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New Technology in the Human Services

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Up Front

REFERENCE ONLY

Ten volumes of *New Technology in the Human Services*: the past, the present and the future

We are pleased to present the first issue of Volume 10 of *New Technology in the Human Services*. Ten volumes of this journal have included a selection of articles, reviews and news items on the application of new technology in the human services. While it is our intention to continue doing so, we felt this was a good occasion for reflection on our original aims, some of the achievements and the challenges for the next decade. We have therefore invited the previous editors of this and incorporated journals and Dick Schoech as editor of *Computers in Human Services* to write guest editorials reflecting on the past decade of IT in the Human Services and the place of new technology in the human services during this time

The context

The first issue of this journal, then called *Computer Applications in Social Work and Allied Professions* (CASW), was published almost fourteen years ago with Stuart Toole, Lecturer at Birmingham Polytechnic as editor. In the summer of 1985, David Phillips from Sheffield edited and published the first issue of a newsletter entitled *Programs in Practice* (PIP). In the autumn of 1986, the editorship of CASW moved to Bryan Glastonbury and soon the title changed to *New Technology in the Human Services* (NTHS). In early 1991, PIP merged with NTHS. This merger occurred because the Centre for Human Service Technology (CHST) had recently taken on the Computers in Teaching Initiative which included a remit to review and disseminate information about new software. The journal has been edited and published in a joint venture by Causa (Jan Steyaert) and CHST (Ann Wilkinson) since 1996. For much of this period, Dick Schoech has edited a North-American journal entitled *Computers in Human Services* (CHS), published quarterly by the Haworth press.

The past: the aims

The very first issue of the journal was created from the conviction that the imaginative application of computers in social work would be a positive development. It is this belief, substantiated by success stories but equally endangered by horrifying examples of misuse, that has provided the framework for the aims and goals of the journal. The journal wished and still wishes to offer a platform for the collection and dissemination of information about both developments in practice and in education and training. We seek papers which provide critical reflection on the synergy between: applying new information technology and service provision; enabling new ideas to flourish; existing users and developers to learn from similar initiatives in other sectors or countries.

It is clear that the aims have shifted over the years. In early issues of the journal authors complain bitterly about the lack of interest of social workers in computer technology and show an apparent frustration with the low availability of technology. A doom scenario oozes out from between the lines of the editorials and the contributions, predicting professional staff being rolled over by computer developments, incorporating a different set of values, if the challenge to bring together the two worlds of technology and social work is not taken up.

Papers in these early issues like contributions in other professional journals indulge in dreams and fantasies of computer applications taking over or supporting core tasks of service provision. A lot was expected from innovations in the area of artificial intelligence. With some exceptions few of these dreams have materialised. Another set of dreams could be labelled the 'networked social worker'. Even the boldest predictions in this area have been surpassed by the developments of the Internet. The greatest development in this area has been in educational establishments world-wide but agencies

and policy makers still lag behind in access both to external email and full WWW access.

The present: the achievements

As current editors of *New Technology in the Human Services*, we no longer need to use this journal as a platform to voice our frustrations about human services not using new technology. One can hardly walk into a social services office nowadays without noticing a computer in each room. The dissemination of computer hardware and mainstream software such as those for word-processing has no precedence in history. No other commodity, not even cars, televisions or refrigerators have known such a rapid spread into organisations and households. Recent surveys confirm the availability of computers to most human service professionals.

However, these same surveys also indicate that the impact of the technology has been limited to administrative tasks such as word processing and client information systems. Only occasionally has the use of technology had a substantial impact on the core processes of social service agencies. Such rare occasions include the use of welfare benefit calculation programs (see issue 9/1 for a discussion). There is still a need for this journal to pursue its original aims of gathering and disseminating news and studies about the implementation of information technology in the human services in order to encourage the spread of information across national and organisational boundaries, highlight successes and learn from mistakes.

The journal has continued to upgrade over the past year with a substantial investment in establishing blind peer review for papers while continuing to publish policy and practice reports. We have introduced controversial issues and increased the number of software and book reviews. Our readers and authors will expect this process to continue and it is hoped that the changes will widen the base of contributors and continue to attract high quality submissions.

We are also conscious of developments in electronic publishing and e-journals. This has led to the establishment of a dedicated WWW site which provides information for subscribers, authors and also attracts a new audience. The WWW pages are not confined to journal matters; it is an opportunity for us to collect bibliographic information in the subject area, publish abstracts and software information. Readers will soon find sample papers from back issues of the journal.

The future: the challenges

The paraphernalia of the journal's offices does not contain a crystal ball, at least not a reliable one. Hence, it is very difficult even to guess what next year's technology will be. In the past the spotlight turned to expert systems, neural networks and artificial intelligence and more recently educational multimedia and the Internet. Likewise, we can expect to see a lot of intranet, JAVA and network computers in the coming years.

However, does this change of buzz-words and acronyms have a substantial impact on the subject of our journal, the application of new technology in the human services? We believe that as new jargon replaces the old, the undercurrent of the debates will prove to be very stable. George Duby describes events as 'the foam of history, big or small bubbles breaking on the surface and causing minor waves eventually influencing the course of the undercurrent' (Duby, 1973). Similarly, new developments in information technology may have an impact on the vocabulary used, but only slowly and incrementally transmogrify the real issues of the application of technology in the human services.

Thanks

Ten volumes of *New Technology in the Human Services* would not have been possible without the co-operation and support of a great many people. We wish to express our sincere thanks to the following groups of persons:

The editorial board

Jackie Rafferty and Harmen Grebel

The past editors of NTHS

Bryan Glastonbury, David Phillips and Stuart Toole

Past and present members of the advisory network

Gail Auslander, Colin Barnes, Kish Bhatti-Sinclair, Hein de Graaf, Nick Gould, Walter LaMendola, Don Mabey, Ian McArdle, Robert MacFadden, David Phillips, Suki Sitaram, Ignace Snellen, Laraine Stewart and Norman Tutt

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And of course all our readers.

Jan Steyaert & Ann Wilkinson

Obituary - Fred Yates

News of the death of Dr Fred Yates at the age of 46 came as a shock to staff at the CHST. Readers of *New Technology in the Human Services* will share our feelings of sadness about the death of a colleague who has made a significant contribution to the use of technology in social care both as a writer and software author. Fred died last November at South Cleveland Hospital after a short illness and we extend our sympathy to his family and colleagues.

Fred worked as a psychologist at ASSESS: Action from Scientific Evaluation Studies, his own research agency in Newcastle upon Tyne. He edited *Creative Computing in Health and Social Care* published by Wiley in 1996 and also contributed a chapter on his software development work. This book was reviewed for NTHS by Peter Sharkey of Liverpool John Moores University who described its contents as interesting and understandable' and welcomed it as certainly one for the library and next year's student reading list'. Fred had also been an earlier contributor to this journal.

As a software author, Fred developed three programs that are included in the NTHS Resource Guide. These are *CARM: Computer Assisted Relapse Management Program* on alcohol abuse, *Balance* on anxiety and depression management and *DecDrug* on decision making for young people on drugs issues. These are imaginative and lively programs that are sympathetic to the needs of young people. They usefully extend the use of technology for working with clients of the caring services and we hope that they will continue to be available.

Fred Yates was described by a colleague as 'the kindest and gentlest of men and he was widely liked and respected as a result'. As someone who not only bridged the gap between technology and social care, but also the gap between social work and the health professions, Fred Yates will be sadly missed.

David Colombi

Computer Applications in Social Work (CASW), the early days

Stuart Toole

I apologise in advance to all those individuals not mentioned here. This is not a full history of CASW, New Technology in the Human Services, HUSITA etc., but all these would never have happened but for the contributions from literally hundreds of people over the years. The fact that the journal is still published and that HUSITA still continues is a tremendous achievement from all of these individuals.

In May 1983 I took up a post at Birmingham Polytechnic as Senior Lecturer in Social Work. I had an interest in Computer Applications, having experimented with local management accounts in a local authority setting and developed a paper and pencil decision tracking system, in my previous job, in social services child care management.

I was amazed to receive over 100 replies to a press release, sent to approximately ten Social Work and computer magazines, inviting others with similar interests in Social Work and computers to contact me. Prof. Norman Tutt, Colin Barnes and Ian McArdle expressed an interest in being on the editorial board and using material written by ourselves and those who expressed an interest we published the first volume in 1984.

In April 1984 we organised the first Computer Applications In Social Work Conference held at Birmingham Polytechnic. This was attended by over 100 people, some of whom came from Norway, Sweden, Holland and Germany who must have heard about CASW over the Ethernet as we had not advertised. I don't recall much about the papers but the social events were outstanding, the student bar echoing the sounds of Cole Porter, folk songs from all over Europe and also less cultural ditties which provided amusement to the mostly well oiled participants.

At this time Dick Schoech and Walter La Mendola contacted us from the USA and Walter gave a keynote speech at the 1985 CASW conference. It was at this time an International Conference was planned by Walter and myself, who subsequently chaired, jointly, the first HUSITA 87 meeting.

