been key to the progress of the project. Certainly it is possible to communicate without technical jargon.

The dynamics of reference groups, especially large ones, may not always be constructive, particularly if participants are not open about their vested interests. Project managers need to be aware of and to address alternative agenda if the project is to have any chance of success.

A series of small groups and individuals can be much more productive than large groups, especially when discussing the details of a prototype or of a design.

Contrary to the conventional wisdom from some IT staff and some administrators, feedback to date tells us that generally practitioners in the local social and health services welcome the opportunity to be involved in such a development. ACM utilises Microsoft *Windows* software and we have been surprised at the proportion of practitioners who know of this software or have used it.

User feedback and the results of an initial survey support the belief that, in accordance with the wisdom of systems professionals, user awareness training is vital to dispel the natural myths and fears that many people experience, and thus enable the consultation process. Ownership and commitment are facilitated by understanding.

Not surprisingly, given the historical lack of understanding between some IT professionals and some managers, the need for participation in departmental managerial discussions to understand the processes to be supported is not always recognised, and may be resented by some. However, the involvement of the IT specialist in such issues and groups is as much part of user involvement as potential end-users visiting to view a demonstration system. Further, the analytical skills offered by the IT professional may even contribute to operational thinking.

User consultation does not imply that responsibility for the design can be abdicated by the person(s) whose professional skills are to analyze, design and implement systems. The role of the systems professional must be to empower potential system users. However, with any kind of development, in the effort to empower, so often people are disempowered by being thrown into an environment without appropriate support, and without a framework against which ideas can be tested or measured. For empowerment, is vital to:

- * Provide ideas and organisational frameworks;
- * Establish a genuine mutual respect for the

competencies of all participants. If we do not value the respective bodies of knowledge and experience that are the centre of people's professional integrity and identity, we will alienate the people whose contribution is absolutely vital;

- * Try to establish mutual understanding and a common goal;
- * Avoid the temptation by **any** of the participants to self-aggrandizement as the "superior" keeper of acronyms and technical jargon;
- * Be clear about the role and task boundaries throughout the design process. Probably it is unrealistic to expect that, in general, practitioners can produce comprehensive and consistent systems that span the expertise of many branches of the profession, since the daily demands make the required overview difficult to achieve, and the skills and training that make a good social worker do not necessarily make an appropriately trained and skilled analyst with sufficient information technology knowledge. However, professionals can contribute very effectively if they are given appropriate information and support in clear non-technical terms.

Perhaps the backgrounds, experience and training of the co-authors of this article, particularly areas of common experience, are relevant to a successful partnership between end users and system designer. This joint authorship itself may be considered a demonstration of partnership between practitioner and system designer.

Finally, the system design needs to be sufficiently flexible to allow easy response to user feedback, so that the delivery of the system can be the beginning of an interactive process between users and the system designer, not the end.

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Euronote:

It is nearly a decade since the last comprehensive UK survey of the use of IT in social services, but in 1992 the results were published of a survey of statutory and voluntary field work services in Flanders. Exactly two thirds of agencies had computer equipment, which Antwerp academic Jan Steyaert notes is far more than expected. Most usage is for office automation and agency administration, with just a few experiments using IT in direct service provision. Nevertheless, agencies were reported as eager to learn about the opportunities for greater IT involvement.

Still with Flanders, both Antwerp and Gent now make use of low cost computerized social maps to help link people with needs to the availability of services. Gent's system (called SOVAGE - for Social VAdemecum Gent) focuses on unemployment services.

The Conflicting Needs of Social Research and Social Work

Jan Steyaert

Introduction

Organizations tend to evolve to a state of complete chaos if left to their own devices. There is a constant need to counteract this tendency by investing resources in and working on the organization. These resources are sometimes described as "negative entropy". It is obvious that information plays a very important role here: it has a steering function.

Human service organizations are no exceptions to this rule (entropy, second law of thermodynamics). No one will deny the importance of information as a production factor in the field of welfare. The main problem is to structure this information in such a way that it can be used both as a production factor and a steering factor.

In this paper we identify some standard problems in the use of information in welfare services and suggest some solutions. We will describe these problems and solutions through a case study of automation in a social service department.

This article forms a complement to two papers presented at HUSITA I: *Three lessons from automating social services* by E. Van Hove and *The management of social work organizations, a complex situation* by S. Crets and J. Steyaert.

The case of the OCMW-Antwerpen - Public Centre for Social Well-being, Antwerp

The Flemish welfare system can be divided into four sectors:

1. The *zero-line* service or volunteer help. This covers self-help, self-help groups and the whole of non-professional care. The distance between the individual and the help is extremely small. Government intervention is non-existent or negligible.

2. *Primary services* consist of the whole range of formal but non-specific welfare services, general ambulatory aid and assistance for a very broad public. The organizations want to keep the barrier to access as low as possible. The most important examples of this kind of assistance are the *Public Centres for Social Well-being*: they are responsible for securing the right of each

inhabitant of the municipality to a basic minimum income. Government intervention is large: they subsidize and regulate. The organizing authority is the local government.

3. *Second-line services* consist of a range of specialized ambulatory services, with a high access barrier. They work with very specific target publics. Again government intervention is large but predominantly financial. The initiative for the services lies almost exclusively in the hands of private organizations.

4. *Third-line services* consist of very specialized residential care and assistance with an even higher access barrier. The degree of government involvement is the same as in the second-line services.

The organization we analyzed in our case study is one of the biggest welfare structures in Belgium. With more than 8000 employees and covering 12 general hospitals, 10 homes for the elderly, a Social Service Department with more than 200 social workers and a target service area of half a million people, it can hardly be compared with a situation where there are a large number of small organizations each having only a few employees.

