# New technology in the human services

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# Calling the tune in social care information

*by Bryan Glastonbury*


## Abstract

This paper sets out to review the state of social care information in England in 2001. By the time it appears in print *Information for Social Care*, the first national information strategy for the social services, will be near its publication date. The draft is available at (http://www.doh.gov.uk/scg/information.htm). Hence a review is timely, but it will not be a straightforward narrative; rather it will seek to debate the situation in the context of two hypotheses –

- That health has been the driver of information developments in the care sector, and where the National Health Service goes social services will follow; and
- that the objective of information supporting the best possible services will not be achieved without a fundamental loosening of data protection rules.


## Strategic context

A few years ago there might have been a case for adding a third hypothesis – that for 'information development' should be read '*electronic* information development'. However, this is now so embedded in Government policy as to be barely worth debating, except perhaps to point out some of the inflated expectations. 'Information age government', or 'e-government' is at the core of modernisation, and if promises are to be believed it will lead to a better life for everyone, at a lower cost to the taxpayer. Who can beat that!

Specifically the e-government vision is intended to bring –

- Citizen-focused services;
- Increasing choice and flexibility;
- No exclusion;
- Easier ways of changing society; and
- More effective information, better used.

If these are to be taken seriously then we should expect to find them emerging in developing information policies for social care, and indeed they may have a place in the promised *Information for Social Care*. It can hardly be said, however, that social


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care has pushed with enthusiasm into the information age. While the rest of the country seemed to be moving with the flow of e-government, the Social Care Group at the Department of Health continued with the view that 'It is not realistic or appropriate to produce a single information strategy for social services analogous to that for the NHS' (Department of Health, 1998, para.39). Even now the work on developing and promoting a strategy has not come from the Social Care Group, but from the Statistics Division at the Department of Health.

In contrast the NHS had an overarching information strategy throughout the 1990s, culminating in *Information for Health* (NHS Executive, 1998). This both set out a range of governing principles, and led the way to a substantial central organisation. This latter is based on an Information Policy Unit (IPU) that sets policy and commissions action from, mainly, the NHS Information Authority (IA). Jointly these two groups have staff running into hundreds. Very importantly *Information for Health* came with an agreed budget (in excess of £1 billion) to support developments within specified plans and timescales. A 'refresh' of *Information for Health* was issued early in 2001, and is on the IPU web site at (http://www.doh.gov.uk/nhsexipo/index.htm).

While *Information for Health* is a 'national strategy for local implementation', the next strategic initiative came from the sequence of National Strategic Frameworks (NSFs) for specific sectors. The Mental Health NSF, for example, pinpointed the importance of information, and promised a specific Mental Health Information Strategy (http://www.doh.gov.uk/nhsexipu/strategy/nsf/2.htm). This forced the issue of joint IT developments in a sector where joint health and social care service provision was seen as essential. The 1999 Health Act pushed this further by facilitating the funding arrangements for these joint services, and the 2001 Health Act is set to move further along the same strategic path.

## Paying the piper

The contrast with the social care sector could not be more pronounced – on the NHS side a plan, money to put it into action, lots of specialist staff, and timetabled deliverables: on the social care side, over these years, no plan, little if any dedicated national staffing, and no funds earmarked for information developments. However, *Information for Health* itself, and the detailed guidance that followed, made it clear that joint development with social care, including seeing some of the resources going to social services departments, was part of the NHS agenda. Local procedures ensure that all but the most uninterested social services departments can participate in the production of local implementation strategies (LIS), and be part of the management of NHS resources provided for them. If social services wish to promote their own IT development with help from NHS funding, as many do, then it is relevant to note the terms that they are signing up to. The key principles set out in *Information for Health* are:

- Information will be person-based;
- Systems will be integrated;
- Management information will be derived from operational systems;
- Information will be secure and confidential;
- Information will be shared across the NHS and other agencies.

Some of these may not be controversial for social services, but nevertheless they amount to fundamental changes in the way information is handled. The notion of integrated person-based systems presents less of a challenge to the social care sector than it does to health. The situation in health is that person-based data held by hospitals is still almost wholly on paper, while computerised management information is generated and handled quite separately. Developing the electronic health record, and the means to obtain aggregated statistical material from these records, represents a huge

challenge for hospitals, though perhaps less for GPs. In contrast social services departments have a lot of experience in moving from paper to electronic client data, and extracting statistics from these data sets. They are familiar with the principle and to an extent with the practice.

A key challenge for social care, however, arises from the loss of integration brought about by the continuation of the 1980s policy of separating the roles of assessing and commissioning from those of providing services. Social services information is now dominated by material generated from the in-house processes (that is, it is primarily 'purchaser' information), and is seriously lacking in detail about service provision, especially where the 'provider' sector is made up of a variety of independent sector agencies.

Social workers are well versed in data protection, though not perhaps in the national framework that governs the NHS. More of this later.

Extensive information sharing is likely to be an altogether new experience for social services. The notion behind the *Information for Health* approach is that if someone lives in Southampton and is taken ill in Carlisle, then the person's health record will be available on line to clinicians in Carlisle 24 hours a day, 7 days a week. This view of a nationally transportable record forces onto the agenda wide-ranging issues of standardisation that the NHS has already begun to tackle. The independence with which each social services department has developed its information system, within the boundaries of each of the 150 local authorities, represents a huge barrier to be overcome.

As well as the guiding principles, the LIS agenda, insofar as it affects social services, is focused on sectors where there is significant joint responsibility and a pressing need for joint working. In outline these are adult services, especially those recognised in the sequence of national services frameworks – stroke patients, those with mental illness, and older people. These are the areas where the NHS recognises the importance of joint work with social services. Children's services, traditional leaders in social care information development, may now find themselves less well served.

Perhaps more worrying is the threat to the unity of the individual social services department system, brought about if elements of that system, such as mental health, are hived off into a different system with health. A similar threat exists if health and social care geographical boundaries are not the same as those of the partner health trust. In this instance a social services department may find itself under pressure to handle its information for a particular client group in one way where it overlaps one NHS trust, and in another way where it overlaps with a different trust. Making use of NHS funding, with the inevitable focus on areas of interface between health and social care, may have unbalanced social care information development, though at this stage it is too early to find evidence.

So, have social services sold out to health, and permitted their information (perhaps even their operational) policies to be determined by health priorities? There is no shortage of people fearing that information developments are less concerned with modernisation, and more with a longer-term policy of social care being subsumed within health care, in short a take-over. The NHS is very much the bigger brother (thirty times bigger than the social care sector is a typically quoted ratio), and its money must be influential at a time when social care information has nowhere else to look. *Information for Social Care* is expected to have resources attached to it, and this will be vital to safeguarding the role of IT development in that sector. However, are the directions mapped out in *Information for Health* very different from those that would be taken by an independent social care sector? Is *Information for Social Care* likely to be so very different? It is tempting to suggest, at least as far as broad principles are concerned, that social care information has been dragged along in the wake of health information; but the path it has gone down would not have been much different if it had

chosen it for itself. At the same time social care has been able to exercise quite a lot of influence over health developments.

## Information for social care

So where is social care information at and where is it going? To answer this question it may be helpful to look separately at the infrastructure, client records and agency statistics.

### *Infrastructure*

From an NHS perspective the characteristic of social care information that is so different, and is not always easy to come to terms with, is its fragmentation, its confinement within each local authority. Social services departments almost all operate on a local network, specific to their local authority. While there is talk of a secure local authority intranet, at present there are two options for extending the network – the Internet or NHSnet. Currently the Internet is widely used for email and Web access, but there are few who feel it would be secure enough to transmit client data. NHSnet has a cost and strict rules of access, but is viewed as secure. The problem is that NHSnet rules make it difficult to meet the conditions for connection, and it is supposed to be used only for social care in the context of health. Hence, without a change in the rules, much social services activity would be excluded; and until network matters are resolved, the emerging plans for an electronic personal social care record, to parallel the electronic health record, will have limited usefulness.

As already suggested, social services have made considerable progress in developing electronic client data sets, though a wide and often incompatible range of systems have been used. Much of this has been due to the preference of many local authorities to develop systems in-house, with due regard to internal integration, but not to any wider standards or protocols. Prior to local government reorganisation in the second half of the 1990s over a half of social services departments had in-house systems, and some no system at all. By 2000 the proportion of in-house systems had diminished to a third, and falling. Partly this has come about through the reorganisation creating a larger number of smaller authorities, of a size that did not support the high costs of in-house development (though there are a few consortia, usually holding together authorities that were, pre-reorganisation, all one). Partly also the growing pressure from the Department of Health for standardisation in statistical returns has promoted greater emphasis on system compatibilities, at least as far as information outputs are concerned.

The slow demise of the in-house system is not necessarily 'a good thing'. The major software companies do not view English social care, or UK social care for that matter, as a big enough market to warrant investment. After being the pioneer (with SOSCIS) ICL has virtually pulled out, and the market is now dominated by two smaller specialist companies – Sheridan and OLM. The picture in health has similarities. Again the UK market is not seen as big enough for the sort of investment that would be needed in complex hospital systems, so although there is a relatively healthy GP software sector, the providers of hospital systems are mainly US companies, wanting basically to sell systems designed for the USA. Overall in health there have been frequent mergers, so that the number of separate software companies is diminishing. It should perhaps be added that software companies in health and social care are inclined to put some of the blame for lack of investment on the agencies themselves, for their reluctance to allocate sufficient budget to information services.

## *Client records*

National work to develop an electronic client record for social care is, in many ways, no more than recognition of a trend that started many years ago. Social services departments have, for the most part, not been content to focus computerisation solely on client administration, but have gradually incorporated material that traditionally has been located in the paper case file. Perhaps here, more than anywhere else, the social care sector has a contribution to make to the wider debate. Issues like achieving a balance between tick boxes and free text, or designing screens of client data that are informative and easy on the eye, have become routine in social services. The NHS is way behind, and many of its practitioners, especially doctors, still have doubts about whether they want any direct contact at all with a computer.

Social care has also made good progress in advancing the concept of 'evidence-based decision-making', initially through the work of groups like SSRADU (http://ssradu.brookes.ac.uk/index.htm) in child care, and more recently with the Electronic Library (http://www.elsc.org.uk). The ongoing task is to get practitioners to use these resources.

At the same time, if there is to be an electronic client record with a similar structure across social services departments, leading to a database that allows the generation of realistic statistical comparisons between departments, then the issue of standardisation has to be tackled. Here the social care sector has much to do, as can be gauged from the agenda in the NHS for the electronic patient record. Just a few of the items are -

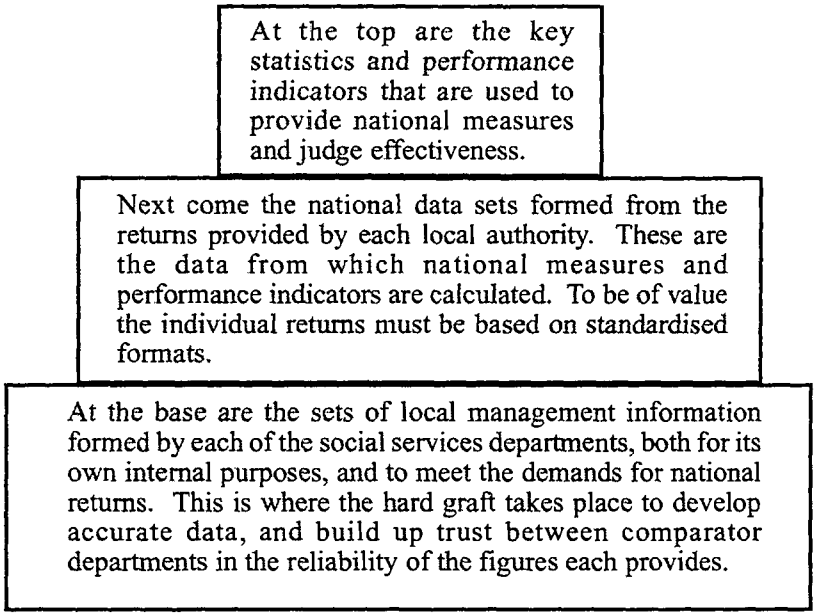
- Designing a standard record structure capable of supporting care pathways, and of being transported or copied out of one system into another (NHS ERDIP programme).
- Organising the content of the record into sections, under headings, so that users of the record can find their way around it. Having a content division and headings that are acceptable and practical for a range of professional practitioner groups (NHS Headings Project).
- Specifying and agreeing a standard language, so that terms like 'assessment', 'anxiety', 'review', 'home care' and so forth mean the same to everyone, whether in Cumberland or Cornwall (NHS SNOMED CT programme, joint with the USA).
- Identifying the specific information needs of particular professions, so that targeted subsets can be provided, rather than obliging them to scan full records (various NHS activities).
- Identifying core or minimum data sets capable of supporting data protection rules and 'need to know' principles (Caldicott implementation, etc.). (http://www.doh.gov.uk/confiden/socialcare.htm).