In order to publicise HUSITA and to obtain a more global view of the field, I met with colleagues in the USA and Europe. The individual kindness shown to myself touring the USA, and Dick and I in Europe was wonderful. Some memorable moments come to mind, including chasing Tom Tosyn's cat over the roof tops of Amsterdam. It escaped from the flat which he kindly lent Dick Schoech and I during one of these visits. Tom, a journalist from the Netherlands, apparently treasured this animal more than anything else on earth, but its ability to escape was second only to Hudini, Dick and I lost it!! Or as I recall Dick lost it but he has a different story. We eventually recaptured the cat after meeting lots of interesting people on the rooftops and retired for the night. Recently I was reminded of this story when the English tabloid press was lampooning some politician about sharing a hotel room with another man, this incident would not be of interest to them as we had Tom's cat to act as chaperone. A special mention must go to those from Eastern Europe who risked persecution by just meeting or corresponding with us and also the East German guard who accepted \$20 in lieu of the car documents as entry into the iron curtain and beyond.

Over 300 people attended HUSITA 87 from all over the world and after the conference Walter and I put the name HUSITA into the public domain on the understanding that it was passed on to a different organising group for each meeting. I also gave up the reigns of the journal after the conference to Brian Glastonbury who offered it a safe home free from financial strife. I hope the next 10 years are just as fruitful as the last.

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Programs in Practice

David Phillips

The beginning

Programs in Practice (PIP) newsletter started in Summer 1985 and its independent existence continued until early 1991, when it incorporated with *New Technology in the Human Services*. It was a highly specialised publication aimed at practitioners in the human services who were interested in using computers in face-to-face work with service users, particularly with young offenders, probation service clients, people with learning disabilities, physically disabled people and welfare benefits claimants. One of its original aims was to facilitate use of computers in social services fieldwork, particularly in relation to legal rights, welfare rights and debt counselling. This aim was not achieved and it still remains an important challenge to enable service users to benefit directly from advances in technology.

PIP newsletter itself is not the beginning of the story. In the two years before its launch an informal network of enthusiasts shared ideas by word of mouth. The impetus to launch a newsletter came as a spin-off to a small research project I was undertaking on the introduction of a computerised information system in the UK Probation Service (the notorious 'PROBIS' for those of you with long memories). I had written to all the services asking for their views on the new system but I added another question on possible uses of the newly installed computers for direct work with clients. To my surprise I found that probation officers in different parts of the country were independently developing similar programs to use with their clients. Subsequent informal enquiries among groups of workers in other settings had similar results.

The initial intention was to institute an information exchange comprising a register of interests, a catalogue of programs and a quarterly newsletter. The register of interests was distributed along with the first issue of PIP and it contained 175 names. It is startling in 1997 to look back at the computers that were being used then: the most popular by far was the BBC B (66 users), followed by the Sinclair Spectrum (34) and Commodores (31). Only 8 members were using the then relatively new IBM PC, 5 were using the Apple II and there were 16 other types of computer in use (none of them PC-compatible). The program catalogue was published in 1987 and again was dominated by the BBC B (48 specialist programs) and the Sinclair Spectrum (12 programs). There was only one specialist program then available for the IBM PC - 'HANC' a dBase II program developed by Hampshire Social Services for people with learning difficulties. Altogether 12 issues of the newsletter were published. These contained 61 articles plus 24 program reviews, 10 book reviews and 37 short items. Every issue had an article on recent developments in computing of relevance to human service practitioners and the three substantive areas which got the most coverage were disability, welfare benefits, and work with offenders (9 articles each). User groups and community computing networks were also well represented (7 articles) but there were only 4 articles on programs for people with learning difficulties. There was plenty of debate on the potential use of computers in social services field work, but most articles explored why there had been so few developments in this area. Over the five years of the newsletter's existence there was only one positive report on a development specifically aimed at social work practitioners for direct use with service users. This was the CHIAC child abuse package. (Ed Note: This is still available as the Child Care Information System (CCIS) see Resource Guide 8/4 NTHS)

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So why is PIP no longer with us?

The main reason was a loss in momentum in the development of programs of direct benefit to service users. In the three years following the publication of the PIP program catalogue the only programs directly relevant to social work practice which came to the attention of the Programs in Practice editorial board were updates of existing programs. By the winter of 1990 the PIP newsletter could no longer continue as an independent publication - there were not enough new client-based programs to sustain a regular newsletter.

The reasons for this sorry state of affairs are complex and have been discussed elsewhere (Phillips and Berman 1996) but three aspects are worth mentioning here. The first is that the technology overtook the innovators. Most of the programs were written by enthusiasts on outdated machines with now-extinct operating systems. How many BBC Bs and Spectrums are still in use in probation and social services offices? The second is to do with the economics of the labour market. The original innovators created their programs out of altruism not in hope of monetary reward. But they soon found that their skills were in demand in the brave new world of human services management/client information systems. So a generation of innovators transferred their skills from client-based to agency-based computerisation.

The third is to do with the battle for the hearts and minds of social workers and other human service professionals. By and large the average practitioner had not - and still has not - been convinced of the potential benefits of new technology in helping and empowering service users. The evidence is there to see (for example in welfare benefits and legal rights programs) but practising social workers and social work students are yet to be convinced.

What of the future?

Will human services in the twenty-first century use new technology for the direct benefit and empowerment of their service users or will computers just be used in the pursuit of organisational cost-efficiency? The idealist in me wants to pursue the former goal at the expense of the latter. But it is necessary to learn from history and to be pragmatic. In the present political climate there will be no additional resources to enhance the quality of life of service users; the only way to achieve this will be within existing budgets. And here there are genuine possibilities for both meeting organisational needs and facilitating service-user empowerment.

And how can this be done? There are no easy answers but a first step can be taken by looking for commonalities between the needs of service users and practitioners and of agency heads and information system directors. Once these have been established then tentative steps can be taken in effectively incorporating the technology within professional practice in a way which is compatible with social work values. Facilitating this development will be one of the major tasks ahead for *New Technology in the Human Services*.

Reference

Phillips, D. and Berman, Y., (1996) 'The Under-development of Client-Centred Computing' in Yates, F. (Ed), *Computing for Clients in the Helping and Health Care Professions*, John Wiley, pp 3-19.

Passada Software

For use with probation clients

Passada programs are written by a former probation officer for use with probation clients and other young people and young adults. They provide factual information and enhance knowledge to help users make informed choices about their own behaviour.

New Windows versions offer enhanced design and a wider range of options - see panels. A free demo disk includes samples from each program. More limited DOS versions continue to be available.

Earlier Passada programs were well reviewed in the Probation Journal (March 1994) and in the press. The review of 'A to Z of Love and Sex' in the *Times Educational Supplement* (3.6.94) concluded: "Forget about the tabloid headlines because this title deserves to be considered seriously by any teacher who is involved in sex education".

Prices	Windows	DOS
A to Z of Love and Sex	£45	£25
Alcohol	£45	£25
Budget	£45	£25
Crisis and consequences	£45	£25
Driver	£45	£25
Drugs	£45	£25

Five or more programs £40 each £20 each
Site licence for office 2 x above 2 x above
Full service licence POA POA
Prices are for single computer use. State if Windows or DOS, including for Demo disk (one per office).

Orders to:
Passada Software
School House
Angmering
West Sussex BN16 4JS

Author: Dr David Colombe PhD
Tel/fax: 01903-773238
E-mail: passada@arunet.co.uk
Web: <http://www.arunet.co.uk/passada>

FREE
Demo disk

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- ✓ Quiz on effects of alcohol
- ✓ Alcohol information
- ✓ Understanding 'units' / strengths
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- ✓ 'Your drinking' questionnaire
- ✓ Sources of help and rehabs

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- ✓ Sex education program
- ✓ Users choose from 160 topics
- ✓ New 'limit access' option
- ✓ Aims and values section

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- ✓ Budget display
- ✓ Graphs and pie charts
- ✓ Getting it in balance
- ✓ Advice shop on money and debts

CRISIS - Now in Windows

Simulation of problem scenarios to think about consequences of actions

- ✓ Money
- ✓ Problem drinking
- ✓ Violence
- ✓ Driving
- ✓ Drugs abuse

DRIVER

- ✓ Road sign information
- ✓ Road sign quiz
- ✓ What sort of a driver are you
- ✓ Driving and the law
- ✓ Stopping distances
- ✓ Road rage

DRUGS

- ✓ Tests knowledge of drugs
- ✓ Information on 16 types of drugs
- ✓ Myths / images of drugs use
- ✓ 'Your use of drugs' questionnaire
- ✓ Sources of help and rehabs

Change and Continuity - reflections on the past, present and future for NTHS

Bryan Glastonbury

Early Research

As a postgraduate student and aspiring social worker I felt it was my duty to 'do some research' (nothing changes!). In the course of a practice placement I had collected some data on clients of a Family Service Unit which seemed worth analysing. It was at the time of the 'affluent society', when the present-day emphasis on economy and efficiency received scant attention, and social services were fragmented into a variety of organisations. In such times it was not uncommon for clients to have dealings with a number of social workers, and the data set was about just that - how many social workers were involved, what they did, and how well they co-ordinated their interventions. Some collaborated very effectively: others barely knew of each other's existence. In one instance the client ran a successful second hand clothing and furniture shop on the basis of donations from voluntary and statutory social services.