The size of the organization in the case study made it possible to enjoy the advantage of scale. In automation they have a head start on the other

(smaller) organizations.

Informatics was first introduced in 1979. It was then expected that the case load of the Social Service Department would increase considerably in a short time due to an economic crisis and the expected merger of the City of Antwerp with the surrounding municipalities. This doubled the target public of the organization.

The first step in the process of using informatics was a manual registration of all the files of the Social Service Department over half a year. This registration made it possible to gain a clear understanding of client profiles, workload, packages of aid measures and the distribution of clients over the total area of the city. This in turn made it possible to develop a decentralization plan for the Social Service Department. The Department was eventually divided into 20 *service centres* located in several areas of the town.

This decentralization, together with the permanent availability of information about services and clients, made large scale automation inevitable. For these reasons, an extensive file system was developed.

This file system makes it possible to collect and analyze annually the registered data. In former days, it was only possible to gather this information once every 10 years with much effort and resources. Now, it can take place without much extra effort. Only the analysis of the data needs extra mobilization of people. In such a way, the management of our case study organization can be adjusted quicker and better. It also fits the social reality of the city in a better way.

In the second half of the 1980s this information gathered by the Social Service Department, together with information collected by other social organizations and the National Institute for Statistics, was used to draw up a total profile of the *deprived* in Antwerp. This analysis, published in a two-volume atlas, is the basis of the urban combat against poverty.

Registration in Flanders

As was pointed out in the description of the case study, most of the obvious information for welfare services is gathered through registration. Registration is defined throughout this text as the "systematic collection of data with the intention of its conversion into information".

In Flemish welfare registration is a widely discussed research tool, but it is not much used as a working tool for clients and in developing organizational activities.

It is **widely discussed** because most of the welfare services are obliged to register their clients and/or activities, if only to comply with the administrative requirements from subsidizing governments. Registration is also being used widely to justify the existence of the organization to the outside world. Therefore, registration is very often a means of controlling the organization, of justifying it, but seldom a working tool. The validity and reliability of the registration is not very high, but direct government interference is avoided by this "paper integration".

Registration is **not much used** in welfare services because the values necessary to realize a useful and meaningful registration (or research) are missing. Registration is mostly employed in a strategy that emphasizes demographic factors and where data are gathered for the use of preventive care (primary or secondary). Welfare services emphasize curative care, with the focus on the individual client. In this way *social work* as a synonym for welfare care is rather strange.

This individually focused approach of welfare care can be explained by various factors. The most important factor is the proximity of the problems of the individual in space and time, and the feasibility of the solutions. When working with an anonymous group, the proximity is lesser and the problem-solving is more obscure.

A second explaining factor of the strong individualistic approach of welfare care can be

placed historically. In the development of caring professions, the position and status of the doctor was highly valued. The model of the doctor patient relationship was adopted, for instance in **social casework**. This method was developed by Mary Richmond (Social Diagnosis, 1917). She was strongly inspired by the medical staff of the Johns Hopkins University. In the 1920s her method was strongly influenced by the rise of psycho-analysis.

Finally, welfare care was influenced by the liberal ideas of the Enlightenment: the belief in the possibilities of the **individual**. The individual is approached in her/his uniqueness, not in the way sociologists approach persons, as bearers of certain standard group characteristics. Welfare services therefore have a great aversion to a quantitative approach to human problems. Piaget would say that social workers only have a basic concept of numbers: one, two, few and many (Philip, A., 1975, p.xiii).

These factors explain why there is a dislike of the use of registration, research and statistics in social welfare care. The attitude in welfare services is comparable with current attitudes in the medical profession. Doctors show great concern for the curative treatment of individual patients, but express obstinacy when it comes to preventive health care. Problems with registration of data in the medical sector are identical to the problems in the field of welfare care. Epidemiology, the discipline in medicine that is engaged in the research of populations has the same problem with data gathering as the sociology of social care. There are of course differences of scale. The Department of Epidemiology is huge in comparison with the Department of Sociology of Social Care. But in relation to the resources allocated to curative individual work in both sectors, both are highly marginal.

Registration according to organization experts

Business science is normative and it sees the organization as a combination of processes. The main process is called the primary process. This

is the transformation of the resources of the organization into the final product. It is this process that justifies the existence of the organization. Apart from this primary process, organization experts define a steering process that converts data from the primary process into steering information. This scheme can be translated towards the use of data and information. Three separate levels of use of organizational data can be distinguished. The levels form a pyramidal system and can be compared with an Aztec pyramid, a limited number of strictly distinguishable layers, rather than an Egyptian pyramid with a sloping character. The higher the level, the less quantity you receive and the less you see the details, but the more you see the whole of the organization and the environment.

The **primary usage** of data is defined as the use for the purposes which were initially intended. In organizations this is the use of information in the primary process. In public government, this can relate to subsidies, permissions and grants. In the field of welfare care primary use of information involves actual problem-solving (with help of the files).

The **secondary use** of data lies in the production and application of periodical statistical reviews for management purposes. In organizations data are registered for this purpose, and sometimes gathered in an annual report.

The **third level** consists of the analytical-academic use of data. A more thorough analysis is realized, and the expected or wanted results have a high degree of uncertainty. For this kind of research most organizations do not feel the need or have the necessary resources. Moreover, it is more useful to hire external professional help for these analyses. In that way, you can avoid *organizational blindness* and the influence of fixed interpretation patterns.

This pyramidal use of data is perfectly illustrated by our case study: the primary use of the data consists of handling the files at the level of individual clients and the assignment of

financial or other kinds of assistance. The secondary use of the data is based on permanent registration and the periodical evaluation of the client population by the managers of the Social Service Department of the OCMW. The third use is formed by the academic analysis undertaken, for example in the atlas of the deprived.