These are all matters that social care has yet to consider, or has just begun to think about, but they are essential building blocks towards the transportable electronic record.

## *Statistics*

The arguments for standardisation come into full force here. How can you compare, for example, the referral rates of new clients across different social services departments, if they do not function to the same definition of 'referral' and 'new client'? Some might argue whether there was any need for such comparisons, but that decision has been pre-empted at national level by setting up a framework of performance indicators and league tables as a way of judging the effectiveness of public services.

The Statistics Division of the Department of Health appears to have moved towards a three-tier pyramid for aggregated data -




The top level is represented by the statistics set out in the Performance Assessment Framework (PAF) and by outputs such as the annual Audit Commission indicators. The middle level includes the RAP (Adult Referral, Assessment and Care Package data) and CIN (Children in Need Data) annual returns from social services departments. The bottom level is strongly influenced by the demands of national government, but nevertheless shows quite a diversity of indicators and measures of interest to local managers and elected officers.

Considerable work has been done in recent years to improve the quality of social care statistics, partly under pressure from the Department of Health, but partly also through recognition that much may be gained by giving a true picture of what social services do. A chronic malaise of social workers, not always shared by other professions, has been their reluctance to enter data into records that they consider are 'just for management statistics'. As was discovered in the early months of development of the RAP Project, this resulted in a substantial under-counting of the volume of work carried out, and further up the line of analysis a significant under-statement of the value gained for resources invested in social care. In contrast large parts of the NHS have been blessed or plagued, depending on your viewpoint, by a long tradition of counting everything, every patient contact, every small provision. The resultant activity comparison of health and social care has not always shown up as very favourable to social services!

On the agenda now is the need for aggregate information about joint activity between health and social care, and achieving this will involve some significant changes of approach, especially on the part of the health services. At issue is the core unit of data. Under RAP and CIN the core unit for social care data is the service user, so the information output is likely to be about the number of people who have been assessed, placed with foster parents, or whatever. In health care the traditional unit of measure has been the event, so output has measured the number of hospital admissions,

the number of replacement hips fitted, and so forth. The overall difference is perhaps not quite as pronounced as these instances suggest, but politically at the present time it is people-based information that is favoured.

## Data protection

Whether the data under consideration are anonymised and aggregated (statistics) or identifiable to an individual (client record), they are subject to the terms of the Data Protection Act. At the same time all practitioners in the caring services are subject to the common law 'duty of care', to the legal requirements of specific legislation (such as covers children's services), and to the pressures of national policy to meet standards of quality and value for money.

Are these rules compatible, or do they present unavoidable clashes? Achieving the highest possible quality of services is generally viewed as needing easy and reliable information flows, for example in order to –

- Assess the needs of the client.
- Plan and provide services to meet those needs.
- Monitor the ongoing situation.
- Support any necessary actions under legal terms (e.g. the Mental Health Act).
- Ensure that all practitioners working with the client know what they are to do.
- Keep the client informed.
- Support informal carers, closely involved family, advocates, etc.
- Be aware of and in a position to deal with risk.

An analysis of social care tragedies shows the high frequency with which a contributing cause is the failure of relevant information flows, whether in terms of the lack of communication (e.g. no message sent), inadequacy of the communication medium (e.g. messages channelled unreliably), or content (e.g. message obscure).

The fundamental problem with facilitating information flows in the interests of best quality services is the extent to which they damage the notion of personal privacy. This is especially true of electronic information, because the most effective way of ensuring that a core service team has all the information it needs is to set up a parallel 'core information community' of those with authorised access to the computerised client record. Of course it is possible to provide gradations of access to electronic information (access to read only or read and write to files has always been a feature), and to establish subsets for some purposes, but the risk of a service activity being weakened by a block in the information flow is strong. A recent survey of practitioners in health and social care (Glastonbury, 2000) showed that front line staff are more fearful of the potential harm caused by failure to pass on information that they are of bending or breaking data protection rules.

Nevertheless, the terms of the Data Protection Act 1998 are taken extremely seriously. Both the NHS and Social Care Group have issued guidance to the Act, but action in the NHS has been much more substantial, and this is another arena where social care is following in the footsteps. The Chief Medical Officer of England set up a committee chaired by Dame Fiona Caldicott, which produced its *Report on the Review of Patient-Identifiable Information* in 1997 (Department of Health, 1997). The Report spelled out clear rules for handling personal data, and these are summarised in a widely circulated mnemonic on FIONA C -

- **F**ormal justification of purpose
- **I**dentifiable information transferred only when absolutely necessary
- **O**nly the minimum required
- **N**eed-to-know access controls
- **A**ll to understand their responsibilities
- **C**omply with and understand the law

The Caldicott Report led to an Implementation Group, and before the end of the century all NHS Trusts had appointed 'Caldicott Guardians' charged with ensuring that data protection rules are observed.

This created an immediate problem for those social services departments that wanted to develop joint information with health, and some solved it by signing up to the Caldicott principles and appointing their own Guardians. There is a long tradition in the NHS of suspecting that social care agencies do not have good data protection, and are inclined to 'leak like a sieve'. The evidence to support this is scarce, but it is true that each social services department, or its local authority, has had its own rules. Often these are as or more strict than required by Caldicott, but they are not 'national'. Work is now ongoing to provide a social care framework equivalent to Caldicott, but those who have signed up to the NHS route seem to have found it satisfactory.

## Informed consent

While the Data Protection Act does allow information to be passed between practitioners or agencies where there is justifiable need, especially where risk is involved, the key to effective information flow is seen as the agreement of the service user (client, patient) or the user's authorised representative to information uses – informed consent. In theory this is a neat and tidy approach, as well as being ethically sturdy: in practice, however, it is set to become a real thorn in the flesh of good service provision. There are two problems –

- The content and process of informed consent is potentially long and complex, and,
- it is not always achievable.

### *Content and process*

Publicity about consent in recent months has clarified that it is not something either to be assumed (i.e. as part of agreeing a care package) or to be accommodated just by a tick in a box. It is expected to be an identifiable process, and the content is substantial. As already practised in many social services departments (less so in health) it covers consent to record and store personal data, as well as to share it, and covers –

- What data items are included.
- What the data will be used for.
- Who they might be shared with, and in what form.
- Specific exclusions re. data items and / or recipients.
- Duration of the consent.
- Service user rights and how these can be asserted.
- Service user confirmation of understanding and formal consent.

A number of guidelines are identified for administering the consent procedure –

- Within the context of good professional behaviour, consent should be sought at the earliest possible time of contact with the service user, in order to ensure that data is not put on record and / or shared before consent is obtained. It follows that where consent is being requested to use personal data across a multi-disciplinary / agency context, it is those staff in first contact with the service user on whom the onus will rest to initiate the process.
- The timing and procedure for obtaining consent must be mediated by the need to ensure that it is 'informed', and that every effort has been made to ensure that service users (representatives, advocates) understand the full impact of the consent they are giving.
- There should be designated start and finish dates within which the consent is operative, and opportunity for a service user to seek withdrawal of consent.

- Consent should be in writing. Good practice may indicate that a copy should be provided for the service user.
- The operation of consent processes should be fully informed by the Data Protection Act, 1998, and the guidance issued to health and social care agencies.

## *Is informed consent achievable?*

The first problem arises in making the request to clients for consent. Technically (by law, that is) consent has to come right at the start of client / worker contact, because it is not permissible even to start a file until there has been consent. Many practitioners find it disrupts good professional practice if, instead of focusing on identifying and meeting client needs, a good deal of early time has to be given to going through a consent process. Discussions with mental health clients (Glastonbury, 2000) indicated that they shared this concern. While they wanted consent to be operational, they felt that they were 'pressurised into it' if it took place when they were feeling stressed, preoccupied with their immediate needs, or going through a phase of illness. Many wanted both a consent process and wanted to be able to trust their professional helpers to get on and do the best for them.

There is also some, probably unintended deception in dealing with the topic of who will see a client's personal information. Practitioners and service users tended to underestimate, often to a considerable extent, the size of this 'access group'. It is likely to include:

- Practitioners directly involved in the current phase of treatment / service.
- Practitioners not currently involved, but part of the same team (on local network facility).
- Support staff for practitioners (e.g. clerical and administrative personnel).
- Practitioners involved in other aspects of the service user's care, not necessarily related specifically to mental health, and not necessarily with current involvement.
- Researchers, quality monitoring, complaints and audit staff.

However, practitioners generally admitted to leaving out some of these when talking to the client about information sharing, or seeking consent. The access group tended to be defined only as those practitioners who are or could contribute to the most effective current treatment / services. Support staff, including those who may be doing the actual data entry into the record, were rarely mentioned. Would consent be given if this wide potential 'readership' was spelled out?

Hence a substantive consent process runs into difficulties even before considering those clients who cannot or will not consent. The 'cannot' group includes children and those adults who are in no fit state to entertain the consent agenda in a realistically 'informed' way, like mental health clients during an acute phase of illness. Here the challenge is to identify the properly authorised representative to act on behalf of the client, keeping in mind that an obvious candidate, the next-of-kin, may be part of the client's problem scenario. The 'refuser' group is not simply made up of those who collaborate with services, but refuse to sanction information flows. There may be a small group in this position, but the larger group are those who are 'refusers' in a wider sense – not turning up for appointments, blocking on treatments, or refusing to have any collaborative contact with the care services. In mental health, for example, assertive outreach teams have been established primarily to keep track of and try to help these 'refusers'.

There will always be significant numbers of people in need of services, often urgently in need, who have not gone through a process of consenting to the use of their personal information. What should be the reaction of practitioners? Respect the

absence of consent and not give the best service? This would put them in breach of their common law duty of care. Ignore the absence of consent and get on with the job (common practice for many)? There is an information dilemma in need of resolution. If rumours are correct (February 2001 rumours, that is), then the new Health Bill (clause 59) intends to tackle the dilemma by making information flows much easier.

## Conclusion

This paper has set out to show both that social care information has come a long way, and that there remains much to be done. Some of these remaining tasks, those of 'good information practice' are a matter for social workers, their colleagues and managers. Other tasks, especially data protection, need a national political or legal settlement. The influence of developments in the NHS has been huge, potentially unbalancing, but broadly positive. The next stages will take place under the umbrella of *Information for Social Care*. If the attached budget is big enough to have an impact (£50 million would be a helpful sort of figure over three or four years) then social care information is in for an exciting start to the new century.

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# Using on-line technology to teach controversial issues

*by Lesley Cooper*


## Abstract

This paper describes the way controversial ethical issues have been taught and assessed in a conventional classroom topic using WebCT as the on-line technology. Although students initially resented being forced to argue for controversial issues that differed from their personal position, they changed their views through the process of on-line learning. Learning activities contributing to this change included the public nature of the bulletin board and responses from other students. Overall students enjoyed using new technology.