Full of new technological zeal I went along with my task to the university's computer laboratory. It was not a welcoming place - white coated staff who spoke in mysterious jargon, and many air-conditioned no-go areas for us ordinary mortals, in case we might breath dusty germs over the sacred equipment. The computer itself, an early mainframe, was huge and awesome in those days before silicon. Yes, I was told, most certainly the computer would do the analysis, but first I would need to go on a course in mysterious jargon (FORTRAN I seem to recall) ... but if that was too challenging, as most certainly it would be for someone as unscientific as a social worker, then there were other ways. Perhaps I could learn to use a card puncher, just like a typewriter, and then the SORTER! That was my introduction to new technology, to that stylish, noisy, car-sized piece of equipment which was the IBM card sorter and counter - much more exciting than any modern computer because you could watch it, in a state of mesmerised delight, as cards flew along the conveyor belt to drop into their correct slots for counting.

For a couple of decades after that introduction I promoted my love affair with computers, learning the jargon, becoming a tolerable programmer, and talking with familiarity about SPSS. How many readers can recall that some of the first human services information systems (we're just into the 1970s now!) used SPSS, not for analysis, but as a way of storing and processing client data? The decade before NTHS was one of solid significant development for the social services, largely by sharing in the general range of technological progress, such as the arrival of micro-computers, and with them word processors and the other sorts of software we now take for granted. Networks developed to allow on-line interactivity between user and computer (for years we 'oldies' had to ask the computer to do something for us, and then come back some hours later to pick up the results - often a message to say that we had made a mistake in the precise syntax of our original instructions, so try again!). People began to talk about the possibility of colour monitors.

Perhaps the unique contribution of the human services in those years was to start work on conceiving and designing the client information system.

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Computers in Social Work

At about the time Stuart Toole was planning the launch of NTHS I was writing *Computers in Social Work* (it was authored on what was considered at the time, albeit controversially, to be state of the art equipment - a Sinclair QL with a micro-cassette). In writing what was the first UK book on the subject I did not feel as though I was a pioneer, carrying aloft the flag of progress, marching into uncharted territory. Rather I felt like a europhile trying to drag Thatcherites into the EU - the path was well trodden and brightly lit, but too many people did not want to move along it. Social work managers may have embraced IT, perhaps with some suspicion, but a significant number of social workers rated it an evil, incompatible with the values of the profession. Has anything changed? Perhaps in 1997 the downright opposition to IT from social services staff has dissipated, but resistance to technological change and innovation remain, whether in people's attitudes to using new technologies, or their reluctance to support adequate funding. The social services have never wanted to be in the technological vanguard, and only rarely been enthusiastic followers. As a result they have no control over the new paths being created, and minimal influence on society's use of technology. Perhaps that is nothing more than the reality of the market place, but it is hard to escape the feeling that it is also a lack of vision and imagination.

New Technology in the Human Services

In founding NTHS, and still more in organising the first workshops in Birmingham, culminating in HUSITA 1, Stuart Toole can lay claim to be the originator, the catalyst of the network from which all of us working or studying in the subject area now benefit. The mid-1980s in Birmingham brought together people who had up to then been working in parallel isolation, and I got to meet and form friendships with Walter LaMendola, Rob McFadden and Dick Schoech from across the Atlantic, Norman Smith from Australia, Hein de Graaf, Lars Qvortrup and others from continental Europe, and Dave Phillips from the other end of England. The network continues and flourishes, enabled of course by the Internet, but very much enriched through the pages of NTHS. In itself the network is a considerable achievement because it has helped us to form a community of shared interests, but outcomes from using it are possibly less substantial. Yes, there are many joint international publications, and NTHS, along with such as HUSITA and ENITH have been a good thing for the academic community. On the other hand the social services themselves have remained firmly domesticated and insular, rarely looking beyond the horizon to the international perspective.

There is just one significant exception to the insularity with which nation states (or even smaller segments of society) have approached IT in their social services, and that is in the growing importance given to the ethical agenda. Faced with an information industry dominated by multi-national corporations, individual governments have been forced to tackle both internal and international aspects of data protection and the conditions under which data transfer takes place. Here the traditional values of professional staff (we should mention groups like lawyers, doctors and nurses as well as social workers) have provided sound argument and effective pressure to prevent personal information from becoming just another commodity on the open market, no different from baked beans. If NTHS has been up in the leading ranks of any debate, this has to be the one. It is also a challenge to NTHS for the future, to help resist the grasp of the information industry, and obtain in the long term a socially acceptable and responsible approach to personal information.

What of the future?

What will come to dominate IT in the social services, and the pages of NTHS? It is a safe guess that virtual reality will feature, and equally safe to predict that many staff in the social services will try once again to turn their backs on something which will become a highly influential part of human life. NTHS in contrast will no doubt face the challenge, and keep up the effort to ensure that the values we hold dear are not swept aside. Virtual reality, like IT itself, is a mixed blessing. It has enormous potential for good, for instance in professional education, or modelling difficult human situations in the search for creative and helpful answers. It also has the scope to confuse and damage society, by blurring the line between reality and fantasy, and in so doing take away much of the clarity about the rights and wrongs, good and bad in human behaviour. Science fiction writers predict a society in which we all live inside our own fortress, protected from outside dangers, looking to IT and virtual reality to provide us with life's pleasures. At the end of the 20th century we may find this lifestyle hard to conceive, but even moving a little way in that direction will bring forward ethical challenges and leave human casualties.

There are many other such prospects for the future, like the advance of neural computers and networks. We need help in formulating reflective positions on these developments from our human service perspective, and to do this we need the sorts of communication channels that NTHS offers. As a conventional journal it is old technology, from the era of Caxton rather than Gates, but if a life in social services academia teaches anything it is of the value of compromise and integration between old and new.

Reflections on the past and beyond

Dick Schoech, Ph.D.,

Tying the past to the future

Journals, such as *New Technology in Human Services* (NTHS) and *Computers in Human Services* (CHS), play an important role by tying the past to the future. Our memories of the past are selective and separating our wishes for the use of technology from what agencies can realistically develop is difficult. Writing requires that authors solidify and substantiate their thoughts and speculate from well documented trends. Often an insightful conversation or brilliant thought turns very ordinary when it is written down and reviewed by one's peers. Perhaps this is one reason why it is difficult to get people to write in the field of human services information technology. Another reason is that most professionals knowledgeable about technology are overwhelmed with development tasks. Rarely do software and systems developers have the luxury of writing about what they do.

Given these circumstances, it is a pleasure to congratulate NTHS and to join the celebration of its 10th volume of publication. Journals and newsletters are fun to start. However, providing a quality issue four times a year is a difficult and grueling task. Most tire of it after the novelty wears off. NTHS, like the field it covers, has demonstrated that persistence, hard work, and progressive improvement pays off. So congratulations! Now on to future speculations based on our past.

The overwhelming task with large systems

Developing large systems in the human services has been much more difficult, expensive, and slower than past journal articles anticipated. For example, to put a personal computer on every child protective services worker's desk in Texas costs over 40 million dollars. The rule of thumb when developing systems is that you spend 10% on hardware, 40% on software and software development, and 50% on training and implementation. Thus, the Texas system will probably cost \$400 million before it is up and running well. Consider the cost to automate child protective services throughout the US, and you will see that governments have devoted only a fraction of the money necessary to develop large human service systems. Since systems in Europe and the UK are much smaller than in the US, articles in NTHS and CHS that documented these systems have provided important insights into large systems development. Many of the pioneering efforts documented in NTHS and CHS have lead the way for similar efforts in other countries. Also, many experimental efforts, that were documented in NTHS and CHS, have illustrated the complexity of system development. Unfortunately, articles on large systems are not numerous and are primarily descriptive. Detailed analyses on the impacts of these system on services and clients are infrequently published.

Past CHS and NTHS articles often predicated that if human service professionals did not get control of their computerization efforts, then corporate business managers would take control. This is happening in the US at a rapid pace. Governments at all levels are contracting out services and system development efforts. The private sector is not having an easy time, but they have re-marketed their efforts to spread out development costs and quickly learn from their mistakes. They also have money. Compare a HUSITA conference with a behavioral informatics conference where managed care technology professionals

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share information. The managed care professionals may face the same problems, but they have the resources to address them. However, it is sad that we will probably not read about these corporate efforts in NTHS and CHS. Private corporations do not share their experiences nor reward their staff for writing articles. Those buying systems from corporations need information, but getting it is difficult. I was recently told about the displeasure of a consulting firm whose system I had commented on in the CUSSNET listserv. Corporate mentality often does not include an open discussion of opinions. When a corporation is negotiating on a 50 million dollar system, the last thing they want is an honest evaluation of their previous efforts. One challenge in our future is to publish descriptions and evaluations of these large systems in a timely manner.

The struggles of small agencies

Smaller agencies in the US over the last 10 years have been slowly automating on a shoe string budget. They are struggling to get basic information systems up and running. These agencies do not have the resources to buy the necessary hardware and software and to hire systems design expertise they need. They are resourceful in getting what is available through grants, donations, and volunteer help. Sadly, what is available is often not what they need. They spend much extra time and suffer setbacks due to inadequately funded efforts. Small agencies are also making many mistakes resulting in a system development process that is painful for managers and practitioners. NTHS and CHS have chronicled their efforts well and will continue to publish information these agencies need. However, these agencies will continue to struggle because they do not have the resources to make high quality assessments of current technology. Our challenge is to get the information to these agencies so that they can learn from others' mistakes. As Stuart Toole, the founding editor of NTHS, once said, "agencies may need to learn by reinventing the wheel, but they do not learn by reinventing the flat tire."