The same pyramidal use of information can be illustrated by the example of the Child Abuse and Neglect centre in Antwerp. Their client data base is primarily used for individual guidance and treatment processes. It serves as a care management tool. On the secondary level these client data are being used to gain information eg. about the distribution of the clients over the city, and the needs to allocate resources to different parts of the city or different professional groups. Thirdly, these data can be used to conduct scientific research in the phenomenon of child abuse and neglect, and its relation with eg. poverty and class distribution. Different maps of the absolute number of cases or the number of cases per 1000 children can be compared to the general poverty map of the same area.

Registration according to organization sociologists

The described view of the organization experts on the subject of the organization process and the information flows is very formal. Organization sociologists on the other hand, are not interested in what should happen in an optimally functioning organization. They want to know what happens in reality: this image is different from the formal blueprint the organization experts offer us.

In the past sociologists have, for the purpose of social research, made much use of the available administrative data and official statistics. A very early example is the analysis Lenin made of the rise of capitalism in agricultural Russia and the way he used official statistics for this analysis (Hunt, 1975, p16). But the most classical example of the use of administrative data and official statistics in social research surely is the study of Emile Durkheim concerning suicide

(1930). This analysis is exclusively based on personal history data in the form of official, published statistics (with one exception: suicidal behaviour of widows). He was able to make an analysis of the scatter of suicide and its relationship with other variables. In this way he demonstrated that even such an individual decision as suicide is subject to social influences.

Ernest W. Burgess (Chicago School) was the person who integrated the use of data of administrative applications into social research methodology. In 1925 he utilized data of public transport firms, post and telephone companies to demonstrate the increasing mobility of the urban population (Park and Burgess, 1925, p60). In later years he created statistical area descriptions, not subject to any changes (in contrast with the electoral or administrative areas). This made it possible to compare statistical data over time (Bulmer, 1980, p518-9). The Belgian *Nationaal Instituut voor de Statistiek* draws on this method.

In the sixties, the use of administrative data in social research was criticized. This led to suspicion about the reliability and validity of the data.

The **reliability** of data is measured according to the degree to which the same result is obtained by succeeding measurements. A 100% reliability is realized when exactly the same data are obtained by a new measurement. Unfortunately this is seldom the case in daily reality, certainly not in the field of social sciences. Therefore you cannot see reliability as an absolute characteristic, but more as a gradual characteristic. Little research has been publicized about the reliability of administrative data, so we cannot estimate the degree of (un)reliability.

In 1977 a survey was conducted which compared the social class allocated to a specific group in the census and their social class on the birth registration of their child during the previous year. It concluded that in 81% of the cases people had been put in the same social class in both registrations. In social sciences, this is an acceptable degree of reliability. On this level,

correlations are only marginally influenced by random mistakes of measurement (Carmines and Zeller, 1979, p51).

The **validity** of the data is the extent in which data represents the concepts you actually want to analyze. In essence, it deals with the difference between empirical data and the theoretical concept. For uncomplicated data as gender and age the validity will be high. But for many important variables in social sciences, the question of validity will be problematic. For example: long and intensive debates are held about the question of whether the IQ test is a valid test of intelligence or not.

A problem with validity is less severe than a problem with reliability, when the kind and the extent of the (systematic) misrepresentation is fully known. In such cases it is relatively easy to *transform* the registered data to realistic data.

Besides considerations concerning the reliability and validity of registered data, there is a more fundamental critique offered about registration by ethnomethodologists. They criticized the use of administrative data on the ground of the social construction process of registration. According to these writers (eg. Cicourel, Garfinkel and Hindess), registration is the result of a complex production process where several non-definable influences distort the data. "The recording of an event or state of affairs in the statistics ... is the outcome of a sequence of social and psychological processes" (Sparks, 1977, p5).

In the appended scheme (Figure 1) it is clear that there exists a fundamental difference between a particular event and a registered event.

In order that a phenomenon, for example a case of child abuse, becomes a registered fact, it has to be perceived by someone. In addition, the event has to be recognized to its full extent: it is possible that a case of child abuse is not defined as such by those involved. After the recognition, the case has to be reported to the authorities. Not everyone will do so, so we can assume that there is a difference between the actual cases and the registered ones. The reported cases are re-defined and registered by the authorities. There are several factors which can make it impossible to register properly (eg. overwork, unclear job responsibilities), or to have an exact registration (eg. insufficient training, unclear classification of categories).

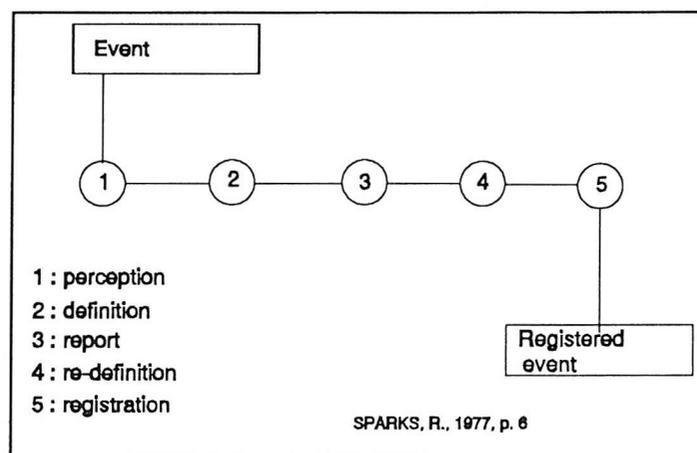


Figure 1

general practitioners are obliged to report the incidence of contagious and venereal diseases to the health inspector. The bad and unreliable pursuit of this duty to report has led to the situation where the resulting figures diminish insight into the health condition of the Belgian population, rather than increase it. We may assume that most people with sexually transmittable diseases will be aware of this (step 1 in the scheme), and they will recognize it as a disease (step 2) that requires doctor consultation (step 3). The doctors will surely recognize it as a sexually transmittable disease (step 4). Up to this point, there is little loss of data. The last step (5) however is problematic. Research pointed out that the number of registered cases

Registration is clearly an **elimination race**. Of the actual number of cases, only a certain amount will find their way to the authorities and to registration.