## Introduction

This paper describes the way that on-line technology has been used to teach and assess controversial ethical issues in a traditional social work classroom. Students attended lectures during an intensive course on social work ethics and then completed one major topic assessment using on-line delivery. An analysis of the content of students' reflective papers reveals the benefits and difficulties associated with learning about controversial issues, the process of using on-line learning and student comments about on-line delivery.

An increasing use of on-line technology is replacing face to face teaching and complementing traditional teaching. Although academic teaching of social work has incorporated didactic learning, experiential learning and reflective learning, interactions between learners and between learner and teachers are the most highly valued in teaching. Because of the importance of human interaction in teaching and learning, many social work academics are sceptical about the educational and professional advantages of on-line learning (Hick 1999a). Despite this scepticism, many social work educators are embracing on-line delivery, both fully and partially, to enhance student learning (Hick 1999b, Timms, 1999).

Social work as a professional practice requires an awareness of values; an understanding of professional ethics; appreciation of responsibilities to clients, colleagues, employing agency and the profession; and an ability to resolve ethical dilemmas. In order to achieve these objectives, academic staff must enable students to obtain facts, assess values, principles, and competing influences in practice problems, propose and justify solutions to problems, make explicit their basic


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assumptions and values and anticipate and defend objections to proposed solutions.

## Controversial ethical topics

Controversial topics are those problems and disputes that divide society or a profession and "for which significant groups offer conflicting explanations and solutions based on alternate values. Such disputes may be about: What has happened. The cause of the present situation.The desirable ends to work towards. The appropriate course of action to be taken. The likely effects of that action". (Stradling 1994:2)

Conflict arises in the teaching of controversial issues because the student finds that their ideas, information, solutions and opinions differ from those of their peers and teachers. When faced with such conflicts, students are motivated to resolve the dilemma by seeking out additional information. Many controversial topics in social work are exceptionally difficult for students because of conflict with their own personal values and past experiences in both positive and negative ways. It is essential that any discussion of controversial issues requires a supportive and safe learning environment so that ideas can be safely and openly challenged.

A high degree of intellectual and ethical maturity is desirable for beginning social workers. Social work is a professional practice in which practitioners are required to resolve murky ethical problems. Conflicts about the right way to proceed are inevitable and arise because practitioners are faced with competing personal and professional values, competing loyalties (to clients, agency, profession or society) or conflict around the best means, strategy or outcome. In practice, it is not possible to sit on the fence and avoid the difficult decisions. Doing nothing is an ethical stance. Students do not necessarily arrive in social work programs with this ethical maturity and it is essential that this is developed throughout the curriculum in various ways. Perry (1970) in his study of Harvard students noted that cognitive and ethical maturity is a process that slowly evolves through adulthood. Students begin with dualistic thinking and divide the world into good and bad, right and wrong. Dualistic thinkers believe that right answers exist somewhere. During this cognitive development, students proceed through a number of stages of ethical maturity that include accepting diversity of viewpoints and values and the relativity of opinions and values. Finally students understand their commitment to particular values and respect for the values of others.

Controversial topics force students to engage with the contradictions of ethical issues in professional practice. The role of the teacher is of critical importance as it is only when students work through the material themselves that their personal values are challenged. In the teaching of these controversial issues, the academic has deliberately taken a neutral stance and not participated in the on-line discussions. In taking this neutral position, the academic has decided not to provide a balanced or a committed position. If academics teach this material in a lecture format providing either a balanced or committed position, their argument is often rejected because students resent viewpoints that do not agree with their personal position. Teachers can also use their authority to present a particular position and thus imply that the authority of others can resolve such issues. The topics chosen for controversial issues have come from social work ethics literature and are outlined in Table 1.

## On-line technology

The teaching of controversial issues has used full text electronic journals available through the University Library, resources available on the World Wide Web and WebCT a commercially available integrated set of web based course tools, which is

readily accessible for educational design and delivery of topics. In this initiative, WebCT was used to supplement classroom teaching and provide major assessment.

The key tool used in this case study is the bulletin board, an instrument to facilitate a structured conversation between students using text messages (students assignments) and students' responses to each other. These messages are stored in a hierarchical tree-like structure to reflect a conversational pattern. These conversations have not been designed to involve the instructor in discussion, although she lurks in the background keeping a watchful eye on the debates and tracking student participation.

| | |
|---|---|
| 1 | Spiritual and religious issues should not be discussed in social work practice. |
| 2 | Names and addressess of convicted child molesters should not be published in the newspapers. |
| 3 | Pills should not be prescribed for 'lifestyle disorders' (ie social anxiety, sexual impotence, shyness and panic attacks.) |
| 4 | Social workers should refrain from client assessment and intervention after drinking alcohol. |
| 5 | Clients should have the right to decide if they live or die. |
| 6 | (Emotionally) impaired social workers should not practice. |

Table 1: Controversial ethical topics

## On-line learning

On-line teaching and learning should be based on sound educational principles and not driven by the 'bells and whistles' associated with particular educational technology. Alexander (1998:x) in a review of on-line learning in Australia reports that the use of a particular information technology did not result in improved quality of learning or productivity of learning. The most critical factor for successful outcomes was the design of the students learning experience and the use of sound educational principles.

With these limitations in mind, four key principles have been used to structure the teaching and assessment of these controversial issues. These principles are described and linked to the structure of the on-line learning activities.

- A well structured knowledge base
- An appropriate motivational context
- Learner activity
- Interaction with others (Biggs and Moore 1993).

### *A well structured knowledge base*

Social work teaching whether conducted on-line or in conventional classrooms creates challenges, seeks meaningful knowledge and encourages students to think and reflect. Students construct their knowledge base and their understanding of a topic when they actively make connections between previous subjects, personal experiences, professional placements and can confront any misconceptions in their knowledge base. According to Biggs (1999) it is essential to maximise students' awareness of their own knowledge construction by placing them in situations that require them to self monitor and direct their own learning.

### *An appropriate motivational context*

Students are motivated by good teaching, feeling control over their learning and achieving success in their learning. A fear of failure, a desire to please, a need for affirmation by friends or family and an intrinsic interest in the learning tasks can

motivate students. Some of these motivations lead to deeper learning and are of longer term value to the learner than others. Despite this, good teachers understand that intrinsic and social motivation can be enhanced by the way in which teaching and learning activities are structured and assessed. Motivation can be enhanced when students are required to present their work and receive feedback from their peers.

### *Learner activity*

Students learn though activity, using all senses and interacting with others. Educational researchers know that people learn from others through a process of social learning and imitation (Pressley and McCormick 1995). The social interactional perspective promulgated by Vygotsky (1978) assumes that knowledge construction is to a significant degree a social process with cognitive development occurring as a result of cooperative efforts to learn, understand and solve problems. The activities that provide the basis for learning might include teacher, peer or self directed activities.

### *Interaction with others*

There is a great deal of evidence that student to student activities can create good learning outcomes. Although learning requires interaction with others, this does not have to be face-to-face but can be mediated by computers through discussions and conferencing. According to Biggs (1999:87) outcomes of interaction include an understanding of known content, deriving standards for judging better and worse interpretations, metacognitive awareness of how one arrives at a given position. These benefits are in addition to the social and motivational outcomes. Interaction with peers is better than listening to lectures and it encourages student friendship and support, increased self concept and improved communication skills. These interactional student-to-student learning tasks have been elaborated for classrooms (Slavin 1985 and Bruffee 1993) and expanded for use on-line. (Bonk and Reynolds 1997).

The advantages of using on-line interaction for controversial issues are best addressed by noting difficulties in the normal face to face teaching environment. In the classroom, an educator teaching controversial issues walks a fine line between controlling and encouraging interaction. Where educators control a number of difficulties emerge. There may be little opportunity for discussion and intolerance for opinions of others. On the other hand, a loosely controlled discussion creates a situation where one or two students monopolise the conversation. Both scenarios discourage active learning (Cherrin 1993). Classroom educators may intentionally or unintentionally encourage debate rather than dialogue. Debate is oppositional encouraging polarisation of views and competition between students. Debate may also affirm the student's position encouraging a close minded approach. Dialogue, on the other hand encourages understanding, common ground, constructed meaning, an open-minded attitude and active learning.

On-line learning provides many advantages for teaching controversial issues. There is freedom from time constraints so that participants can choose when to become involved and for how long. There is time for reflection and opportunity to review, research and re-research before responding. Conversations are permanent and are accessible at a later time so that participants can return to review, dissect and reconstruct discussions (Reed 2000). Assumptions can be re-evaluated.

In on-line discussions, the student will be presented with multiple views inhibiting the reactive 'off the cuff' reply and encouraging analysis of the multiple positions. Whilst there is not always anonymity, students learning on-line do not have social context cues defining the status and body language of other respondents. These cues are thought to discourage rather than encourage participation (Chester and

Gwynne 1998). Thus students feel safe and able to discuss the multiple values and perspectives. Students are valued for their thinking rather than other social attributes.

The learning activities, structure and design of the on-line program, links between the educational principles and the on-line design are elaborated in Table 2. The on-line design provides students with the opportunity to engage with both the content of the debates and each other. One key feature is the presentation of all student justifications and responses on-line. This provides social motivation and the opportunity for students to develop self-confidence and improved communication skills. It also enable them to understand their own metacognitive strategies.

## Structure and task of on-line delivery

There are three phases in this on-line delivery - preparation of students for on-line learning, the interactive on-line phase and reflection on learning. As part of the preparation, students were provided with hands-on tutorial sessions in using WebCT and electronic journals and databases. They were also given an overview of electronic resources maintained by the library for Social Administration and Social Work.

In addition, students engaged in a small group and class netiquette exercise in which they discussed their guidelines for social and communication skills in electronic communication. They were specifically asked how they wanted to be addressed on-line and what they would find intimidating or upsetting. When agreement was reached about the rules for communication, these rules were distributed to all students in the class. Students were preallocated to their topic in groups of 5 to 8 students.

In the interaction phase students were required to complete a specific task as outlined in Table 3. They researched their allocated topic using electronic journals and resources from the World Wide Web. Other library resources were permitted but students were advised that specific material on all of the controversial topics could be accessed by electronic journals and additional marks were provided to those who used recent electronic material. Students were allowed four weeks preparation time before posting their 500 word justification to the bulletin board. Five hundred words were chosen, as this amounted to one page of text written in single spacing and two pages of screen text.

In the next two week period students were required to read the postings of students in their group and then respond to at least two postings with a maximum of 200 words per response. Students were given two weeks to read and respond to these postings using their understanding of the argument and professional obligations to claimants. Although the class was divided into six discussion groups, students were able to read the postings and responses of all students, but were instructed to only discuss issues from and within their own group.

The final phase involved reflection on the on-line debate. Students were asked about their personal position, how they developed their ideas and opinions, the extent to which they changed through this exercise and then provide their comments about the on-line format.

## Students' learning

### *Controversial topics*

One aim in teaching controversial topics is to encourage students to think deeply about complex issues and through research and interaction to change their thinking so that implications and obligations are considered. When the topic was initially presented to the students, there was a widespread agreement and disagreement with the controversial issues thus providing a good base for student to student discussion (see Table 4). The topic, *clients should be allowed to live or die*, represented the only topic where all

| *Educational principles* | *On-line learning* |
|---|---|
| A well structured knowledge base | The student researches the topic using electronic journals, electronic databases and the World Wide Web. The student interacts with the intellectual content of the subject. Stepping into the shoes of claimants allows students to make links to knowledge derived from practicum and identification with issues of various claimants. In the reflection activity, the student makes links between knowledge, personal experience |
| Appropriate motivation | Students engage in an interesting and relevant professional controversy that has already been an issue for them in the practicum or will be an issue in the work force. Students are also motivated because their justification and responses will be posted on the bulletin board to be accessed by all other students in the class. |
| Learner activity | The activity is text based and requires that the student complete a number of tasks. This includes: research and reading > input to web > read, research and respond > input to web > reflect on learning. As students were novices in using WebCT and electronic journals, this provided another important learner activity. |
| Interaction | Students are required to interact with other students about the content using the bulletin board. As all student material is posted students can see topic development and argument from multiple perspectives, refine and change their positions, access a wide range of electronic resources and participate equally. |

Table 2: Making connections between educational principles and on-line learning

students initially agreed with the issue. This is not surprising, as respect for client autonomy is a fundamental ethical assumption in social work practice.