The scarcity of software development

Surprisingly, little HS software exists, given the number of years that we have been talking about the potentials of information technology. Many small human service vendors have developed a product to fill a market niche, only to see a generic product take over their market or to see their market change as human services undergo rapid change. For software development to be viable, many copies must be sold to offset the initial development costs. NTHS and CHS have been very supportive of software vendors. NTHS has especially done a good job in seeking out and reviewing software for its readers and should be commended for this effort. NTHS and CHS have also helped software development by presenting new technologies such as neural nets and performance support systems. However, the resources to apply these new

technologies to client problems have been very small. Consequently, many of the dreams written about in NTHS and CHS are still dreams and prototypes remain on researchers' shelves. The lack of a viable human service software industry is a problem for the field. Our challenge is to encourage new researchers to apply IT tools to human service problems.

Here comes the Internet and intranets

While the general computer literature has discussed the importance of networking and connectivity for twenty years, NTHS and CHS have not covered these topics well. It is only now with the Internet and intranets that connectivity is within the reach of many agencies. Even our professional associations, which have been some of the last to embrace technology, have been actively promoting the Internet. Networking is an area where CHS and NTHS have a role to play. However, the rapid pace of change on the Internet and the lag time between when an article is written until it is read makes much of the printed information about the Internet obsolete. Our task is to get information on this rapidly changing field to our readers in a timely fashion.

Additional challenges for NTHS and CHS

The overall challenge of NTHS and CHS is how to remain relevant to human service practitioners now that technology has matured. NTHS and CHS were founded because technology was not covered well by traditional journals. Currently, most specialty journals welcome technology articles in their field. Another part of the challenge is that publishing is entering the information age. Many electronic journals are appearing on the Internet. While they contain valuable information, the quality is sporadic and uneven. E journals are finding that it is much easier to start an ejournal than to get good articles and to keep busy volunteers involved in maintaining the ejournal. The challenge to NTHS and CHS is to gradually move from printed journals to ejournals while serving the needs of both print and electronic based HS professionals. Many difficult questions remain. How will the effort to publish ejournals be supported? Will an ejournal version of NTHS and CHS cut into sales and make the printed copies prohibitively expensive? Will delivery systems other than journals be developed for broadcasting information that people want? Can we charge a nominal fee for each electronic version of an article in a medium where copying is so easy? Are articles the best way to present information on the Internet or must articles be multimedia programs that draw from and link to other Internet articles, features, and events? How will academia adjust to Internet publishing? As you can see, the future of journals such as NTHS and CHS is very uncertain. However, I feel safe in predicting that you will not be reading a column from a printed copy of NTHS or CHS 10 years in the future.

Papers

Levelling the playing fields on the Information highway: SatelLife

Bernard Lown

Introduction

A new global order is emerging compelled by unstoppable forces - including instant communication, an information revolution, the unification of the world economy into a single world market, the unprecedented burgeoning of travel and tourism, a population explosion and mass migrations, the sweep of intractable infectious disease, and galloping ecological imperatives. In this article I wish to focus on three issues: the information revolution, the uneven divide in information access, and lastly point to some remedies.

Information revolution

The notion is everywhere that computers and communication technologies are dramatically transforming society and culture. We are living in an information age, compared in importance to the industrial revolution by enthusiasts. Information technology has been posited as the key requirement for economic and social development. (Mosco, 1996)

The surge of information is prodigious. As many words are now published in one week as in all human history before the year 1800. In the past 150 years, the number of scientific journals has grown from 300 to 100,000 - an increase of over 5% annually. (Dean, 1991)

Information is doubling every 5 years across nearly all spheres of knowledge. As an illustration of this trend, Chemical Abstracts took 31 years, from 1907 to 1937, to publish its first million abstracts. The second million took 18 years. The most recent million took only 1.75 years. More articles on chemistry have been published in the past two years than throughout history before the year 1900. (Noam, 1995)

A social transformation of truly epic proportions is underway. An electronic organised total environment is emerging, based on information which has become one of the most important sources of wealth and power. US business, exquisitely sensitive to profitability, has already invested a staggering \$1 trillion in information technologies. The profits to be made by controlling the information highway are staggering. By the year 2001 annual revenues are projected to be an astronomic \$3.5 trillion.

The Internet

In public imagination the 'information age' is embodied in the Internet, promising new vistas for democracy, education, and personal enrichment. Indeed

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nothing in prior human 'history has provided a potential for making readily available more information for more people at lower cost' (Anderson, 1995).

The Internet emerged in 1969 as a brain child of the Pentagon to enable scientists and engineers working on military contracts to share expensive computers. As an afterthought, a few researchers cooked up a way to use the system for messaging or Email. Until about a decade ago the Internet consisted of fewer than 500 'host' computers, almost exclusively in American military labs and academic computer science departments. The Internet took off in 1988 doubling in size annually ever since. A further boost occurred in mid 1993 when the Internet sprouted multimedia wings. It allowed users to travel the networks with pictures, sound, and video simply by pointing a clicking mouse, the so called World Wide Web. It now claims to have more than 20 million users in the USA alone.

1995's G7 sponsored Ministerial Conference, *On The Information Society*, emphasised the rewards of the information superhighway and pointed to a long list of positive expectations including:

- the recovery of a global sense of community
- enhancing progress in expansion of democratic values
- helping preserve cultural identities
- stimulus to economic growth
- job creation
- higher economic efficiency
- hastening integration of developing countries into the global economy.

These rosy anticipations are accompanied by prodigious hype from the information industries. Promised are; vibrant electronic communities, where intelligent robotic agents act as personal butlers travelling the networks on their owner's behalf. Users telecommute to work or locate in telecottages while their children are educated on line. Shopping malls are brought into the home by teleshopping, already a growth industry with 3 million customers on the Internet last year (Forge, 1995). Promised is the emergence of a global community with levelled playing fields, wherein abundant information is shared by rich and poor (Negroponte, 1995).

A Dark Cloud to the Info Silver Lining

The evangelical optimism needs tempering. So far the great Information Age represents largely an explosion of non-information. When everyone is talking at once, sense and nonsense become indistinguishable. Information is intended to be a path to the understanding which people crave - this implies meaning not merely facts (Wurman, 1990). 'Too much communication may finally be no communication at all' (Widmer, 1973). To locate the nuggets that may be there is veritably searching for a needle in a hay stack. Shannon and Weaver, in their 1949 landmark treatise on the mathematical theory of communication define information as that which reduces uncertainty (Shannon & Weaver, 1949). At present the Internet is less a source of certainty than of anxiety.

A second problem is that to navigate the Internet one must have a command of the English language. In a world where the large majority do not speak English, it creates a barrier to universality. The director of Glasnet, Russia's best known Internet provider, Mr. Voronov, quoted recently in the New York Times stated that: 'It is far easier for a Russian language speaker with a computer to download the works of Dostoevsky, translated into English than it is for him to get the original in his own language.' Voronov concludes; this is 'the ultimate act of intellectual colonialism' (Specter, 1996).

A third problem, far more exclusionary than language, is cost. Earlier I cited the growth in density of the Chemical Abstracts (Noam, 1995). This has been associated with an exponential increase in cost. For example, in 1940 an annual subscription to Chemical Abstracts cost \$12; in 1977 it was \$3500; last year was \$17,400. Only the richest university libraries can afford it.

But every indication is that, as the information highway is privatised, commercialised and conglomerated, the information highway may be off limits by virtue of cost to the wider public. This is already evident in the USA, a country with the richest global economy. In a survey of 10,000 households, DATAQUEST estimates that two thirds of all personal computers sold to households are bought by those with incomes of \$40,000 or more (Lohr, 1996). Yet census data show that only about 1 in 3 households have incomes of \$40,000 or more. The trickle down pattern is already evident with its potential to divide society into the technological haves and have nots. The problem is of a whole different magnitude in developing countries.

To provide an example from the health sector in Africa, direct, real-time access to Internet lines is obtainable through a growing number of commercial email providers, especially in the major cities. However hook up, access fees, and training costs are financially out of reach to the large majority of health professionals. A direct Internet line to a Ministry of Health, for example, may cost between \$15,000 to \$35,000 per month (Knight, 1995, Lown, 1996) which is far beyond the budget allocated for the communication needs of medical schools, research institutes or hospitals. Facing oppressive debt burdens, the Developing World has curtailed investment in improving health care infrastructures or in upgrading telecommunication networks for the public sector. This needs further elaboration.

The Developing World

Nine hundred years ago, Al Asuli, the great physician of Islam living in Bokhara, now Uzbekistan wrote a medical pharmacopoeia. He divided this monumental treatise into two parts: 'diseases of the rich' and 'diseases of the poor'. This tragic dichotomy remains intact notwithstanding the passage of these many centuries.