A medical example will clarify some things (Thiers, 1984, p129). At this moment Belgian

of sexually transmittable diseases like gonorrhoea have to be multiplied by a factor of 10 to 70, to get an idea of the actual number of **reported** cases. For instance in 1980 62% of the number of registered cases of gonorrhoea came from one district (Brabant) and mostly from one hospital (the only one that executed the registration in a correct way).

The difference between registered cases and actual cases is called the "dark figure". For a more meaningful use of registered data, it is fundamentally necessary to get an insight into this "dark figure". Attempts to achieve this, for instance, are the so-called "victim investigations", when large groups of people are asked which crime(s) they know of.

It is clear that statistics about gonorrhoea, such as those distributed by the National Institute for Statistics (see Figure 2), only tell something about the willingness of general practitioners to report, nothing about the actual evolution of the disease. This is one of the reasons why the Institute for Hygiene and Epidemiology started a surveillance network of

The phenomenon of the "dark figure" is also a problem in the distribution of the cases of child abuse over the city area. It is obvious that the available data is only related to the reported and registered cases of child abuse, not to the actual number.

general practitioners, based on voluntary involvement. Essential to the success of this voluntary registration is the precise and regular feedback of the gathered information. Only in this way will the general practitioners remain motivated to register and report.

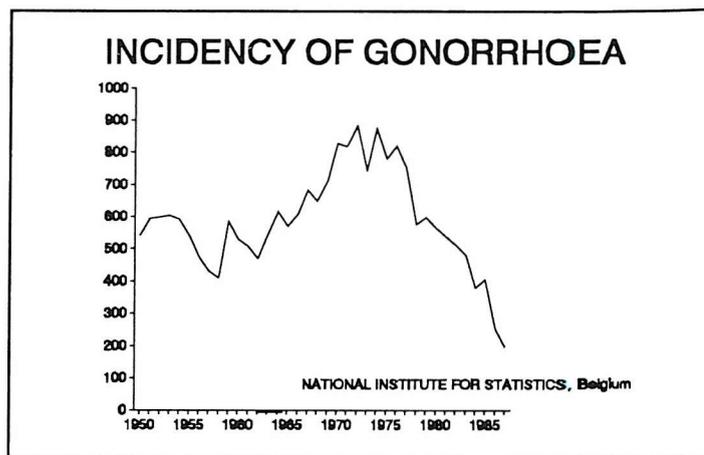


Figure 2

In the criminal field the pitfalls for a useful registration are situated at the beginning of the indicated production process. It is evident that here only a small number of the actual amount of cases are reported. The offenders will try to see to it that they are not discovered. Also, not every victim will report a crime. Therefore you can distinguish an unknown difference between the number of actual crimes and the number of registered crimes. In all probability the relation between the number of registered and the actual number of cases will not be constant. "Developments of individual and social sensitivity, tolerance for such facts and the existence of specific services influence the willingness of reporting and registering" (Van Kerkvoorde, 1985, p245).

Beginnings for solutions

Can we overcome this inadequacy in essential data, aided by the application of new information technology?

A first step is the **removal of obstacles** in the registration process. The Antwerp OCMW,

together with a number of other services in Flanders, have found a solution for this problem. As a result of the enlargement of the volume of assistance (through the merger of the city with the surrounding municipalities and the increase of the population in need), manual files no longer met the requirements of a well functioning social service department. Therefore, in several places, automation projects were set up with the intention of making files more accessible. With automation many of the administrative obstacles to registration disappear. You can use the system as a multi-purpose relational database. Hence the database can be interrogated to access both individual files and to provide composite (overview) material.

Automated files move the problem of meaningful registration towards the challenge of a meaningful client system. A further challenge is then to link the dynamics of an automated client system to the practical processes of social work. Of course many of the information elements of the relational database are not used by social workers (because these elements have no direct use for the process of helping). Also, a lot of manual files remain in use, parallel to these automated file systems.

In the paper presented at HUSITA I in Birmingham in 1987 we suggested a basic model of the dynamics of the process of helping. Here, a simplified reproduction of the model is represented. It has to be worked through for each concrete situation, but will do in outline for a general discussion.

The basic model starts with the analysis of the task of helping in the primary process of the Social Service Department. In this, the steps of exploration, decision-making and execution can be distinguished. The exploration consists of an assessment, identifying the client and the needs for which help might be offered. From the assessment a range of scenarios of assistance (or in care management terms, "packages of care") can be devised, and related to the availability of service resources. From the negotiation of needs against resources a decision is reached, which is then fed into the process of execution (service delivery).

In each of these steps, the dynamics of the social worker and the helping process can be supported. In this way, incentives to establish and use structured information can be realized.

In the **assessment** the social worker can be supported by linking the individual file with general data from local or central authority. In Belgium every local authority has its own population register, which contains information elements on all legally registered inhabitants. Moreover, the national register contains elementary information about all Belgian inhabitants (names, place of birth, date of birth,

gender, nationality, principal address, profession, civil status, composition of family). Integration of these data into the individual files is possible. Of course privacy has to be recognised.