Some students expressed dismay in class and in their reflection paper at having to argue a position that did not concur with their personal values. I am *being forced to argue* was some students initial response to this assignment. This was particularly evident in the topic on spiritual and religious issues as some students are committed Christians. Students said that this was *a difficult and challenging issue, a struggle to argue for, conflicts with personal values and overall a very personal issue.* Even when students agreed with the substance of the debate (clients have a right to decide if they live or die), they still found the issue challenging, complicated and very personal. The connection to personal experiences of life and death, means and ends is revealed in the following student comment.

> *I was raised in a Catholic family where any form of killing was considered immoral. However I lived in a Communist country where political executions were justified. My father was penalised as a young man for refusing to participate in political trials where defendants were falsely charged, imprisoned or executed. My husband's family history of the Holocaust also had an impact on my understanding of how killing can be justified by political premises.*

This student struggled not only with the right of clients to make their own decisions but the means by which clients would make and enact such decisions and the good that emerged. There was only one topic, social workers should refrain from assessment and intervention after drinking alcohol, which did not arouse either positive or negative feelings from the student group.

| *Activity* | *Elaboration of activity for students* |
|---|---|
| Justify the controversial issue (an ought statement) | In this phase briefly provide reasons to support your topic statement. It is accepted that you will not be committed to a particular position that you are required to argue. Your reasoning does not have to be personal but what someone committed to that position might argue. I am expecting a well argued case that draws on the literature. As part of your reasoning draw on ethical principles, ethical theories, social work principles and research. |
| Examine the implications of your controversial (ought) statement. | This part of the learning process is to enable you to reflect on the gaps and weaknesses in your own argument and on the basis of these questions refine the argument. Here are some of the questions you might consider.<br>• What are the meanings of terms in this statement?<br>• Does the statement apply to everyone or only to particular groups?<br>• Are there exceptions to this statement?<br>• Are there occasions when this statement might never be justified?<br>• What qualifications might be included?<br>• What are the consequences of this statement?<br>As you can see there is a lot of room for debate. |
| Identify one possible claimant in this statement and then by putting yourself in the shoes of that person, attempt to determine what they would prefer you to do about this situation and why. | Social workers have professional obligations to other people, referred to as claimants. These claimants may be clients, a minority group of people, the profession, agency or a colleague. The key issue is knowing who are affected by our decision making. Putting oneself in the shoes of claimants and viewing the world through their eyes enable you to develop emotional, ethical and intellectual sensitivity. |
| Specify your professional obligations to that claimant. | Social workers have obligations to claimants with the nature of the obligation depending on our professional relationship with people and the extent to which they are affected by our decision. Obligations can include fidelity, justice, beneficence, nonmalificence, and self improvement. |
| Reflect on the extent to which your position (values, attitudes, practice) has changed as a result of this discussion. | The on-line discussion is contentious and may conflict with your values. Reflect on this and give some consideration to the following:<br>• What was your initial position on the topic?<br>• When and how did you develop these views?<br>• Are you opinions and values open to modification and how did this occur?<br>• Do you feel so deeply committed to a position that you want others to accept your beliefs too?<br>• How difficult is it to communicate your values and attitudes without imposing them on others?<br>• Do you have any additional comments about this on-line discussion? |

Table 3: The learning activity for controversial issues

Spiritual and religious values should not be discussed in social work practice

| Initial agreement with topic | | Change in thinking | |
|---|---|---|---|
| Agree | 2 (25%) | Change | 6 (75%) |
| Disagree | 6 (75%) | No change | 0 |
| Ambivalent | 0 | Ambivalent | 2 (25%) |
| Total | 8 | | |

Names and addresses of child molesters should not be published in the newspapers

| | | | |
|---|---|---|---|
| Agree | 3 (50%) | Change | 5 (83%) |
| Disagree | 3 (50%) | No change | 0 |
| Ambivalent | 0 | Ambivalent | 1 (17%) |
| Total | 6 | | |

Pills should not be prescribed for 'lifestyle disorders' (ie social anxiety, sexual impotence, shyness and panic attacks.)

| | | | |
|---|---|---|---|
| Agree | 3 (50%) | Change | 3 (50%) |
| Disagree | 2 (33%) | No change | 2 (33%) |
| Ambivalent | 1 (17%) | Ambivalent | 1 (17%) |
| Total | 6 | | |

Social workers should refrain from client assessment and intervention after drinking alcohol.

| | | | |
|---|---|---|---|
| Agree | 3 (50%) | Change | 0 |
| Disagree | 2 (33%) | No change | 6 (100%) |
| Ambivalent | 1 (17%) | Ambivalent | |
| Total | 6 | | |

Clients should have the right to decide if they live or die

| | | | |
|---|---|---|---|
| Agree | 5 (100%) | Change | 5 (100%) |
| Disagree | 0 | No change | 0 |
| Ambivalent | 0 | Ambivalent | 0 |
| Total | 5 | | |

Impaired social workers should not practise

| | | | |
|---|---|---|---|
| Agree | 3 (43%) | Change | 7 (100%) |
| Disagree | 3 (43%) | No change | 0 |
| Ambivalent | 1 (14%) | Ambivalent | 0 |
| Total | 7 | | |
| | | | |

## *Change in views*

The aim in teaching these topics is to get a more sophisticated appreciation of the issues. One student described the change this way. *My values have changed and I have evolved a more highly developed form of thinking.* Another said, *in arguing one side of the debate you come to understand the other side of the debate.*

Although it is possible to examine the direction of change for each student, this is not of major importance in teaching controversial issues. The aim is to get students to understand how they arrived at their particular position, the arguments used to defend that position and the explanations and solutions based on different values and ethics.

It is also important for social workers to work with people who hold different values and positions, so that several students make similar comments to this student. *Considering the thought processes and resulting views of others is of central importance for responsible decision making in social work.*

Students were asked whether they agreed or disagreed with the initial controversial proposition. In all groups except for the group discussing, *clients have a right to decide if they live or die,* students held different opinions. The initial agreement with the topic is outlined in Table 4. At the end of the on-line discussion, 26 (68%) of students indicated in their reflection papers that they changed their views in some way; 8 (21%) did not change their views; and 4 (11%) remained ambivalent. Table 4 provides a summary of change of views for each topic. A change does not necessarily represent a switch in position, ie from agree to disagree but rather a change in students' understanding and an appreciation of the topic's complexity.

In only one topic, *social workers should refrain from drinking alcohol* students did not change their views at all. It is difficult to understand why there was no change in attitudes and values. One might conclude that this issue may not have been sufficiently controversial. As one student indicted, *as a topic for debate, this statement does not provoke intense or heated feelings that some of the others might. I certainly do not have strong feelings on the matter.*

### *Activities helping the change*

Students commented on those activities, which helped them to change. Firstly, 33% of students clearly changed their views by reading and thinking about the literature. *My opinion changed by doing the research.* Fifty-seven percent of students indicated that they changed because they had to read the literature, present their justification on-line, discuss the issue with other students and then defend their position.

> *I quite like to be challenged by others as it is thought provoking and educational as you can be exposed to ideas that before you may never have considered. The experience of being challenged in this way can promote intellectual growth and empathy with others and may ultimately modify your values and opinions.*

A student struggling with the topic on child molesters explains the combination of reading, responding and reading.

> *I started off agreeing with the topic. After reading numerous accounts of literature and having to write responses to other students in the group, it became apparent that there were two sides to the story. I was only looking at it from the perspective of the child. I realised that the rights of the convicted child molester had to be considered. After reading more articles as a result of the postings, I came to understand the other position.*

A smaller number of students (10%) indicated that thinking about the client perspective and those of other claimants involved in the dilemma provided a way to understand and change views.

## On-line learning

Overall students enjoyed the on-line learning. The most important aspect of on-line learning was the public nature of students' initial justification and their colleagues' responses although this process created a great deal of anxiety. There was a range of positive student statements about this on-line assignment indicating the depth of learning and the extent to which students have developed metacognitive skills.

- Consider alternative views and both side of an argument
- Opportunity to argue alternative positions

- Seeing other students arguments for the very first time is revealing
- Trying to justify my argument in the word limit (500 words)
- It was a privilege to read other students work
- Take time before posting and responding to others
- Compare the justifications of other students
- Allowing personal values to be challenged and challenging the values of others
- Communication of ideas without imposing
- A non-confrontational way to discuss issues
- Having work critiqued in a creative way
- An open process
- Can see the development of ideas
- All students had to participate equally (not like tutorials where some students do not talk.)
- I would have been silenced if I had to discuss this complex material in a tutorial.

Several students recognised the value of this public learning for their future professional development.

*When confronted with a difficult value position and needing to defend it - I have reverted to a position of silence or public acquiescence in order to speed up the unpalatable discussion. (This process has helped me) to respectfully communicate my position.*

*As social workers this exercise has helped prepare me for the possibility that ethical decision making is going to be witnessed by and impact on many people. I will have to consider these different reactions, different party's reactions. It was challenging to argue a position that I didn't believe in. This is a skill needed in social work - for example when we are required to support clients make choices that personally we would not make.*

## Using WebCT

There was some frustration and fear especially in relation to the use of technology. This was the students' first experience of using WebCT. Although students attended WebCT workshops, they still had to become familiar with the package. Some students who did not have access to the Internet at home were frustrated when library terminals were fully booked in peak hours. Despite these minor concerns they were pleased to have got to grips with this technology with the benefits outweighing the cons. Students also assisted each other in getting onto WebCT and in posting messages. The collaboration and fear is summed up:

*One afternoon, my friend and I helped each other and that was great, since she filled the gaps in my knowledge and I in hers. The printer was down that day and the library staff could not get it going, so I ended up taking notes of other contributions from the screen which is not as satisfactory as having them printed out. Joe made me feel better when he suddenly got up from a computer and whispered, 'I am running away because it died and I don't want the blame for it.'*

Not all comments were positive. Students became frustrated with the technology. They began this on-line assessment when everyone was learning, students, academic staff, the library WebCT help desk, educational designers and central information technology support. There were mistakes but these were soon rectified. One student commented that she must be a slow learner as she could not remember all the passwords to get access to WebCT.

Overall, students derived a great deal of personal learning by working with controversial issues on line. The topics made them stop and think about their personal values and the impact of these values in working with clients and colleagues.

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# Empowerment, disability and new technologies: bridging the gap in training

*by Liz Dimond & Bob Davis*


## Abstract

Any new technology has the potential to be liberating or oppressive. This paper explores this issue in relation to disabled people, reviewing some of the more relevant literature. One factor here is the availability of facilitators who have a command of both technological and disability aspects of the issue. The authors describe an innovative Higher National Diploma (HND) programme at Bridgend College in South Wales that attempts to equip students with skills from both fields firmly underpinned by a philosophy of empowerment. Indications of new and sometimes surprising employment opportunities for students completing the course are discussed, raising questions about the need to develop or replicate the programme elsewhere.


## Empowerment, disability and new technologies: bridging the gap in training

The first section of this paper briefly surveys recent literature on the effects of discrimination on disabled people, particularly in the fields of employment and education, suggesting that it forms the major obstacle to unlocking the liberating potential of new technologies. The second section describes the development of a Higher Education programme designed specifically to bring together technological expertise and knowledge of, and commitment to, anti-oppressive practice, as a practical means of challenging some of these barriers. The last section describes some of the effects of implementing the programme, including both the impact on students and on the wider environment. The authors argue that there are early indications, that such integrative projects as this are a necessary and effective means of empowering students, disabled and non-disabled, not simply to make better use of new technologies themselves, but also to create new opportunities for its use in the wider community.