One fifth of the world lives on the very edge of subsistence, of whom 45 million starve to death annually. At a time of potential abundance, more people are hungry than ever before. According to Oxfam one third of people in Asia, Africa, Latin America and the Caribbean are too malnourished to lead fully active lives. More than a third of the world population has tuberculosis which in the next decade will claim 30 million lives (BMJ, 1993). The population at risk from malaria exceeds 1.2 billion with an estimated 175 million people actively infected today. Two billion people do not have access to a dependable supply of safe drinking water, which may still account for a majority of illness in the world.

The disparities between rich and poor nations are enormous and growing. The South's per capita income is only 6% of the North's. Recent UN figures indicate that from 1960 to 1990 the per capita income rose four times in the South, while it rose eight fold in the North. Nowhere is economic and social deprivation more in evidence than in Africa where 54% of the people live below the United Nations standard for absolute poverty (Crosette, 1996). In sub-Saharan Africa, 62% of the population earns less than US\$6 per week. Cities throughout the continent are choked with slum dwellers; barely subsisting on inadequate fare and polluted water, living in ramshackle cardboard huts, without jobs, without health care, and without hope.

In 1987 there were 26 sub-Saharan countries with a GNP of less than \$400 (US) per person and half of these countries showed a negative growth over the preceding 20 years (Feachem et al, 1991). In 1980 Tanzania spent \$7 per person for health care whereas in 1990 it could afford only \$2. The consequences for health especially of woman and children is devastating. According to Dr. Jonathan Mann, in 1991 only 6% of the world's spending on AIDS prevention was in developing countries where 80% of the victims are concentrated.

While science and technology provide a way out from misery and poverty, one musters little optimism on that score. In the decade of the 70's the increase of scientists per one million of population was 637 in the industrialised countries contrasted to 42 in the developing world. In the past ten years the investment in science was markedly reduced resulting in an even greater divide. Investment in health research is \$30 billion globally, but only 5% of this is spent on health problems of developing countries where 93% of the years of potential life is lost (Hall, 1991).

A visit to Africa two years ago brought home the enormity of the misery. In Uganda, just barely recovering from fratricidal tribal conflicts, stoked by the superpowers, which claimed about one million victims, nearly 25% of its 17 million people appear to be infected with the AIDS virus (NYT, 1993). The resources available to confront this tragedy are non-existent as the total health budget allows \$1 per person per year. At the present time

universities are closing all across that beleaguered continent. Transportation infrastructure in Africa is worse now than it was 10 years ago and is continuing to deteriorate. A critical factor working against development is the burgeoning population growth.

A chasm between nations has now appeared, by far wider at the end of this century, than at the beginning. The science, technology, images, and capital are on one side, while youth, poverty and the great and growing mass of humanity are on the other (Gardels, 1994).

Information Poverty:

Al-Asuli's pharmacopoeia, which divided disease as those afflicting the overnurtured and those of the undernourished, is equally applicable to the sphere of information. A minority, unable to cope with the avalanche of facts, seethe with information overload generated anxiety, while three quarters of the world's population are starved for the most basic nutrients of the mind.

The burgeoning information explosion in the industrialised world contrasts starkly with information poverty of the developing countries. For example the Albert Cook Library of the School of Medicine at Makerere University in Kampala, Uganda subscribes to 26 medical journals and reports a decade-long gap in its periodical collection. Typical libraries associated with Schools of Medicine in the US subscribe to more than 3000. Native journals are inadequately funded and irregular in publication. Most Third World researchers therefore prefer to publish in European and American biomedical journals which rarely reach and circulate among their own colleagues.

The lack of literature stunts research. Expense and unreliability of telecommunications are among the major obstacles. Scarce research funds in Africa are at times squandered to move people around to participate in discussions which substitute for communication. Many physicians have abandoned research altogether and left Africa in the decade since World Bank 'belt tightening' forced many medical schools to cancel all periodicals that required foreign currency.

The poverty of information is also ascribable to inadequate and dysfunctional telecommunication systems. Although there are more than 600 million telephones world-wide, it is estimated that two thirds of the world's population has no access to telephone services. Tokyo alone has more telephones than the entire continent of Africa (Independent Commission for World-wide Telecommunications Development, 1985). The average waiting time for a telephone line ranges from 5.3 years in Zimbabwe, to 10.9 years in Tanzania (BMI Technowledge Communications, no date), to 48 years in Nepal (Matthews, 1996). Even when telephones are available, they frequently malfunction. In some African capitals, phone lines can be down up to 50% of the time.

An epidemiologist from Pennsylvania State University working at a district hospital in Nepal explained that his only means of communicating research results to his colleagues back in the United States is to take his printed data, drive 30 miles to a luxury hotel where he faxes it at a cost of \$6.00 per page (Matthews, 1996).

Until recently telecommunication was regarded as a consequence of economic growth. Now it is increasingly recognised as the indispensable stimulus. Developing countries can not afford to ignore the 'second industrial revolution.' Health professionals in Africa are not only facing the continuing erosion of basic information resources - books, journals, and other materials - but also isolation from new technologies that make comprehensive information services available in industrialised nations. In the fields of medicine and public health, isolation from current developments is one of the more serious consequences of information poverty.

Pitted against one another are the claims of luxury of the North and the claims of subsistence of the South. Large parts of the Third World live excluded from social privilege, political control, as outsiders in their own home. The advice of Mahatma Gandhi more than 50 years ago is relevant, 'We must live simply that others may simply live.' There is precious little evidence though that the comfortable on the frontiers of cyberspace, generous though they are with information and entertainment, are inclined to share their spoils. Francois Mitterand was no doubt correct to warn that 'our entire planet will become uninhabitable if we buy into the illusion that we need only make it habitable for a few.'

The Uses Of Space

A decade ago, pondering these problems I suggested that communications technologies could help narrow the North-South medical information divide. A powerful means is now available for transporting enormous amounts of information from one part of the earth to another. (Lown, 1985) Manufactured objects in the sky provide active mirrors for radio signals that connect parts of the earth in instant communication with each other without the need for proximity or developed terrestrial networks. On a global scale distance stands abolished.

Preliminary investigations focused on the promising medical potential of low earth orbit communications satellites (LEOs). Satellites are more reliable, more robust, and easier to maintain than terrestrial systems. In 1987, a Boston-based non-profit organisation, SatellLife, was formed to utilise LEO technology. The aim was to use space to link health professionals into a global community, united by the exchange of information, for the cause of promoting health co-operation. We settled on the idea of packet radio satellite as the most suitable technology. It presented a new application of three proven technologies - personal computer, packet radio, and a store-and-forward satellite which serves as a reflective mirror for radio waves.

SatellLife purchased two LEO satellites, built by Surrey Satellite Technology Ltd. of the UK, and commissioned their launch from Arianospace, the European space agency. The first of the two, HealthSat 1, was launched in 1991. HealthSat 2 (HS-2) was launched in 1993.

Each satellite, roughly the size and shape of a small refrigerator, orbits the earth in a polar orbit at an altitude of 800 kilometres. Because of their polar orbit and the rotation of the earth, ground stations at the equator have the least access, with an average of four passes daily, while sites near the poles have as many as 14 over-flights per day. The satellite's footprint or the area it can 'see' at each pass has a diameter of 4,500 kilometres. Because the satellites are relatively low altitude and employ sophisticated modulation and coding techniques, the connections to ground stations are strong and virtually error-free despite the relatively low effective radiated power.

The LEO system is entirely appropriate for e-mail messaging and broadcast of text material. Communicating large amounts of text is done by packaging the information into packets which are sent to the satellite. It may take a few passes to download and reassemble all the packets into the full text. Binary files and some graphics may be sent through the satellite. HS-2 does not support voice or video transmission.

Ground stations can establish contact with the satellite for about 15 minutes. The storage capacity and bandwidth of the LEO systems is not high. There is a limit of approximately 9.6K for each 15 minute pass. The ground technology consists of laptop computer, a terminal node controller modem and antenna. Messages composed on computers can be uploaded to the satellite where they are stored until the satellite passes over the addressee's ground station. Then, the message is forwarded to the recipient. This type of communication is aptly known as 'store and forward.' We selected a system that was inexpensive, sustainable, affordable, robust, and covered the entire globe several times daily.

HealthNet

We have designated the telecommunications system as HealthNet. But we are much more than mere providers of telecommunication technologies, increasingly we are defined by a user driven, low cost health information system responsive to genuine needs.

A word about our underlying principles. We aim to empower health workers in the acquisition of information. We are not there to open veritable fire hydrants for thirsting multitudes. Rather we aim to contribute to the development of sustainable health information and communication infrastructures in countries that lack these. We hope to help build enduring institutions whose existence ultimately is independent of our permanence. We believe that the use of technology must follow the identification of a problem, rather than serve as a solution in search of a problem. We

are guided by the conviction that investment in human capital as well as technology is the only way to assure sustainable programs. In fact sustainability is not defined by the technology but by empowerment through the creation of a 'people network.' In achieving our goal we have no technologic fetishes. SatelLife is not bound to any single technology, irrespective of how sophisticated a tool is that must subserve human purpose. We have therefore not limited the telecommunication media to the uses of space, but resorted to telephone polling and radio communication as well.