A more important support for the social worker can be given when proposals for **scenarios of assistance** are made. Forms of assistance (financial or not) may be very precisely written down in social laws. They can be integrated in automated file systems in algorithmical form. This saves the social worker a lot of time-consuming work, provided data has been committed to the files in a structured and accurate way. For other, less clearly described processes of assistance (for example in the area of child abuse, or the guidance of foster-parents) expert systems can be developed. Existing knowledge can be built into the automated file system in a heuristic way. Some years ago, the expert system MYCIN failed because there was no possibility to integrate data from administrative or medical files. Nowadays the use of external databases is technically possible.

In the phase of **decision-making** similar components of automated file systems can be integrated. In the Social Service Department of the Antwerp OCMW decision-making concerning individual cases is based entirely on the automated files. Because of the complex network of decentralized service centres and the large quantity of cases (more than 11,000 a year), decisions can only be made smoothly with the help of an automated file system and an extensive delegation of decision-making power. Automation has not led (against all odds) to a centralization of power, on the contrary.

In the phase of the **execution** of the assistance, the integration of a file system strongly depends upon the kind of assistance. In the OCMW the assistance is mostly financial. The file provides for an internal account for the client. Supplies can be booked (eg. basic minimum income, removal bonus, clothes bonus). Money can be extracted, whether or not by a system of budget control. The social worker can be seen as the "banker" of the client. In this way, it is useful

for the social worker to fill out the automated file, because:

- without the accurately filled out file a lot of scenarios of assistance are impractical;
- the automated file aids the helping process by unlocking information and developing scenarios.

A second step to progress consists of the removal of obstacles at the stage where **the client's problem is defined**. At this point "language hygiene" is very important. Informatics can only be of marginal help, because of the consciously cultivated technical jargon. In fact, it can only serve as an example of bad use of language. It is necessary to create a generally accepted thesaurus within the social work organization: identical concepts have to be understood in an identical way. This demands an ongoing discussion between social workers, but once agreement on the use of terms has been settled computerized registration can go forward in a way that ensures a common understanding of client files. Once this has been achieved different social workers have a solid basis for comparing their work, and researchers are able to advance conclusions without always having to take account of the eccentricities of the use of language by different workers.

Agreement on the use of language has a further contribution to make in the area of quality control. Because of the common language in the expression of assessments and treatment decisions, it becomes possible for a well-informed second opinion to be given, or for a more general feed-back of registered materials. The basic rule of the feed-back of results of registration seems evident and trivial. But on the other hand we could give recent harrowing examples of situations where registered data was handled much too late, without feed-back. Of course this has a negative effect on the willingness to gather data and on the reliability of these data.

Conclusion

The basic question whether the use of information technology can solve the conflicting needs of social research and social work can only be answered partially. Information technology can provide several opportunities to eliminate obstacles. However, there are at least two important areas in which information technology can so far provide little help. In the **supply** of data, reliability and validity depend very much on the "language hygiene" being used. If no uniform, standardized dictionary of social work vocabulary is available, no reliable information can be gathered. In the **demand** for data, the question remains of how far the availability of reliable and valid information ensures good management and social policy.

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Using IT to make the system work for you.

Report on The British Computer Society Disabled Specialist Group Conference

Ann Wilkinson

The CTI Centre was recently represented at the this conference in London. It was the 8th Annual Conference and Exhibition. The stated aims of the conference were "to look at the way society caters for people with disabilities in terms of computer technology". The subject matter was divided into four major topics, School Education, Higher and Further Education, Training and Employment, and Living in the Community. There was also a trade exhibition at which manufacturers, developers and other organisations were represented.

A number of themes developed during the two days, the foremost being the necessity of putting the individual first and not allowing the technology to dominate. Failures in communication were highlighted by a number of speakers as being a major problem in ensuring people's needs were met. On the first day, when presentations centred on education, professionalism became an issue. Teachers, both in schools and in higher education, were asked to take control and communicate the needs of their students to health professionals. Many problems were also identified for people with disabilities in transition between the various stages of education, training and work. There is abundant technology whose sophistication is increasing but is not always being used in the best way for individuals.

The first day key speaker was Peter Hobbs, Chair of the Employers Disability Forum. He said that this organisation had been developed because employers felt they were not getting good service from either the government or other relevant organisations. He opened with a plea for improved communication between employers and professionals working with people with disabilities. Employers were looking for good business reasons for employing staff with disabilities and would not be swayed by "caring" arguments. In order to convince an employer, teachers, careers advisors and social and health professionals were asked to provide information, using simple, jargon free language, suggesting the benefits to be gained in business terms of

giving employment to people with disabilities. He expressed concern on the moves to community care and wondered whether social work reviews which now had to be prepared would focus enough on employment. He asked whether social workers had enough knowledge on technology to make recommendations and expressed the opinion that social services did not have an "employment ethos". He suggested that strategies should include local campaigning and relevant events to inform employers and persuade them that individuals could be valuable employees. He concluded that many problems arose from a "failure of imagination" and the concept of employers as an enemy to be fought rather than convinced. He pointed to a lack of evidence about the numbers of people with disabilities and the need for better research.

This was followed by a presentation by Dr. Philip Lewis, Assistant Secretary from the Department of Education who has special responsibility for IT in education. It was notable that much of his talk focused on special education and more than ten years after the policy changes pioneered by Baroness Warnock the concept of integration was barely acknowledged. Again he focused on communication difficulties, this time between Health and Education authorities. Children can be identified as having special needs from either source and no one body was in control. Progress had been made in using technology but he identified changes which might bring more rapid development. Teachers were not involved enough

in the decisions concerning their pupils. IT professionals were quite wrongly controlling the direction in which technology was going and special needs people should take control and state their requirements. He identified a lack of professionalism on behalf of special needs staff who needed to "codify their practice".