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## The impact of disabilism on the use of new technologies

> *"Britain today has the necessary knowledge and the advanced technology to bring physically impaired people into the mainstream of life and*

*enable us to contribute fully to society..." (UPIAS (Union of the Physically Impaired Against Segregation) Policy Statement 1976 para 1 as cited in Oliver and Barnes, 1998).*

It is salutary to note that a quarter of a century has passed since the UPIAS statement, and yet arguably, little progress has been made in terms of social inclusion of disabled people. Although assistive technology has been used to enormous benefit, with some notable examples, such as Stephen Hawking (academic) and Christopher Reeves (actor), it has not as yet impacted upon the majority of disabled people in a way that does fully bring them into mainstream. It would seem that progress in unlocking the positive potential of technological advances reflects more general trends in relation to disability. Drake (1999) in reviewing contemporary British disability policies, suggests that:

*the British experience has consisted of a general trend, starting with policies intended to isolate disabled people from society and from each other, and moving gradually towards the 'foot-hills' of citizenship (p 45).*

Analysing the employment policies for disabled people, Oliver and Barnes (1998) note that they result in "substantial statistical evidence of the level of disadvantage disabled people encounter in the modern labour market." (p 43). This in turn leads to the poverty and exclusion experienced by so many disabled people. So, it has become increasingly important to try and find ways to overcome this exclusion. Educational services clearly have a role in relation to both employment and wider issues of social exclusion. Cornes (1988 as cited in Oliver 1990) recognises that for disabled people, it may be difficult to take advantage of new education and training opportunities, primarily because provision to date has not provided them with the skills and confidence needed to maximise their educational potential. With regard to the field of education, Oliver and Barnes (1998) comment:

*Educational policy for children and young people with impairments has been and remains dominated by the traditional individualistic medical approach to disability....the special education system has continued to thrive. (p 42.).*

Armstrong and Barton (1999) recognise that for many disabled people, their experience of education has often been one of segregation, or even exclusion.They note that "exclusions are also experienced on a massive and unmeasurable scale in terms of the ways schools and colleges are organised, the content of the curriculum and the ways in which teaching and learning are understood." (p 216) They go on to report that Tomlinson (1982 as cited in Armstrong and Barton 1999) saw the curriculum itself as creating and sustaining inequalities.

The report of the Tomlinson Committee, entitled "Inclusive Learning" (Further Education Funding Council England 1998) investigated the match between learning requirements and provision for students with disabilities and /or learning difficulties. In its summary of the report, the Centre for Studies on Inclusive Education (CSIE) stated:-

*It (the report) finds that while some colleges have made great strides towards an inclusive approach, overall the quality of learning for students with disabilities and / or difficulties is poorer than for other students, and many disabled people are not receiving any further education at all.*

*(CSIE website: Summary June 1999)*

Many attempts have been made, primarily by disabled people themselves to raise awareness in the general population about the civil rights of disabled people. Their actions, such as the setting up of Centres for Integrated Living in the early 1980's, initially in Hampshire and Derbyshire (Oliver and Barnes 1998) and the development

of the disability Direct Action Network (D.A.N.) in 1993, have both challenged and confronted popular views and government policy on disability issues. However, even such activities as these, although effective, still leave much to be done. The Disability Discrimination Act (1995) eventually came into being, after much campaigning by individuals and groups fighting for the civil rights of disabled people. Arguably, it has done little to provide mechanisms that will really challenge and change the oppression that the majority of disabled people experience in many aspects of their lives. However Drake (1999) comments:

> *Although the Disability Discrimination Act was disappointingly weak, it was important for signalling the headway made by supporters of the social model of disability and indicated that legislators were prepared to accept that the lives of disabled people might be affected by the social and physical environment as well as by cognitive or physiological impairments (p 64).*

Oliver and Barnes (1998) clearly demonstrate how recognition of the disablism and oppression in British society is not new. Having analysed the impact of various pieces of legislation setting up the British Welfare state, they comment:

> *Despite the legislation, disabled people were not being included in the key institutions of mainstream society such as work and education, and the old exclusionary practices often carried on unchanged and unchallenged. (Oliver and Barnes, 1998 p 37)*

In discussing the way forward, Oliver (1990) reviews the perspectives of several commentators on the potential impact of technology on disabled people. He notes that Zola (1982) suggested that new technologies might lead to the disabled person feeling a loss of integrity and personal value. (Zola, 1982 cited in Oliver 1990). Cornes' (1988) more optimistic views are also recounted by Oliver (1990):

> *New jobs and new opportunities to organise and locate work on an entirely different basis using new technologies are increasingly being perceived as offering even more grounds for optimism.This is because such new jobs, in which physical requirements are replaced by electronic skill, strength and precision are particularly suitable for people with disabilities, and because new developments in communications have increased opportunities for home-based employment. (Cornes, 1988, p 15 as cited in Oliver 1990).*

Some understanding of why such advanced technology has not as yet resulted in a more universal participation of disabled people in society is important. In his foreword to "Living in a State of Stuck" by Sherer (1993), Senator Tom Harkins (Chair, sub-committee on the U.S. Disability Policy Committee on Labour and Human Resources) states:

> *For assistive technology to provide the maximum benefit, services that address the emotional, personal and social needs of the individual in adjusting to and using these devices, must also be provided. (Sherer, 1993 p ix).*

Both from this quote and from further reading of Sherer's (1993) research into the impact of technology on the lives of disabled people, it becomes very clear that it is not just the development of appropriate assistive technology that is important, but of at least great a significance are the emotional and psychological states of the people who are aiming to use it.The ways in which disabled people recognise their needs for technological assistance, how they are enabled to select what is most appropriate for their specific needs and the help and support given to encourage their ongoing use of it, such as positive role modelling, peer group support and professional support and guidance are all highly significant.

Sherer's (1993) findings in the United States of America need to be considered alongside the important findings by Roulstone (1998) from his study of disabled people

in Britain and their use of new technology within the field of employment. Roulstone's research identifies that to date, writers and practitioners to the forefront in technological assessment of disabled people's needs, have used a rehabilitation model of new technology that is based primarily upon a 'deficit' model of impairment, where the role of new technology is that of acting as a corrective to the personal shortcomings. He comments: "Where disabled people are concerned, the reliance upon an individual deficit model suggests a clear course of action to try to continue the correction of deficits. New technology is clearly seen as important in this process."(Roulstone, 1998, p 11.) His research reports how, for many disabled people, new technologies are highlighting a range of new issues and barriers, such as "negative attitudes, disabling structures and technical problems" (Roulstone, 1998 Introduction). He puts forward the idea that a "social barriers" model of disability, although not new in the broader field of disablement studies, is, now, a new development in terms of the integration of disabled people into using new technology. Despite the negative barriers being identified and requiring attention, Roulstone (1998) points out in his conclusion:

> *"It was very clear that the fullest realisation of benefits of enabling technology is highly dependent upon a wider supportive and flexible environment . . . in the research the best examples of enabling technology were provided by disabled workers who felt that new technology had allowed a fundamental re-evaluation of their abilities and potential." (p.129).*

Bringing together assistive technologies and the broader perspectives of developing more inclusive and enabling environments for disabled and ageing populations has been the main consideration of projects such as 'Include' and the 'Centre for Universal Design'. The former brings together on its website, an extensive range of information resources and links, particularly to telematics sites and organisations. It points out that the enormous contributions that new technologies can make to the daily lives of elderly and disabled people may not be achieved if negative reactions result from physical or cognitive difficulties in the use of the equipment. Thus good design and ongoing support is all important. (www.stakes.ti/include/incc340) The latter project, on its website, proposes seven principles for universal design, or design for all, that provide clear guidelines for ensuring that all consumer products and the built environment "are useable by all people to the greatest extent possible, without the need for adaptation or specialised design." (www.design.edu/cud/univ-design/principles) Clearly this aim must be integral to any programme that seeks to encourage inclusivity in the development and use of new technologies.

## The development of a Higher Education programme to unite disability issues and new technologies.

Since the early 1980s, Bridgend College has been working innovatively in areas of technology and disability, employing support staff (including residential workers in the college hostel for students with physical and sensory disabilities) and teaching staff based in the Access Centre for students with special educational needs.The Access Centre is one of about twenty at Colleges across Britain, Bridgend College being one of the very first. The aim of the Access Centre is to facilitate the educational and social learning of students with a range of additional educational needs. Some undertake specially designed courses and others access mainstream education in other parts of the college with additional support from staff. Approximately eighty students use the Centre on a regular full-time or part-time basis.Their particular needs may arise from a range of physical disabilities, learning disability, sensory impairments, mental health problems or a combination of these. In order to make education more accessible to these students, the Access Centre has a wide range of specialist pieces of assistive technology. Students needs for specialist equipment will be assessed by one of several

specialist support workers.They can then be taught how to use the equipment and encouraged in its use by the support workers in the classroom setting. Alongside this assistive technology exists the usual range of information and communication technology equipment, that in itself is transforming the daily life and work of everyone, but may be either potentially liberating or oppressive for the disabled person, depending on their needs and abilities.

By the mid 1990's a skills gap was identified within the Access Centre. It was proving impossible to recruit staff who were specialist both in additional educational need and competent in the use of new technologies to assist people to develop their potential. Through discussion and consultation with other organisations, particularly schools, it was identified that this need was quite widespread and likely to be on the increase.

To bring together an understanding of disability issues and an ability to use the range of technologies now available seemed a logical way forward to meet the college's needs as well as those on the increase in wider society. The lack of skill development in this area of technology and disability has resulted in the past in appropriate assistive technologies not being a sufficiently integral part of life for people with disabilities who would benefit from them.The specialist expertise may be available in setting up systems and developing technological aids, but without the necessary reinforcement and encouragement from professionals in contact, disabled people may find the process too frustrating and fail to develop their own skills to their maximum potential. In particular, in the sphere of education it could greatly influence the degree to which students with a disability could access both Further and Higher Education appropriate to their intellectual capacities, this in turn strongly impacting upon their ultimate employment prospects and abilities to lead fulfilling lives. As Drake (1999) notes "The importance of education is especially apparent in assessing disabled people's access to vocational training and to work" (p 64). To this end, education of disabled people needs to be of good quality and skilled in meeting their needs. In discussing education of disabled children, Drake (1999) recognises that "even where disabled children are accepted into mainstream schools, there is no automatic guarantee that they will therefore enjoy education of the same value as that available to their fellow (non-disabled) students" (p 84).

The aim of the course thus became, to train and educate potential workers, providing them with the appropriate skills and values to utilise a range of technologies effectively, and creatively meet the needs of disabled students as they arose on a day-to-day basis. Alongside this, it was recognised that as the thrust for involvement in mainstream society was coming primarily from groups of disabled people, it would be likely that some disabled students might be attracted to such a course. An understanding of disability issues from a broader perspective than their own experience, as well as knowledge of assistive technologies and an ability to use information technology could equip disabled students with knowledge, skills and values very appropriate for working within a range of disability organisations, many of which are now specifically looking to recruit disabled employees.