As telephone lines improved in some countries, we learned that the health information could be moved more quickly and efficiently using standard telephone dial-up networks, and high-speed modems. Today, over 95% of the HealthNet information flow occurs over telephone lines (Mullaney, 1993).

More important than the hardware is the user network created in each country to permit a South-South dialogue connecting health professionals in remote and rural areas in the third world. It enables health professionals working under difficult conditions in developing countries to communicate with one another and exchange information vital for improving health.

HealthNet is administered from SatelLife's Boston headquarters and now serves approximately 4,000 health care workers in 25 countries. The network is expanding rapidly. A local 'HealthNet Users Council' works with SatelLife to define the health information needs and develop the appropriate communications solutions for each country. A 'Network Manager' oversees operations in each country once it becomes part of HealthNet. Though a tiny organisation by any measure SatelLife is already making a measurable dent in the 'information poverty' that afflicts the Developing World. SatelLife provides access to the most current information on clinical research, clinical practice, and public health for doctors, researchers and other health professionals in Africa, Asia, and Latin America. SatelLife also offers inexpensive, 'off-line,' Internet access that puts health professionals in third world countries in touch with one another and with colleagues around the world. HealthNet provides a wealth of health information not found anywhere in the Internet. These services are constantly expanding and today HealthNet users can:

- receive electronic publications produced by SatelLife such as the weekly publication, HealthNet News, which provides current abstracts from leading peer-reviewed medical journals (SatelLife has exclusive copyright arrangements with each of the publishers to provide this information to physicians in the developing world). Current abstracts from the Journal of the American Public Health Association; as well as a long list of WHO publications including the World Health Organisation's Library Digest for Africa, the African Medical Librarians Bulletin, the AIDS

Bulletin and several others are provided. These programmes are structured to be co-operative, interactive and driven by the needs and resources of its users.

- participate in professionally moderated electronic conferences on medical topics of importance to the developing world such as emerging diseases, AIDS and other sexually transmitted diseases, and essential drugs.
- access international medical databases by means of BITNIS, a software system enabling researchers to conduct remote electronic searches of over 100 data bases at the National Library of Medicine and receive full text of articles.
- send and receive electronic mail to each other (and to any point on the Internet as well).

What have these services meant to people on the ground? To provide but one concrete example of the practical impact of HealthNet. The mail in many African countries takes four to six weeks from the capital to a district or vice versa. Burkette's Lymphoma is a treatable cancer in children. Because these children are lost to follow-up, they are hospitalised immediately upon the presumptive diagnosis and held without treatment until the biopsy specimen is sent to the capital and the diagnosis confirmed. That waiting time has now been halved by HealthNet. Though the specimen still goes by truck, the return pathology report is sent by electronic mail and received on the same day. Not only is a hospital bed occupied four weeks less, a scared and vulnerable child's exposure to infectious disease is lessened, and a potentially life saving treatment is begun four weeks earlier.

In a minuscule way SatelLife is trying to lend reality to the hype about the information highway by bringing the great medical centres to the reach of all.

David vs. Goliath - SatelLife v. Internet

But can a 'mom and pop shop' like SatelLife brokering small bits of information survive in the age of the mega super-market provided by the cyber information highway? In an age of high profile projects is there a future for the small and innovative? '

For decades multi-lateral assistance to the Developing World favoured enormous infrastructure projects such as hydroelectric facilities, highways, and sophisticated tertiary care hospitals - these mega enterprises were frequently counter-productive, often unnecessary and are rarely sustainable. This is now being widely recognised (World Bank Development Report, 1993). The United Nations Development Program and The World Bank, two leading multi-lateral aid agencies, are now shifting their focus from big enterprises to skill building projects which promote professional training and basic education for ordinary

people. The new watchword is 'capacity building.' (French, 1996) Yet, in the area of telecommunications, the lessons of the past are being ignored. The emphasis - by the multilaterals and by Developing World governments - is on the latest, 'hottest' technology, regardless of whether the system is appropriate, affordable or sustainable. The rush is on for real-time Internet access and the infrastructure that will support it.

While the rapid improvement in telecommunication infrastructures in Developing World countries affords hope for closing the information gap between the North and the South, the emphasis, regrettably, has been on importing costly, high-bandwidth communication lines, which only the upper echelons of the private sector can afford to access. Investing in expensive high bandwidth technology for the purposes of bringing Internet access to the Developing World is seductive. However, it is hard to fathom how such a system will benefit the vast majority of those in the Developing World when telephones are widely unavailable and frequently dysfunctional. Hook up, access fees, and training costs are financially out of reach to the large majority of health professionals. Facing oppressive debt burdens, the Developing World has curtailed investment in improving health care infrastructures or in upgrading telecommunication networks for the public sector.

The reality from our vantage point is that SatelLife and the Internet are not in a David-Goliath struggle. Rather we complement the Internet and have a different purpose. As long as we provide what is unavailable on the Internet and adhere to building human networks there is no need for unease about the long range health of SatelLife. We can even dream of expanding our mandate.

Some Longer Range Goals

My hope is that SatelLife will position itself to broker socially responsible connectivity in the field of health. Little exists in the international community to protect people against the hucksterism in health care, against the ubiquity of nostrums, and charlatans. With the sweep of marketeering the bottom line often takes precedence over what is beneficial. *Caveat emptor* no longer suffices.

There is also a positive side to this coin. Within global society have sprung up numerous groups to protect against frequently exaggerated, at times false and even dangerous consumer hype. Many bright ideas are floating out there, numerous good experiments in social living are to be emulated and a host of do gooders are ready to engage in voluntarism. I would like to see SatelLife gather these into a social encyclopaedia - otherwise lost in anonymity - to be networked and readily available to our 'customers' as a special service of global good neighbourliness.

As a practising clinician I am aware that there is no substitute for a human connection. No amount of descriptive or technologic data can substitute for the living

patient. The same principle operates in other areas. SatelLife hopefully will use its human network to serve as a base to attract health professionals from the North to work for brief periods in the South. People who have worked in a developing country generally retain an abiding interest in that country and their insights far exceed those that can be gained by any amount of reading about the place. Another fact is that young members of our profession harbour, to a higher measure than they will later in life, an interest in serving the community. They also are more likely to be challenged by the adventure of travel to foreign shores and in widening the horizon of their awareness. Their minds are more open to learning and their hearts to empathy. These young health professional can transform a cold blooded channel of communication into a living and vital bond. Perhaps we can structure a 'North-South Friendship Health Care.'

Whither The Information Highway?

It is worthwhile finally to inquire where the information highway is taking us? The galloping emergence of the information society raises new questions about the relationship between culture and information, between the simple dissemination of data and the creation of a knowledge based society. Who will own this highway, who will direct the traffic, who will be the travellers, who will be the major beneficiaries? Will it help bridge the huge North - South divide? Are the words of the G7 members that the information society will contribute to an open participation of developing countries in the global economy merely wishful thinking? Will new information and communication technologies, increasingly affordable as their costs continue to fall, help developing nations leapfrog entire stages of development?

The facts on the ground convey a different message. The chaotic and super democratic interactive exercise that was the early Internet is now being submerged. The former social landscape is rapidly being transformed into a private preserve. The public and the public's interest, if not entirely excluded, are being given at best marginal attention. The information superhighway is rapidly becoming a toll road with multinational conglomerates managing the toll booths.

What is transpiring in the USA today is an augury of what will follow globally. The primary function of the information superhighway is to invade everyone's home with marketing messages. Already Home Shopping Network (HSN) and others are out there for the touted 500 channels on fibre optic cable, mostly for shopping, banking and investments. And if electronic shopping momentarily fatigues, there will be endless choices of sport channels owned by entertainment superconglomerates. This totalising experience, which will be controlled by a few communications supercorporations, is called 'synergy' in management lingo. They will serve the ends of marketing and pacification (Schiller, 1993 & 1996). Someone has recently commented, 'The miracle of

the information age is not the Web, it is that vast uncharted regions of private life have been opened to corporate colonisation' (Frank, 1996). It seems far more likely that we shall be confronting a world of information haves and have-nots than a global village or a world of virtual communities.

Final Observations

The struggle is far from over. SatellLife is more than a mere provider of a North-South information pipeline. We provide more than communication lines, we broker socially responsible connectivity between health care workers and sources of medical information. We are assuming an ever larger role of ensuring the quality of the transmitted information. SatellLife seeks to promote enduring institutions independent of continued Northern largesse. To do so requires far more than acquisition of advanced technology, but investment in human capital. The sustainability of a health information network will in the long run depend not on any particular technology, but on the creation of a network of people committed to a shared purpose.

The system that we have developed is no panacea for the many ills of the developing world. We recognise that technology is a means, not an end. Technology for development cannot be simply imported. The objective can not be the sophisticated hardware but the communicating health professionals. Furthermore communication is not the only resource in short supply. The physician learns early not to reject partial solutions.

In SatellLife we broke with a precedent that the implementation of grand projects requires large groups, sizeable bureaucracies, substantial budgets, many years of planning and governmental inputs. SatellLife is Lilliputian in all these respects except in the grandiosity of its vision and in its already substantial achievements. In a largely indifferent world, we are making a world of difference.