In general comments on technology in schools he expressed enthusiasm for CD Rom developments and Active Video for maths but felt interactive video would be slower to develop due to the technological muddle which exists.

The next speaker Martin Littler was from SEMERC (Special Education Microelectronic Resource Centre). SEMERC was funded by the Department of Education and Science until 1987 and was a project which Dr. Lewis initiated. The SEMERC provides information, training, development and networks in the use and development of IT in special needs education. The national school curriculum was praised as a good influence on special needs education, as it demanded an entitlement to the full curriculum. Software packages now need to be aimed at all learners and not segregated groups. Mr Littler and his colleagues favoured schools adopting a very limited number of software packages mounted on the hard disk, rather than large numbers of floppy disks which are difficult to keep adequately documented and may not be used when the teacher who introduced them moves on. Computers should be placed in the classroom not in special rooms, and they then become a focus for talk and language development, and can be integrated fully into all activities in the school.

In most cases he does not feel that it is necessary to have handicap specific software. He described a school where special needs children were provided with a different word processor but no good reason could be identified for this when this was queried. SEMERC believes in inclusion not exclusion of children with special needs. In talking about equipment he felt that for the majority the same computer should be available but "inclusion" means having a hard disc so that

children do not have to manipulate floppies. The computers should be three box units, screen, processor and separate keyboard with long monitor leads. It would seem that many of these points would apply to the tertiary education sector as well.

While SEMERC provide support for special needs education in schools, ACE Centres (Aids to Communication in Education) were opened to help children and young people with physical and sensory difficulties. Prue Fuller, the Director of the ACE Centre in Oxford believes passionately that IT has great potential in offering a channel of communication to people with special needs. The ACE Centres concentrate on children who have recording or speech difficulties in education. 60-70% have cerebral palsy or brain injury and need some form of speech output. She differed from Martin Littler in believing that some specialised software is good.

The ACE Centre provides information, research, assessments, loan of equipment and training in its use. A full description of the process of assessment was given and the varying models of action discussed. Although the Centre has a clear policy for its work Ms. Fuller was concerned that there was no co-ordination between Health and Education and no national policy. In order to prevent buck passing she felt that education authorities should accept responsibility for delivering services to children with special needs, but work closely with health professionals.

One of the main points which was emphasised was that technology must be accompanied by assessment and support which costs considerably more. The "magic of the micro" results in high expectations which are **unrealised** because:

- * The complexity of the child's needs are not fully understood by those responsible;
- * Uniqueness of communications systems cause problems in the classroom;

- * Lack of time for staff training;
- * Lack of professional co-operation;
- * Unrealistic expectations.

The only speaker from outside Britain was William Clymer from Rochester Institute of Technology (NTID), where the National Technical Institute for the Deaf is situated. Mr Clymer is an instructional developer in the Communication Program at NTID. He was the only speaker to present his material with sign language as well as speech (whole language).

NTID was set up primarily to educate students who are deaf or have hearing impairments, but they also have a responsibility for research, training of other educators and developing new and innovative technology. All new students are tested on their overall communication skills and are then given advice on the communication course they should attend. All the test results are collated on a database which can be accessed by teaching staff or students when they wish to review their skills. The Communications Division have been developing computer applications for the hearing impaired. They now have Hypercard stacks and interactive video material to assist students in pronunciation which they also sell to other institutions. There is also a basic sign language vocabulary, an advanced sign language (American Sign Language) dictionary and environmental sounds.

Students at NTID have accounts on the mainframe and can use Internet or Bitnet to access bulletin boards, other libraries, other students and staff. E-mail is used as basic communication between students and staff in preference to TDD (Telecommunication Device for the Deaf), and assignments and essays are presented through the e-mail system.

In a presentation from the further education sector John Goodacre, from the Eastern Region Access Centre at North Herts Further Education College, described his work (for more description *New Technology Disability and Special Needs* -

some case studies edited by Tom Vincent 1989).

The College does communication aids assessments for students not only in their own college but for any student in their region. The college is part of a network of Access Centres whose role is "to assess and support students with physical disability and/or sensory impairments who wish to take part in mainstream courses in Further and Higher Education". They have produced a guide *Assessment Disability and Technology Handbook* which can be ordered from the centre.

An assessment is usually done in a day visit to the Centre and the student's study needs, physical situation and access to equipment are considered. Following a visit a report and recommendations will be prepared giving a list of suitable equipment. They also stress the individuality of each student and aim to develop their personal strengths. The technology comes second to the individual. An emphasis is placed on training for the client and support staff and the recognition of changing needs.

Funding for individual students comes from a variety of sources, including the Disabled Student Allowance which can be used to pay for the assessment as well as equipment purchases.

The first day was concluded with reflections on the past fifteen years by Tom Vincent from the Open University. He asked a number of general questions concerning progress over this time. Have expectations been realised? Is the technology working for the customer? Is it providing satisfaction or frustration?

£20 million has been spent on special education in 10 years but no evaluation or assessment of the value of this spending has been conducted. There was a great deal of hype especially during the 1970's about the use of new technology; this has now been superseded but simple solutions are not sold as they have no profit margin. He recommends that new projects should be thought through very carefully before implementation; the unexpected often negates the value of the

new technology. The introduction of the technology must be timely for the individual and Mr Vincent used several case studies from his Open University experience.