In devising this new Higher Education qualification, the usual problems were experienced in terms of developing a course that would provide a meaningful whole on completion. Additionally, it would also need to meet the demands of the market, both in terms of potential students, and also in terms of the job market beyond our own college Access Centre. Identifying the key elements of study, programmes of assessment and methods of course delivery were as for other courses. This one however, had additional elements to consider. Firstly, no other course like it could be identified either in Britain, the U.S.A or elsewhere, so there were no helpful models to provide a template. Secondly, bringing together a course development team from across the breadth of the College, with no additional time given for such an activity, was a feat in itself. Developing a shared understanding of what we were trying to achieve, when we mostly

had only a fairly vague idea, proved to be a challenging and demanding task. Although we had a clear idea of the 'product' that was required in terms of our own in-house needs, the course had also to meet a need that was only beginning to be identified in a range of sectors. It was interesting that during the process of developing the idea, from time to time different members of the team felt that their perspective was either not being understood, or their subject was not being allocated the appropriate amount of time. This reflected the different perspectives of the embryo course team. By September 1996, after one full year of intensive work, we were able to get the proposed course accepted by the examining body, (now Edexcel, formerly BTEC) and franchised by the University of Wales College Newport. During the year of planning, some team development work was undertaken, for example a day workshop on anti-discriminatory values was significant in ensuring that the core value base of developing an empowering, anti-oppressive practice, was recognised by all staff to be teaching on the course. Likewise, visits to the Access Centre to learn more about the wide range of assistive technologies that existed, were important for those whose main focus prior to that had been in the field of social work, psychology or health studies.

Overall, the key aims of the course were to be the empowerment of disabled people through the use of assistive, information and communication technologies, and the empowerment of disabled students through their participation in this programme of study. Although the former aim was originally the primary one, as plans for the course developed, it became increasingly clear that the latter would become equally important. The course had then, a very specific philosophy, which could be translated into a number of general aims. These aims were enumerated as such:

1. To enable participants to contribute to the empowerment of people with disabilities.
2. To enable participants to develop problem solving skills and improve their ability to operate effectively both within organisations and as part of a team.
3. To enable students to have a sound understanding of the value base, and how to effect these principles in practice to the specific benefit of disabled people.
4. To develop skills, knowledge and understanding of individuals in terms of the effects of disability, and ways of minimising these through the use of technology.
5. To enable participants to relate theory to practice and vice versa, and to reflect upon these relationships, so that they can evaluate their professional performance within a context where they are integral to the learning process, rather than as the consumers of the teaching of others.
6. To enable participants to contribute more effectively to the professional requirements of their employers/ employing organisations.

## The impact of the programme and indications for future developments.

A very wide range of methods of assessment are used, from the occasional traditional essay, to both individual and group presentations, sometimes backed up by technological assistance, demonstrating the range of uses of technology that students have learned about during their studies. For example, in their Disability, Policy and Practice Assignment in Semester 1 of the second year, students are required to give a presentation on "the role of the technologically skilled care worker." This verbal presentation can be based upon either their actual role as developed in their current, or previous practice experience, or the potential role as they envisage it. A report based on the presentation has to be handed in, including a self-evaluation by the student of their own seminar presentation. As the use of information technology has, by this stage in the course, been well developed, students use a range of technologically enhanced means of presenting their seminar material. Additionally they are encouraged to

demonstrate and/or discuss how assistive technologies could also be utilised in their chosen setting. In all assessment activities, it is expected that students will integrate their knowledge of disability issues, assistive technologies and information and communication technology, with an emphasis on the empowerment of disabled people. As some of the teaching units are undertaken in the College Access Centre, the HND students are frequently mixing with and assisting other students using the Access Centre, both on an informal and formal basis. For example, one HND student who has particularly good skills in signing for hearing impaired people has been regularly involved in signing for several students who have been participating in mainstream classes. As several students on the course have dyslexia, they have been able to utilise the facilities of the Access Centre to assist them with their studies, so again encouraging good integration of the HND students with others using the Access Centre.

Apart from the college based aspects of the course, all students are expected to undertake two weeks practical experience per year, based in an agency outside the College. Where possible and practicable students are encouraged to undertake longer practice experience than the minimum, for example undertaking a day per week throughout the academic year in the placement agency. This then affords the student the opportunity to engage more fully with the agency and its work, gives an ongoing practice experience to which the academic study can be related, and lastly affords the host agency the opportunity of getting some return in kind. In several instances this practice experience has led to the offer of sessional, part-time and full-time employment. The agencies selected to date have included both day and residential schools (both state and voluntary funded), at primary and secondary level, for children with physical and sensory impairments; a Social Services day centre for people with mental health problems, a similar one for people with learning difficulties, a voluntary day centre for people with head injuries, a new day nursery run through Health, Education and voluntary donations for pre-school children with delayed development, and a large mainstream comprehensive school where there are excellent support facilities for students with a range of disabling conditions. Among the more notable experiences have been with the local showroom of a large car dealership, where the students have been very involved in assisting customers with the intricacies of Motability and car purchase and adaptation. As part of her work, the student has developed a database accessible to persons with a range of physical disabilities, to help them understand the types and range of adaptations that can be made to motor vehicles, their costs, their value in relation to particular physical disabilities and the process required to access the agents who undertake the adaptations. Another student has been based with a large national telecommunications company, where the activity has been assisting with the development of accessibility to Internet sites for people with a range of disabilities. Here, use of language, ease of access, visual displays and terminology have been just a few areas with which he has concerned himself. More recent placements have been with the local Race Equality Unit, the Royal National Institute for the Blind and the local Housing Department and local Estate Agents. In the latter, the student has become particularly interested in aspects of housing and environmental design and currently envisages a range of uses of new technologies to assist disabled people in house purchase or rental, prior to more universal design of housing becoming a reality.

In the future, hopefully more such diverse practical experiences may be found in local businesses and manufacturing firms, where the role may be in enhancing the accessibility to employment for disabled people. Such a development would be closely in line with the directions hoped for and anticipated from the research outcomes of Scherer (1993) and Roulstone (1998). The final part of the assessment of the course requires the student to undertake a practice-based project of 7,000 words, based primarily on problems and issues that they have identified in the placement. One such

project developed an accessible computer based introduction to Motability, as referred to above. Another was an in-depth study of the issues and difficulties involved in setting up an agency to facilitate the gradual integration of disabled people in the workplace. Another was the study of the problems experienced by parents of young disabled children when wanting to buy appropriate computer equipment for their children and their need for an appropriate, trustworthy and knowledgeable information source.

Since its inception in 1996, the numbers of students on each year of the course has been kept small, as with a small scale innovation it has been important to see if the whole idea works well before becoming mainstream. So far, except for the first intake, each intake has been between 10-15, with five students completing the first intake, eight the second, and a nine for the third. With small numbers it has been possible to model the course philosophy of empowerment through the teaching and tutorial systems. As anticipated, apart from the first intake, for which minimal marketing was undertaken, subsequent intakes have included students with disabilities, both physical, sensory and with mental health problems.Those with some form of additional need have usually amounted to about one third of any particular intake, and have contributed much to the integration of the course themes and added a new dimension to the empowering core of the programme. It is also worth noting that a few students have also chosen to undertake the course as they have a child with additional needs and wish to acquire knowledge and skills that may be of help to their child.The larger than usual number of students with additional needs has also necessitated greater amounts of preparation time, tutorial support, detailed organisation and planning to meet all needs, than is usual on an H.E. course. With this done, however, good integration and equality of opportunity has then been achieved.

Of the three cohorts completing the HND to date, their destinations are quite varied. About one quarter have gone on to undertake further academic or professional qualifications, for example, a degree, the Diploma in Social Work, teaching or occupational therapy training. Approximately half have gained either promotion, or new careers at an appropriate level, such as Assistive Technology Co-ordinators at special schools; a Motability Adviser for a group of car-sales showrooms and an employment adviser with the charity Scope, for people with newly acquired disabilities. Others have gained enhanced roles as support workers with disabled people in the College Access Centre or local day centres. One in particular has greatly developed the IT skills of people with long-term mental health problems, where previously they had no such support in the day centre, and the limited IT facilities remained unused. It does seem to be that those most pro-active in their studies have been the most successful in terms of jobs. To exemplify and further encourage this approach, the current second year students are aiming to set up a small, locally based company offering assessment, advice, training and support for those individuals for whom assistive technologies could be life-enhancing.

## Conclusion

The course started from an identified employment need, the challenge now is to stimulate the employment market by increasing awareness of what can be achieved by technologically skilled care workers. Students' experiences and learning whilst on the course should give them the many skills required to do this. As Roulstone (1988) points out:

> *Historical barriers have strongly influenced the education, training and employment experiences of disabled people, and these barriers will continue to influence the use of new technologies in the workplace. (p1)*

The connectedness of these barriers demands an equally joined up response that is able to impact at various levels in education, training and employment. It is anticipated that by undertaking a course such as this, students will be able to enter the workplace with the necessary skills in technology and values of empowerment and anti-discrimination that will enable them to assist and promote good practice and reduce barriers in the workplace, be it an agency that provides services for physically disabled people, or an agency involved in employing disabled people. Alongside the promotion of empowerment of disabled people at a structural level, students will also have gained knowledge and skills needed to support the individual disabled person as they adjust to using new technological assistance. Particularly where the student herself is disabled, it is hoped that this also represents an achievement in self-confidence and empowerment.

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# Experiencing practice complexities via computer: multimedia innovation in social work education

*by Stuart Evans, Melissa Petrakis and Phillip Swain*

## Abstract

This paper describes the implementation phase of an innovative multimedia teaching module developed in the School of Social Work at the University of Melbourne. The module, known as **LaSWoP**, utilizes interactive web-based multimedia technology to guide students through a variety of practice exercises within a controlled, evolving virtual field-based setting. The significant advantage of the project is to place students in a virtual context that includes an organisation, evolving case data, colleagues, peers, professional task expectations and class-based subject assessment requirements. Self-directed, self-paced, competency-based, and guided-discovery reflective learning seems to be the outcome for student participants.

The progress of the LaSWoP project is of particular importance in light of demands being placed upon tertiary educators to provide access to learning for rural and remote students populations and to internationalize course content, structure and relevance. The paper locates the project within contemporary debates surrounding computer-mediated communication and competency-based education.

## Introduction

The field of education, internationally, is at present acknowledging a growing need to re-invent and possibly transform traditional teaching modalities.

The advent of the internet, electronic data dissemination and retrieval, combined with widespread access to and relative inexpensive use of email, has presented new issues and challenges to the traditional seat of knowledge generation and examination. These are challenges that need to be met now by university administrators and faculty.

Many colleges, faculties and schools of higher learning are reflecting on traditional practices and are re-examining their response to the needs and demands of students, the commercial workplace students will enter, and the research and information

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needs of an increasingly information-dense society. It appears, however, that in much of the work being done inspiration and innovation are tellingly minimal. Issues of relevance are well articulated but subsequent educational responses can be conservative and familiar.

At the University of Melbourne School of Social Work interest has been not only in attempting to incorporate these new technologies into the social work course but extending their possible practice implications. Multimedia capabilities are seen as providing an opportunity to enable cross-subject content linkages. Furthermore, social work educators are being continually challenged to integrate theoretical knowledge and experience of organisational contexts. At the Melbourne School of Social Work this is being attempted through a project generating a computer-based virtual practice situation for students, known as the LaSWoP project.

## Brief overview of the project

The development of LaSWoP began with a review of relevant literature to locate, inform and rationalise the project's practice aims and orientation. The examination of current theory and practice experience focussed upon -

- the use of medium – multimedia teaching tools and computer-mediated communication (CMC)
- the use of structure – individualised, self-directed and competency-based education
- the development of content – examples of integrative projects or practice making cross-subject content linkages

In other words LaSWoP required many hats to be worn at once and consciously. The authors were simultaneously not only educators but also researchers, software co-developers, practitioners and field supervisors.

### *Computer-mediated communication (CMC)*

Over the last decade the digital revolution has brought new ways of providing and facilitating learning (Mason and Kaye 1989, Negroponte 1995). This has been particularly significant for distance education.