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Older People and Computers

Faith Gibson

Abstract

The common assumption that older people lack both the interest in and capacity to acquire information technology skills is challenged by reference to the 'New Tricks' project based at the University of Ulster. This project has demonstrated interest, aptitude and successful skill acquisition in successive cohorts of older students who are taught to accomplish a variety of computing tasks personally significant to them. Initial teaching is based on a specially developed package built around life history writing exercises. Other related projects which were reported at the first two meetings of Eurolink¹ Age's ActivAge Older People and New Technology Network are reviewed and the negative implications of the restricted access which older people have to computer technology are discussed.

Introduction

Older people and computers are words not commonly associated with each other. There is a widespread belief that older people are not interested in new technology and are incapable of learning to use computers, for older people are 'seen to be resistant to change in general and technological change in particular' (Sixsmith and Sixsmith, 1995, p11). Despite the ageing of populations throughout western Europe and the increased disposable income of increasing numbers of older people, the information technology industry appears to align itself to youth and to youthful marketing images. A project running in the University of Ulster and various other related European projects suggests this is a most short-sighted view because older people have the capacity to acquire information technology skills and many, given the opportunity, and appropriate teaching are very interested in doing so.

The New Tricks Project

In 1991 the New Tricks project began teaching very frail older people to use Apple Mac computers to write their life histories. At this time no relevant British references could be located although Kearlsley and Furlong (1988) had already written about older people's enthusiasm for computers as well as the work begun in 1982 which later became known throughout the United States as SeniorNet (see <http://www.seniornet.org/>).

From the outset the New Tricks project was greeted with tolerant incredulity and scepticism, even by adult educators who considered themselves well informed about contemporary adult education and lifelong learning. However, the successful outcomes in terms of skill mastery, written outputs and mental health gains recorded from the first group consisting of three frail nursing home residents and a retired neighbour, have been repeated with subsequent groups. Every participant tested has shown improvement in mental health as measured by the General Health Questionnaire over the duration of the course. The probability of all tested participants (N=41) showing a change in the same direction by chance is less than one in a billion (James et al, 1995). Sometimes the gains with individuals were dramatic but mostly small as initial GHQ scores were usually satisfactory. Anecdotal responses were frequently extravagantly positive and reported in phrases such as 'this course has changed my life' or 'I thought that life had passed me by and I would never have a chance to learn to use computers' or 'now I have something in common with my grandchild.'

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In 1992-3 with resources provided by a small EU grant, partners in Dublin and Denmark were recruited to further test training materials which the team had developed to teach word-processing. Classes ran in each country, students exchanged written life history and reminiscence materials and Dublin and Northern Ireland students exchanged visits. Following extensive trials the PC version, consisting of a training manual with accompanying software, was published as *Essential Word Processing with Microsoft Works for Windows: An Introduction to Computers for Creative Writers* (McAuley et al, 1994).

This package is written in simple, straightforward, non-technical language. All the graduated exercises are deliberately based on biographical writing because the popular interest in life history or family history writing harnessed to the versatility of computers is a powerful motivating mix for helping older learners overcome their initial computer anxiety. The control that writers can exert over their own story by being enabled to undertake its own production in readable format sustains them during the early days of learning and offers reinforcing evidence of tangible achievement. The editing facility enables recollections to be incorporated over time as more memories are cumulatively recalled, reviewed and revised. The spell checker, use of enlarged fonts, variations in screen colour, caps lock and various other functions all reduce the physically onerous task of writing while the easy production of hard copy sustains effort and encourages completion of the task.

The excitement, pleasure, growth in confidence and successful skill acquisition apparent in the members of the first course have been replicated in all the subsequent courses which continue to run at the University of Ulster and the Causeway Institute of Further and Higher Education. Some 200 students between the ages of 50 and 94 have now completed basic courses. The initial emphasis on Macs has shifted to PCs because these tend to be cheaper and more readily available. The basic course consists of ten two hour once weekly sessions but many students re-enrol so as to consolidate and to extend their word-processing skills and to master other software. Many have learned to use spreadsheets, data bases and desk top publishing programmes. Email and Internet will receive increasing attention in future advanced classes.

Although life history writing remains a predominant focus, at least in the beginning, all students are helped to achieve tasks which are personally significant to them. Some have used a database to catalogue coin and stamp collections; some have written short stories, poetry and novels as well as autobiographies, several of which have been published. Others have created mailing lists for their own use or for organisations to which they belong. Spreadsheets have been mastered in order to manage personal financial accounts and desktop publishing has had many

uses including newsletters, magazines, notices, Christmas cards, programmes and invitations.

The teaching style is warm, friendly, relaxed and largely informal. Classes are never bigger than twenty and more often smaller with students working through the manuals at their own pace. A midway break for refreshments is encouraged but some students are so eager to make full use of their precious time that they forgo the socialising while others value this aspect of the class enormously.

Formal teaching is deliberately kept to a minimum. One of the present tutors is a seventy five year old 'graduate' of one of the early courses who is ably assisted by two faithful volunteers. Interestingly, he prefers to teach in a more formal didactic fashion while the volunteers move around the class, assisting students with individual queries. From time to time younger students have been used as tutors. Depending upon their particular personal style and attitudes, most have proved effective and acceptable. Some have become firm friends of the older students. Almost without exception, the older learners have stated a preference for being taught initially in peer age groups. Once they have mastered basic skills they do not mind joining mixed age groups.

From the outset, the New Tricks project has been closely linked to the local branch of Age Concern whose Active Age Centre contains five computers which students are able to use freely during the day and borrow overnight and at weekends. The Centre is also used to provide 'taster' classes for individuals and very small groups who may wish to test out their interest and surmount initial doubts before enrolling in a 'proper' class. Easy access to computers so as to be able to practice in between classes has proved invaluable as is immediate guidance in the early stages of learning so that at no time are students allowed to think that skill mastery is beyond their competence. The evaluation tools developed by the psychologist member of the project team, description of the teaching process, evidence of positive mental health gains, social integration and skill acquisition compared to a younger control group have been extensively reported (Gibson et al, 1992; James et al, 1995, 1996).

EuroLink's ActivAge New Technology and Older People's Network

No longer is the New Tricks project an isolated one. In September 1995 the first meeting of the New Technology and Older People's Network, one of three networks run by ActivAge, was held at the University of Ulster. The Network's focus is on information and communication technologies. It 'neither excludes nor ignores developments in the fields of assistive and rehabilitative technology' (ActivAge, 1996) but rather seeks to generate opportunities to equip seniors with new technology skills. The first meeting was attended by some forty people from

Firstly, the author omits relevant literature that would have shed a different light on his arguments. Unjustly he dismisses much of this literature as to 'be either of an ephemeral nature or too specific for the present purpose'. I would like to mention the extensive discussions on the impact of health care informatics and the role of informatics professionals which have been carried on in the journal *Methods of Information in Medicine* (see e.g. H. Heathfield & J. Wyatt, The road to professionalism in medical informatics: a proposal for debate, *Methods of Information in Medicine*, 1995, Vol. 34: 426-433). Important articles on these issues have also been published in *Annals of Internal Medicine*, the *Journal of the American Medical Association* and even *New England Journal of Medicine*, the *British Medical Journal* and the *Lancet*. Also the author seems unaware of the literature that has been published on the organisational impact of information systems. I refer explicitly to the proceedings of several conferences of Working Group 8.2 'The interaction of information systems and the organisation' of the *International Federation for Information Processing* (IFIP).

Secondly, some of the information presented is wrong. For example it was not the National Audit Office but the Audit Commission (page 87) which carried out two separate studies which were critical but certainly not 'damning' about the information systems and medical record services in the UK. The claim of the author that the 'politics of professionalism inhibited the rationalisation and computerisation of the medical record' is not substantiated by evaluation studies carried out by Peel and others. Also the discussion of the use of knowledge based systems by physicians is more based on assumptions of the author and are not corroborated by both empirical and theoretical studies that were available at the time of the writing of this book (see e.g. J. Wyatt & D. Spiegelhalter, Evaluating

medical expert systems: what to test, and how ?, *Medical Informatics* 1990, vol. 15: 205-217 and M. Berg, *Rationalising Medical Work*, PhD Thesis, Maastricht 1995). It should be borne in mind that most knowledge based systems have been developed in a laboratory setting and never entered widespread clinical use.

Thirdly, it seems to me that explaining health care delivery in terms of new organisational paradigms, which essentially state that there is much more uncertainty than classical models of organisations suggest, is excessive. Many of these theories are still assertions or part of discourses which make it easy to take out elements that explain what you believe to observe. This makes the book look very unbalanced.

I suspect that the book has been written within a certain mindset. It looks as if the introduction of computers into health care was the result of a 'conspiracy' within the NHS, of managers who want to gain control of health care delivery. On the one hand health care delivery is part of the public sector which means that politics always balances the need of health care delivery with other needs of the society. On the other hand people and organisations have always adapted systems to their local needs, customs and policies. It is an understanding of these local needs, customs and policies that can contribute to an successful implementation and effective use of information systems in health care.

I hesitate to recommend this book as a basic text to understand the human and organisational issues in health care computing. However the reader may profit from this book when they include other references (as mentioned above) to deepen their knowledge and understanding of the matter.