For the future Tom Vincent would like to see quality in assessment and a move from *IT in schools* and *IT in education* to *IT for life*. The transition between life stages is crucial and it is vital that people with disabilities should not be impeded by lack of technology when they move from secondary to higher education or from education to work.

The second day was chaired by David Livermore, Chair of the new Computability Centre at Warwick. The theme was technology for training, employment and living in the community. David Livermore opened with the statement that the capability was there but that what we need to learn is to manage the capability.

The keynote speaker was Timothy Yeo MP, Principal Undersecretary of State in the Department of Health with special responsibility for services for disabled people. He called for a move away from technology led development to market led development. New products may be initially very exciting, but if they do not answer the customer need they will not succeed. He called for functional design after evaluation of the needs of the whole population not just the young and fit. People with disabilities also need to contribute to standards debates especially in telecommunication developments. This should include involvement with European programmes such as Horizon, TIDE (Technology Initiative for Disabled and Elderly people), New European Rehabilitation Technology and New Horizontal Actions.

Community Care packages must also include careful assessment with the needs of the customer first. New technology may help if it is appropriate for the task. It is important who does the assessments.

The next speaker was the Head of Disability

Services, the Employment Service, John Robertson. He described the restructuring of the Disability Service into PACT (Placing, Assessment and Counselling Teams). There is no longer a division of the task of working with employers, the potential employee and assessment, although some assessment is contracted out. The question of who does assessment raised a number of critical comments from the floor as did the refusal of some colleges to accept PACT assessments.

The PACTs have a lending scheme for special aids and also software, one third of which are IT based. There was a boom in the use of technology in the mid 1980's and the average cost of provision has doubled. The major demand is for text terminals for telephones, speech output devices, braille output devices and palantype machines for meetings and conferences.

Questions were raised about service availability for those not registered as disabled and the quota system. It was generally felt that the 3% quota was not realistic and led to employers being able to avoid employing people with disability. Unemployment among people with disability is higher than in the rest of the population but targets are not realistic at present. More data is needed on this subject.

The following speaker was from London Electricity, one of the sponsors of the conference. Wendy Gordon, Personnel Manager, gave a case study about one employee with a disability entitled *Accentuate the positive - eliminate the negative*.

London Electricity have a policy statement on equal opportunities which emphasises fair treatment based on the ability of the individual to do the job. One of the most important points made was that employing a person with disabilities was primarily a question of keeping up good management practices. In this case, with a blind employee, ensuring clean tidy workspace, good communication, operating to the employees strengths and weaknesses and a

high quality training program. London Electricity spend a great deal on training for personnel and have found that even with external courses careful advance planning allows people with disabilities to take part equally. In the case study presented they obtained course notes in advance so they might be brailled or read to the employee. Sometimes a colleague went on the same course so that assistance was available for travel and locating in a strange environment. Wendy Gordon stressed however that this employee was first a valuable employee who was a respected member of the team in which he worked, and his disability, although profound, did not prevent him from being one of the most productive in the department. The company had supplied technology including an IBM PC with screen reader onto which all the manuals in use have been loaded, and they also provide reading assistance.

London Electricity also employ a number of homeworkers who are disabled or women who are taking partial career breaks. By using imagination, initiative, sense and good planning it is possible to release the potential in employees with disabilities.

Moving on to the topic of living in the community three presentations were made on aspects of technology for life. Lorna Ridgeway described the COMPAID Trust which she started within the Cheshire Homes and then expanded. COMPAID is now based at premises loaned by Pembury Hospital in Tunbridge Wells but is not part of the medical service.

Lorna Ridgeway, when Chair of her local Cheshire Home, met a severely disabled young man who was unable to communicate except by disruptive behaviour. She initially introduced him to playing simple musical instruments with his foot, but it was then suggested to her that a computer might help. In 1981 she obtained the money to purchase a BBC computer and this was so successful in allowing him to develop and communicate that the demand for computers in this home grew. By 1986 they were also receiving so many enquiries from other homes

that COMPAID Trust was formed and has rapidly expanded. There is now a computer centre to which individuals can come on a sessional basis, a transport scheme and an Office Bureau Project. Many individuals in the Cheshire Homes have their own computers and put them to a variety of uses including word processing letters, playing chess, doing crosswords and talking. A selection of slides were shown to demonstrate both the wide variety of uses the computers were put to and the people with severe disabilities who were finding solutions to their communication difficulties. The Centre has enabled some people of all ages with severe disabilities to return to work. The Centre is now largely operated by former clients and they aim never to say they cannot help.

In the next presentation Liz Diamond described the work of a rare provision within the National Health Service. She is a Clinical Engineer working in the Department of Medical Physics and Computing in Lincoln. In order to demonstrate the work she was doing she presented a case study of one patient, who had a brain stem infarct, describing how they gradually provided a means for this person to communicate and control her environment. The first intervention on the ward allowed the young woman to just say *yes* and *no* using an eye switch. They then moved to allow simple word processing and eventually to simple environmental controls. The next step is to put all the switches and controls into a neat package which can be used at home. Ms. Diamond emphasised careful assessment and monitoring for each patient. Assessment and delivery must take place where the patient is going to live, and recognise the needs of not only the patient but the other people living in the house. A team approach is being used and a technology ward round is held where feedback from community care staff is used in making decisions about how to proceed. The process includes assessment, detailed specification, commissioning, training and support. The last two are in her opinion often neglected but are essential to successful implementation. The Department also do research and development into head movement,

quantitative assessment, synthetic speech and environmental controls.

The Department has an equipment store and often reuse and adapt items. Quality control is extremely important and a separate Medical Equipment Unit does safety checks on all technology which is supplied. They try and use infra red technology to distance patients from switches and mains supply. Recording actions and decisions and good communication are also important.