The British Open University (OU) is one of the world's largest distance teaching organisations, and takes a leading role in educational development. The OU began using CMC in 1989, to facilitate additional interaction in a higher-level course specifically concerned with information technology (Open University, 1989). Each OU student requires access to a modem plus industry-standard personal computer to communicate directly with peer group members, tutors and with the authoring course team, opening up a whole range of interactive opportunities (Paulsen, 1995).
The cost implications of computer, modem and communications software are very relevant in these developments (Morris and Naughton, 1999). This is certainly so at the University of Melbourne School of Social Work, where a large proportion of social work students are women, are mature-age students, are forced to study part-time due to family, work and other commitments, and are often still burdened by HECS loans[1] from their first degree prior to embarking upon social work study.

In 1996 the Open University introduced CMC into their Foundation Course, involving some 3500 students, which concentrates on issue-based teaching built around material with which students would already have some familiarity (home,

[1] Higher Education Contribution Scheme - the Australian Federal Scheme under which students contribute to the costs of their tertiary education, through either up-front fees or loans which are repaid through the income taxation system.

communication, energy, resources, food and health). This enabled students to more readily take possession of the study material, relating it to their more general experience (Rowntree, 1987).The intention was to engage students in the process of question formulation, basic knowledge acquisition, and key transferable skills of literacy, numeracy and communication.

In the past the style of learning tended to reinforce the 'information acquisition' model (Thorpe, 1997) which students often brought to learning, in which the main interactions were 'one-way' only, information provided by the educators being used for the purpose of preparing work for assessment. At the OU it was hoped that the move to greater use of CMC would facilitate opportunities for students to engage in discourse with the originators of the learning materials to which they were exposed (Morris and Naughton 1999). Thus, the aims of the OU Foundation course were to develop the general skill of presenting a structured written analysis of a technological issue; to teach the scientific/technological principles and numeracy necessary to tackle these issues; to increase students' confidence in their ability to learn, by providing skills in reading and communication; and to give practical experience of modelling, systems and design (Morris and Naughton 1999).

These goals were consonant with those adopted in developing and launching LaSWoP.

### *Competency-based education*

Another innovation in distance education was developed at the Western Governors' University (USA) which utilises competency-testing rather than credits earned to certify student knowledge and skill attainment (Trombley 1998). The result of a collaboration of governors in 13 Western States and selected business organizations, the university is an innovative, virtual institution. Its mission is to provide distance education through the Internet to a wide array of students.

Competency-based instruction has been used at a tertiary level to teach a number of different subjects and disciplines, including reading (Olson, 1977), speech communication (Heun & Heun, 1979), as well as in teacher education (Erickson, 1977; Farris, 1976). The characteristics of competency-based education have been outlined by a number of writers (Burger et al 1975; Dunn & Mitchell, 1979; Leonard & Utz, 1974). In general, the approach reflects principles that -

1. Competency-based education is built around behaviorally stated objectives which can be observed or measured;
2. Since the instruction is built around objectives, it is criterion rather than norm referenced, and therefore, grades are not necessary;
3. Students get immediate feedback about the extent of their learning;
4. Instruction is individualized in the sense that multimedia is used to meet students individual learning needs;
5. Students progress at their own pace as they review instructional materials. Thus some students may need to do a great deal of study and practice; others, little. The emphasis is on individualized instruction;
6. Various types of assessments, both paper-and-pencil and observational methods, may be used to measure student progress;
7. Students having difficulty have the opportunity to interact one on one with academic staff;
8. Students may take competency-based tests a number of times, if necessary. (Murranka & Lynch 1999)

Thus, in developing LaSWoP it has been important to create a reflective environment for students. Task-based prompts for this have been built into the LaSWoP system. These include "Think About..." questions following the introduction of new

information, "Write" opportunities to make filenotes and diary entries for later use in preparation of assessments, and "Contact" options to allow inter-disciplinary input or communication with fellow students and teaching staff. This approach is supported in the literature. Olson (1977), for example, found that graduate students responded positively to clear objectives, pre-assessments, learning alternatives, and post-assessments.

## Cross-subject content linkages

A critical principle underpinning social work education is the integration of theoretical, classroom input with practice realities. Whilst such integration is essential in field placement experiences, so that these are not perceived as divorced from classroom input, it is equally important across the social work curricula.

The LaSWoP Project was conceived as an explicit attempt to join the teaching of social work practice skills to investigation of a context highly relevant to social workers - the legal environment and the principles upon which the legal system operates. Thus LaSWoP was developed to incorporate -

- the development of interactive multimedia module resources to supplement teaching in several components of the Social Work course, and to encourage development of student skills in a series of complex practice areas such as child protection, juvenile justice, domestic violence, social security, and family law.
- enhancement of student familiarisation with Web technology, including the use of the Web as an aid to research and an extension of knowledge in such areas as law, social policy, overseas and interstate practice developments, and the like. It was envisaged that this would be valuable in student research, and in encouraging familiarity with current technologies - increasingly a requirement of social work practice and practitioners.

The LaSWoP modules are being developed to be representative of the contemporary thematic issues presented to social work practitioners, such as family type/size, including dual and single parent families; gay and lesbian families; couples and extended families); and issues of ethnicity, Aboriginality and immigrant intergenerationality. Each teaching module would be variously utilised by students to focus on legal issues, practice dimensions, policy aspects or staff/agency issues affecting practice. Each module is based around a case scenario, the first of which is outlined below.

## The LaSWoP project described

The LaSWoP project is a virtual placement experience. It is designed to emulate a week in the life of a beginning practitioner in the field.

The context chosen for this first case scenario is that of a hospital ward social worker, in this case in a children's hospital. The public hospital system in Victoria retains a department structure for social work sharing of ideas, resources and supervision responsibilities with new staff. It was important for the sake of authenticity to choose a context where students might genuinely work on placement or as a first job following graduation. Furthermore a setting where supervision would be readily accessible and available.

The student, having logged on using a personal enrolment number and self-selected password, commences at Day 1 of a virtual 5-day week, as shown in Figure 1. Students work methodically from Day 1 through to 5. The visual display consists of a 'Diary Entry' layout with the current day displayed and preceding days available for re-

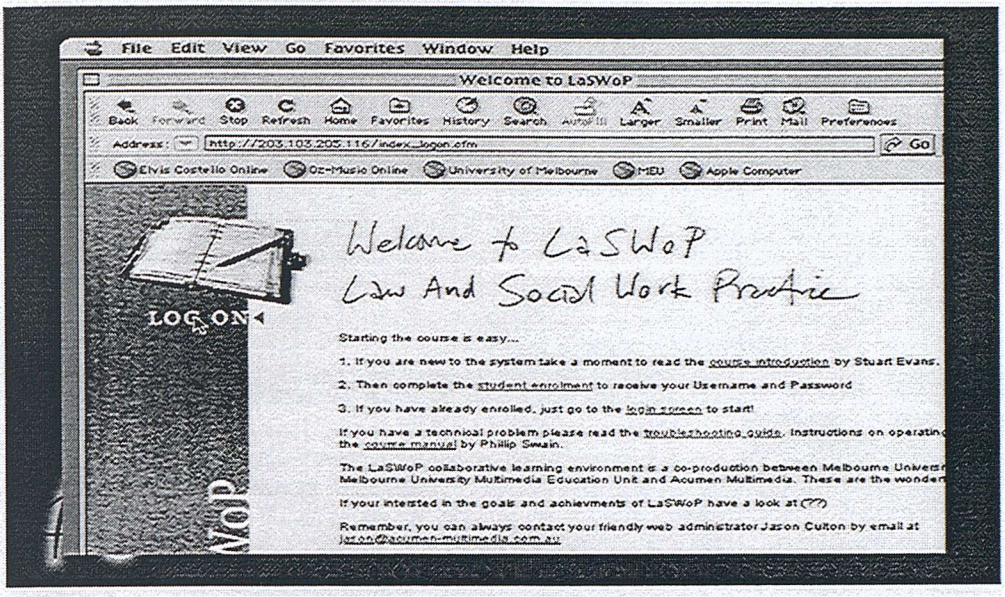


Figure 1 - Welcome page of LaSWoP module

visiting. Future days are not accessible until the work requirements of the preceding day have been completed.

Students are able to self pace, log out and return to where they left off, pause to reflect on a particular piece of data, or return to data previously viewed as they see fit - as indeed they would be able to do in the practice situation, where case notes, reports and the like can be re-read and considered, and colleagues can usually be re-contacted to confirm previous advice.

Day 1 is largely concerned with orientation. It consists of a welcoming letter of appointment from the Senior Social Worker (in reality, one of the teaching staff), which incorporates a casework assignment to be undertaken. Basic case data as to client name, age, family constellation, the presenting issue and possible aspects of concern which prompted the referral are noted.

Those most intimately involved in the case and the broader organisational context are introduced via information or messages from the Charge Nurse, Senior Social Worker and Unit Legal Advisor. Each entry offers a different professional role, perspective and useful information to be incorporated. An Orthopaedic Report, for example, clarifies the severity of injuries sustained by the child, including evidence of injuries sustained prior to the current admission to hospital.

The structure of material presented to the student over the 5-day period is essentially as follows:

- Day 1 clarifies presenting problem and potential social work issues.
- Day 2 involves a ward visit where the child's grandmother presents her concerns, and also an attempted home visit.
- Day 3 includes a second ward visit where the child's father is present, and a letter from the child's creche child care worker arrives offering additional contextualising information.
- Day 4 covers a successful home visit to meet the child's mother within the home environment.
- Day 5 brings the expectation of submission of the social work assessment and legal recommendations.

At this point a written psycho-social assessment is due concerning the child's circumstances, safety and ongoing care, and recommendations in support of a Protection Application (the legal mechanism whereby child protection concerns are brought before the Children's Court in Victoria).

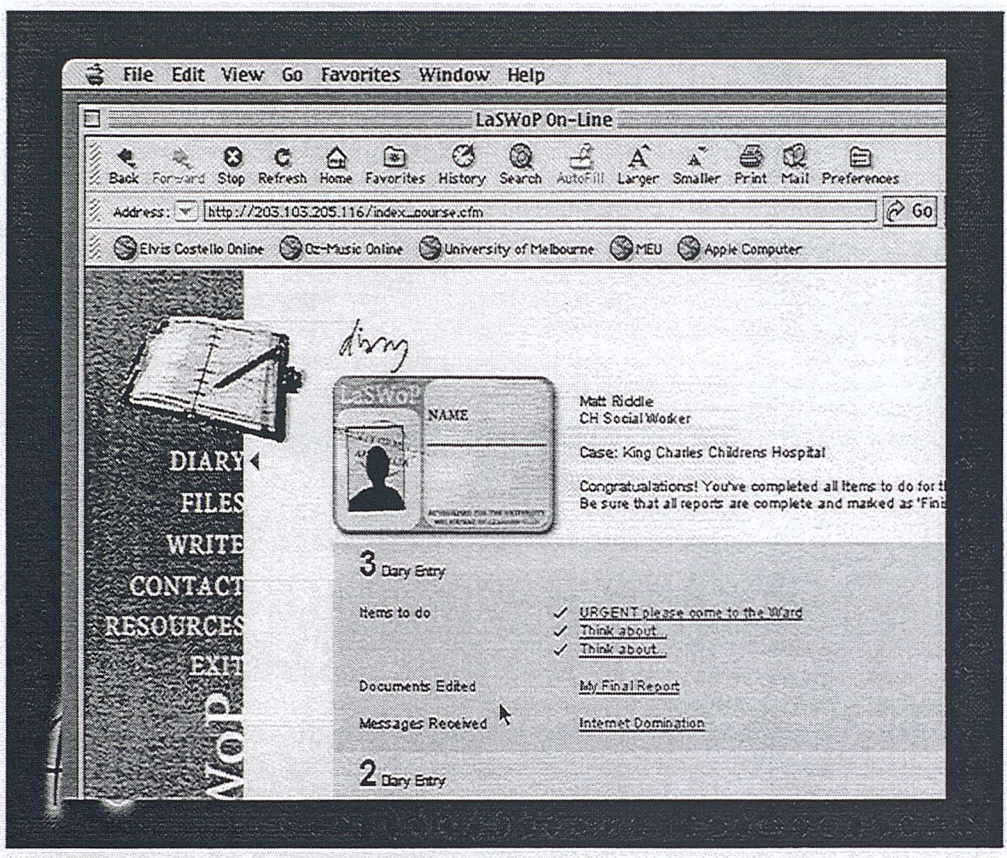


Figure 2 - Diary web page of LaSWoP module

On-screen options to assist the student are available throughout the notional 5 day period. Students can use these options to record the information they have obtained, to seek further details or reports, contact teaching staff and the like. The options include -

- *Diary* links the student to the current day within the program. It sequentially offers each the days of the 5-day week to access and work methodically through, allows previously viewed material to be re-visited, and offers prompts to the student for activities and tasks suggested for each day.
- *Files* contains 'Hospital', 'General' and 'Personal' files, each of which links the student to further resources regarding the case, or to records and notes developed by the student as the assessment proceeds. An indirect gain of participation in the program is the acquisition of improved skills in ordering material, in recording raw case notes using appropriate language and format, and in determining the relevant material for inclusion in more formal reports and applications.
- *Write* enables the student to write a new document (such as a report or filenote) or edit one drafted at an earlier point. Once a report is finished it is sent automatically to the relevant staff member for assessment and feedback.