Statistics for the Terrified

Reviewed by Chris Bagley

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Morris, S., Szuscikiewicz, J. & Preston, M. (1996) *Statistics for the Terrified* V. 3
Abingdon: Radcliffe Medical Press

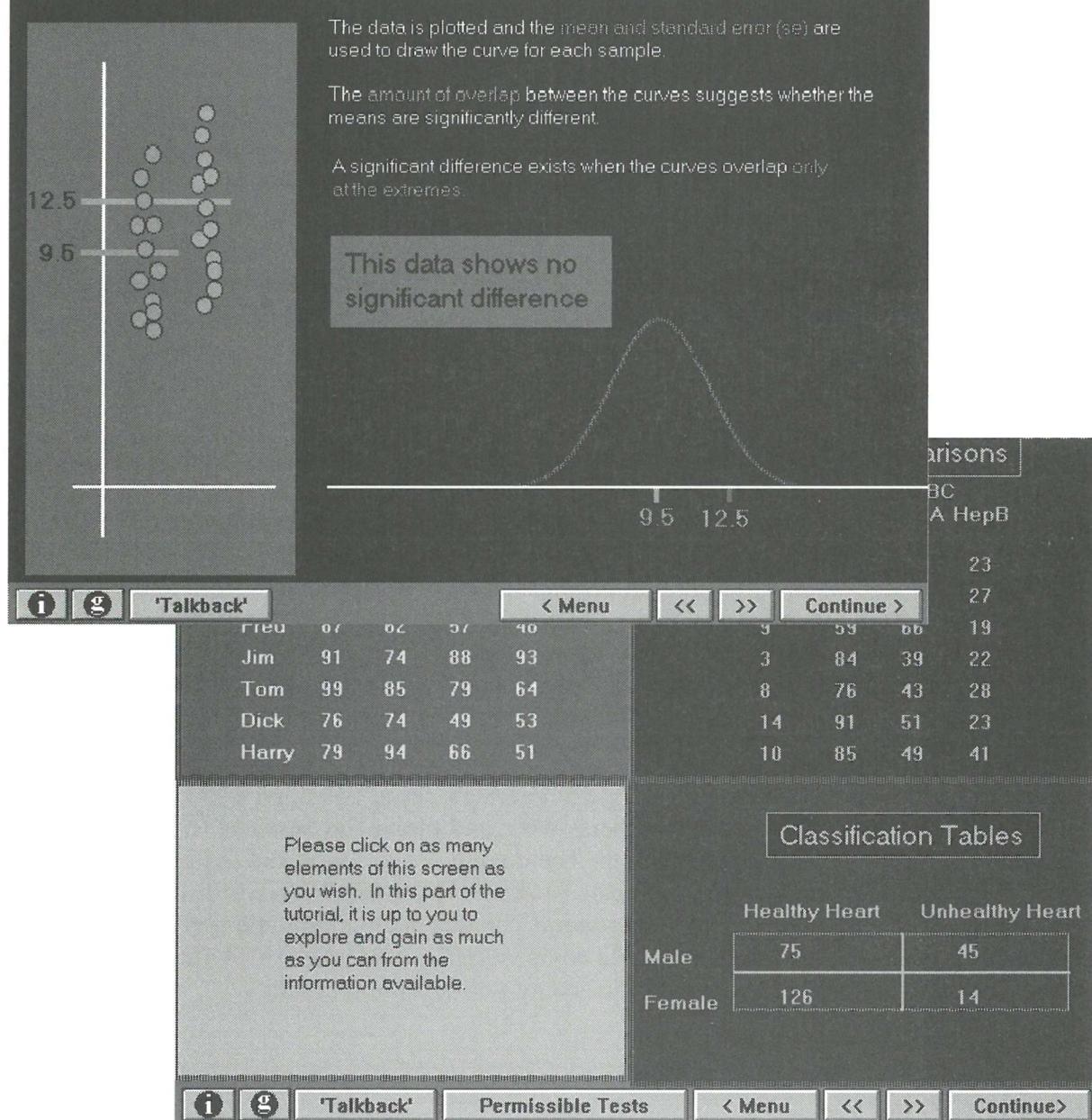
Statistics for the Terrified is supplied on two 3.5" disks. It can be run on IBM PC or compatible running Windows 3.1 or higher. Minimum 386 processor, 4 MB RAM, 256 Colour VGA or SVGA Monitor and at least 10 MB free on the hard disk. (Recommended 486 processor or faster and 8 MB RAM or more).

The site licence for this educational software costs £99 or more, according to the number of users. Is it worth the money? Probably not, I must conclude with regret since a lot of effort has gone into its development. While the package is intended for medical professionals, it explains the principles of common techniques such as Chi-squared measures, analysis of variance and curve fitting.

My reservation as a teacher, rather than as one of the terrified (whoever they might be) is that this expensive package will be unlikely to be helpful to those with number phobia, or who are number blind. An alarming thought: are there doctors out there (people for whom this package is presumably intended) who cannot add, reason properly, or get the decimal point in the right place? If there are, I hope they are not diagnosing illness and prescribing medicines.

For beginning students (including that notoriously number-blind group, social workers) I would still use hands-on work with SPSS-PC, using the very helpful SPSS manuals in group instruction. The package under review provides only very limited access to SAS and SPSS-PC programmes and also fails to address basic principles such as levels of measurement, probability and central tendency.

2.0 The two sample t-test: an overview



Sample screens from *Statistics for the Terrified*

ssalt '97

social services and learning technologies

17/18 July 1997 at Bournemouth University, UK

Included with this issue of the journal is the flyer for a major national conference focusing on transitions in the development and use of learning technology and information resources for social work education, training and practice. This conference is a successor to successful CTI Human Services Conference on *Computers in Social Work Education and Training* held at Hursley in Hampshire in June 1995.

The conference comes at a critical time when the use of technology in teaching and training for social work and for information management in social work agencies is becoming more established and sophisticated and users have rising expectations. However users are struggling with what seems to be an endlessly changing and increasingly complex practice and technological environment and ever greater demands on resources and time. The educational environment is also changing with increased student numbers, new course structures which include open and distance learning and the increasing impact of NVQs. In one sense the pioneering days are drawing to a close but there is still far to go both in planning and providing new materials and in understanding how best to use these to support learning and enhance practice.

It against this backdrop that we are inviting you to attend the conference, which is preceded by a two day ProCare Summer School. A flyer for the conference and an application form are enclosed with this issue of the journal with additional copies available from the conference office below. The conference programme will be announced in April but will include a mixture of keynote speakers, presentation sessions and workshops lasting from midday on Thursday 17th July to lunch time on Friday 18th July. There will also be an exhibition, a cyber-cafe and a conference dinner. We also invite you to contact us if you have a contribution to make to the conference as a presenter, in a workshop, as an exhibitor or a small demonstration at the cybercafe session. The venue has both networked computer laboratories and Internet links from seminar and lecture rooms.

The Conference is jointly organised by CTI Human Services at the University of Southampton, the National Institute for Social Work and the Social Services Research and Development Unit at the University of Bath. The conference is sponsored by; the Central Council for Education and Training in Social Work and the Social Services Inspectorate and hosted by the Institute for Health and Community Studies at Bournemouth University. Excellent accommodation in student houses adjacent to the conference is included in the conference fee of £145. We look forward to seeing you in Bournemouth.

For further information contact:

Ann Wilkinson or David Colombi at CTI Human Services

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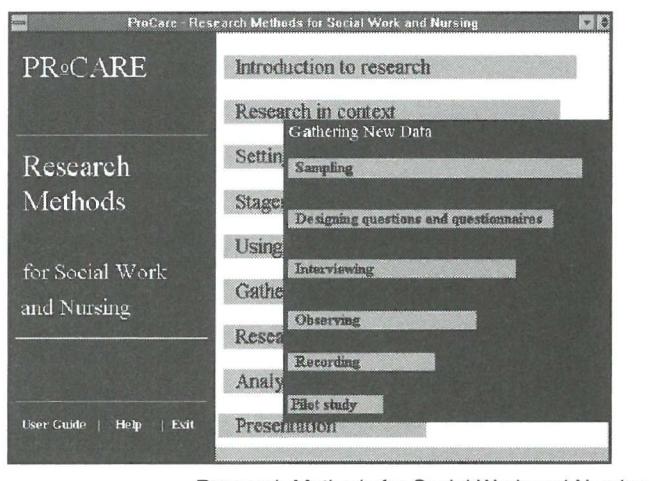
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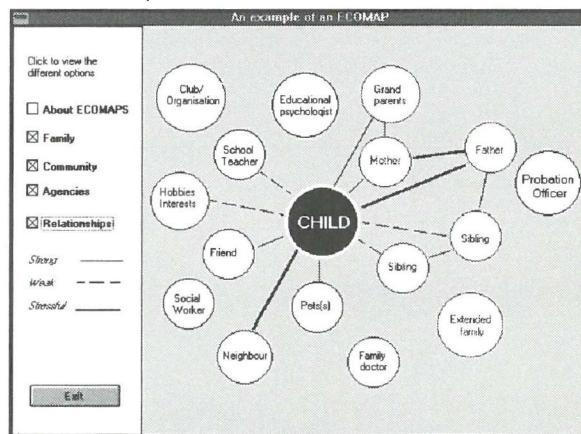
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