Funding comes from a number of sources including the Health Authority, the Department of Health (environmental controls such as Steeper and Possum), the Education Authority, the Department of Employment, legal settlements, patients own resources, and charities.

The final speaker and in many ways the most powerful communicator of the theme of the conference was Ken Stoner who is an engineer with motor neurone disease. He delivered his talk via Apollo speech synthesizer linked to a

Compaq Portable mounted on his motorised wheelchair. He had prepared the talk in advance and linked it to a slide presentation showing the way he had managed to remain independent and productive. His message was that there were no barriers and he will gradually add on adaptations to his equipment as his disability increases. He works as a design engineer developing specialist equipment for people with disabilities. In his home he has a powerful PC, a drawing tablet, a laser printer and other equipment all mounted on a specially constructed platform which he can approach in his wheelchair. He currently uses Easi-Keys software but in the future will also need a switch to operate his keyboard and environmental controls.

He stressed the importance of involving the individual in designing solutions and harnessing their enthusiasm.

The author is a member of the CTI Centre for Human Services.

Assessment in Social Care: A Series of Interactive Videodiscs

John Hall

This is a series of computer controlled videodisc based training programmes for use in the training of assessors and internal verifiers working with National Vocational Qualifications (NVQs) and Scottish Vocational Qualifications (SQVs) in Social Care. The programmes have been produced for the Central Council for Education and Training in Social Work (CCETSW).

The trigger for producing the programmes was the introduction of NVQs in Social Care. As in many areas of work, most of the 750,000 or so people in social care are unqualified. NVQs in Social Care, in common with NVQs in many other occupational areas, offer a way forward to this workforce to have their skills recognised through testing their competence and underlying knowledge and understanding, at their place of work.

Assessing competence for NVQs is, itself, a skill which is not widely available, so that it was estimated that some 40,000 assessors would be required to implement the new social care awards.

These awards are based, as are all NVQs on carefully defined standards of competence which have to be demonstrated in the workplace. However it is one thing to describe a standard, quite another to "see" it performed during day to day work. How do you judge the quality of care

being given to the aged, the confused, those with learning difficulties and the wayward young? Where is the borderline between efficiency and humanity, between "doing good" and understanding care?

Training assessors to make judgements of competence, particularly in the numbers required, suggested the need for learning tools. It suggested above all the need to be able to "see" what was meant by competent or not-yet competent performance. This recognition by CCETSW of the inherent problem of being able to "see" standards which are otherwise simply textual statements is the primary reason for adopting interactive video (IV).

At the very least it meant using moving pictures. Beyond this was the need to be able to simulate the assessment process of making judgements against prescribed standards, remembering always that most of the prospective assessors being trained would not normally have been involved in an assessment process. Hence the decision taken in 1989 by CCETSW to embark on a series of training programmes using the umbrella title of *Assessment in Social Care* which is offered both as IV programmes and in a linear videotape format.

The first, introductory programme, is in use by more than 130 organisations and is forming the basis of NVQ assessor training. The programme is an introduction to the principles of assessment for NVQs. Users work through a series of exercises which explore the basic issue of gathering evidence and assessment. They are then able to practice assessment using two case studies.

The second programme, *Gathering Evidence*, is now available. It has already won a joint first prize in the IV category from the Institute of Training and Development. This programme looks in detail at the process of agreeing how to gather evidence, what is appropriate and relevant, how much is needed and the conclusions which can be drawn from the evidence.

The case studies are real situations, filmed as they happened and from the perspective of the

assessor. Three case studies are used involving care workers in a long stay hospital for elderly women clients with learning difficulties: a home carer who works with a young man with severe multiple sclerosis and a residential social worker in a children's unit.

In the case of the care worker in a long stay hospital the case study shows the care that assessors must take in not intruding into the privacy of clients. While it might be thought that assessing the role of a home care worker is relatively straightforward, the case illustrates the complexities of assessing care workers who are not used to discussing their work and who bear considerable emotional pressure.

Finally there is the contrast of a residential social worker in a children's unit where the staff work closely together and are used to discussing their work.

In addition to the diversity of the case studies the IV programme enables the user to practice the negotiation of evidence gathering opportunities which must take place between the assessor and the candidate. In each case study the user can "discuss" how evidence can be gathered and explore how to ask questions in an open and encouraging way.

The decision to use IV for this subject was simply because the medium allowed prospective assessors to explore assessment situations and to form conclusions at their own speed and in their own time. The programmes offer feedback and help routines. The decision to offer the material in VHS videotape at the same time was partly because of the limited availability of IV workstations and also because it provided a range of opportunities for trainers to utilise the case study material.

John Hall runs the Video Consultancy Service, 5 Vanbrugh Hill, London, SE3 7UE. He invites interested persons to contact him. His phonelfax is 081-858-2038.

HUSITA3 - IMPORTANT NOTICE

Mailed with this issue of *New Technology in the Human Services* is the brochure setting out the planned structure of HUSITA3 in Maastricht, and including the registration form. You will note that the stated last date for registration at the lowest price has passed, but a special extension has been agreed for journal readers until the end of February 1993. To register at this "early registration" rate please get your form submitted as soon as possible, and add a note saying - "Rate as agreed for readers of NT in HS".

HUSITA3 has every prospect of being an exciting, enjoyable and informative event. Medieval Maastricht and the surrounding countryside will be at its prettiest in June. By the end of December there were over 140 abstracts from people wanting to give papers or demonstrate software, as well as plans for numerous commercial stalls and presentations. The City of Maastricht and Province of Limburg intend to give us a great welcome, whether for the serious business in its now famous conference centre, or the relaxed out-of-hours social life.