- *Contact* offers the student the opportunity to seek information from particular personnel such as the Charge Nurse or Protective Worker to inform planning and the appropriate course of action. A 'colleague' option is also available to facilitate communication between students enrolled in the project. This peer support and sharing of ideas has been well received by students, as was anticipated from previous research. In addition, teaching staff are available through the email contact options of 'Senior Social Worker' and 'Unit Legal Advisor', providing access to discuss issues of uncertainty with the virtual supervisory staff and legal advisor, as would hopefully be available to the real practitioner.

As little re-direction as possible is built in to avoid confusion or overload for students. For example, if a student selects the 'Contact' menu option and then selects 'Senior Social Worker', but actually wants to know 'What is a Protection Application?', the 'Response' directs attention to the appropriate source.

*This is a legal process, whereby a social worker applies to the court to have a child taken into protective custody. You will find an example of the form under 'Resources'. By clicking on "Resources" in the menu this form is available for reference.*

- *Resources* is a multi-faceted option including details of course assessment tasks, submission instructions, and course lecture materials for the two subjects include in the program ('Practice with Individuals and Families' & 'The Legal Context of Human Services'). A Child Risk Assessment Framework for social workers is included, as is a generic assessment framework, and Child Protection Court Report and a Protection Application proformas.

## Benefits and challenges for students

The benefits of LaSWoP to students were expected to be varied. It was anticipated that students would need to invest some time commitment to gain competency in the new media and to acquire skills in conceptualising practice through use of this interactive tool. However, it was also expected that this additional time and effort would be justifiable given improved student understanding and assessment skills.

Hence the project goals were primarily centred around potential student gains, including the capabilities of interactive media to enhance student learning. The principal benefits were anticipated to include:

1. the capacity for self-paced learning – enabling student control of speed of learning and incorporation of new material;
2. incorporation and valuing of diversity of student experience – drawing upon the prior learning which individuals bring, their exposure to different organisational contexts, and their life experience;
3. the contextualisation of learning – offering exposure to the specifics of a professional organisational setting to enable the student to locate practice in a reality-based field setting, and so to develop a growing sense of professional 'self' in that context;
4. exposure to the practice reality of a multiplicity of competing demands – by facilitating critical thinking about multi-disciplinary practice, worker roles, professional identity, and role boundary issues (worker-client, between staff, between disciplines);
5. enhanced access to resources by use of state-of-the-art learning opportunities - the LaSWoP project encourages parity in quality of teaching and material resources available to (for instance) rural or remote student populations, or those whose learning is affected by disability, infirmity or child-rearing or

other primary carer demands that influence capacity to participate in fundamentally site-specific education;

6. an internationalised course content, structure, relevance and potential marketplace – a boon to overseas and international students interested in health, welfare and social sciences interested in undertaking units of study to hone assessment, interaction and evaluation skills, increase their computer-based competencies and enjoy the flexibility of learning-site options that a computer-mediated course facility can offer;
7. finally, the secondary benefit for all students of increased computer-mediated learning exposure – an opportunity to learn to use computers, to access web-based information, to acquire skills for further study and research, and in so doing to develop attractiveness for future employers.

However Laurillard (1995) points out the dangers in viewing a transition to multimedia applications as in and of itself providing greater student learning. She notes:

> *The paradox of interactive media is that being a user-control medium the learner expects to have control, and yet a learner does not know enough to be given full control. (p.185)*

Laurillard adds that a student attempting to navigate this domain "...cannot be expected to set appropriate goals, or plot a reasonable path; they will under-specify the problem, be distracted by irrelevancies, be unsure how to evaluate the information they find, over-generalise from instances, remain unaware of incompleteness, fail to recognise inconsistencies..." (185-6).

A warning note should thus be sounded on behalf of students. If interactive media is being introduced as a primarily cost-cutting measure, to rationalise already scarce staff resources and reduce intensive in-class teaching time, it is unlikely to be successful in meeting its objectives in terms of student learning outcomes. As Laurillard (1995) notes, and as LaSWoP has confirmed, "guided discovery" relies upon readily available teacher input to guide, advise, to respond to uncertainties, to comment on progress, and to offer explanations. This accessibility is the richest mode of learning but, of course, the most expensive, requiring both the intimate involvement of the teacher, and the "teacher-constructed world" (Laurillard, 1995, p.184). However, If educators are to avoid setting students up to fail in this new medium they need to continue high levels of input in the forms of preparation of materials and resources, supervision and de-briefing of student involvement.

## The principle considerations for educators

Research into student learning has established a relationship between how students conceive learning, the learning approaches used and learning outcomes (Kember 1998, p.3), and these have prompted research initiatives into these dimensions of learning. This is in contrast to former educational development activities and quality assurance mechanisms which "usually focus upon teaching approaches and take no account of the conceptions of teaching which underpin the approach" (p.20).

Kember noted earlier research into the conceptions of teaching held by university academics. These were categorised as imparting information, transmitting structured knowledge, student-teacher interaction, facilitating understanding and conceptual change/intellectual development (Kember 1998, p.8-9). The last two of these can be characterised as "student-centred/learning oriented" higher level orientations, while the former three as "teacher-centred/content-oriented" (p.16). For lecturers who see their role as involving greater content-orientation to facilitate student intellectual development, multimedia developments are exciting in the opportunities

they advance for more textually dense modes of learning to promote and encourage reflection in students.

Laurillard (1995, p.182) notes:

> *Reflection is rarely supported, except in certain kinds of professional or post-experience education. Reflection is that part of the process where the learner has to consider the implications of their experience, the teacher's description and their own previous conceptions, and bring all these together into a coherent new description – the culmination of the learning process in new conceptual knowledge.*

While 'acquisition' learning is well served by the narrative media of lectures, print handouts, overheads and video, 'negotiation' is better learned through the discursive media of interaction in tutorials and class role play exercises (Laurillard 1995, 183). The computer can greatly assist 'discovery' based learning.

> *Discovery learning, project-based learning, independent learning, situational learning, experiential learning, problem-based learning – all these are innovative ideas designed to undermine the traditional teacher role of 'telling', to replace it by 'facilitating learning'. (Laurillard 1995, 183)*

Developments such as LaSWoP bring challenges to teaching staff in tertiary contexts. These include the potential for changes to insular intra-establishment departmental structures and collegiality, a decrease in site-specific knowledge wharehousing, retrieval and interplay, and an increase in expectations that educators can and will be skilled in the facilitation of individualised learning programs and educational opportunities.

Morris & Naugton (1999) citing Noam (1995) discuss the potential influence of subject specialists in electronic mail contact being that "invisible colleges" of a virtual nature may be formed. Noam argues that the role of the university library will become less deified due to high speed digital data transfer networks. Further, in terms of imparting new knowledge to students the challenges for educators include -

- increasing tension between the demands of specialised research and basic teaching;
- costs of maintaining a labour-intensive, lecture-based instructional system, and the corresponding cost of development, maintenance and up-dating of interactive teaching mediums;
- decreasing half-lives of jobs and the consequent need for regular re-education and re-skilling throughout the working lifetime of the individual academic;
- potential of new computer-based instructional technologies for delivering distance learning materials to a mass audience, most members of which are in work and physically distant from the 'seat of learning' in which they are enrolled. (Morris & Naugton 1999)

## Implications and potential future applications

The LaSWoP programme has been an exciting development which has been enthusiastically received by students. Initial student evaluation of the use of LASWoP strongly supports the extension and wider integration of laSWoP into other aspects of the social work curricula. For may students, LaSWoP was innovative, engaging, reflective of practice realities, and challenging to professional and personal skills and values. Further development of the LaSWoP project will include -

- development of further modules utilising different case scenarios to highlight various legal issues, jurisdictions and remedies.

- development of the LaSWoP 'template' and approach to enable it to be applied to other social work teaching in such areas as programme development, practice research and the like.

The LaSWoP project marks the continuing interest of the School of Social Work at Melbourne University in developing and incorporating multimedia innovations into social work education. It also reflects a view that practitioners in training need not only interpersonal assessment skills, but also skills in understanding the societal structures with which the social worker must often negotiate, such as the legal system. Indeed as Fraser and Strong (2000) argue, practitioners need to do more than simply understand a particular client's situation; they need also to be able to facilitate a structural analysis of client difficulties and appropriate strategies for change *with* the client, using language that has meaning for both parties, and skillfully facilitating a critical analysis of alternative strategies and sites of intervention. The development and implementation of the LaSWoP project has attempted to bridge the too frequent separation between the teaching of direct practice skills and structural analyses, both of which are essential components of the social work repertoire.

Nevertheless, the development of the LaSWoP project to date has confirmed at least some of the issues anticipated to be contentious when the project was conceptualised (refer Evans and Swain, 1999). The anticipated direct and indirect costs and the time involved in the development, maintenance and administration of multimedia teaching resources, is considerable. This is certainly the case where the project attempts, as did LaSWoP, to simulate the availability of more experienced casework staff and legal advisors to meet the needs and uncertainties of the beginning practitioner. In real terms, this attempt to replicate reality meant that the teaching staff involved in the Project were available by phone or email for the whole of each week, and on occasion out of regular hours and at weekends - a considerable extension upon the usual availability of academic staff to respond to student queries , but essential if the LaSwoP project was to be reflective of practice reality. Student participation is constrained by the perceived accessibility, language and presentation of the programme materials, and by access to appropriate software and hardware, which in turn has cost implications. All University of Melbourne students have free access to email and web facilities, but students trying to balance the competing demands of employment, family and study may still not be able to access campus based facilities, even when these are provided free of charge. For some students, notwithstanding the interesting and innovative presentation involved, the time and (so) cost implications of participation may be prohibitive.

The reality of the considerable development and ongoing costs of multimedia developments needs careful continuing examination. If projects such as LaSWoP are to reflect current practice realities and dilemmas, they need to be upgraded regularly in the light of research, policy and practice changes. Agencies close down or change direction; policies are implemented to radically alter the service delivery systems in place within a given network or client population; legislative and judicial parameters on practice change over time to meet government policy and platform commitments. Like more traditional face-to-face teaching, multimedia offerings which do not reflect current practice realities will be quickly recognised and dismissed by students.

Nevertheless, the LaSWoP Project has demonstrated that with commitment of resources and innovation, practice teaching can be considerably enhanced by the incorporation of multimedia components to supplement and enhance more traditional modes of social work teaching.

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# Integrating geographical information systems in social work education programs

*by Debra Gohagan*


## Abstract

Geographical information systems (GIS) are being used in social work practice environments. GIS is a computer-based application which integrates multiple databases and presents this data in maps that can be changed as needed to reflect a variety of data in a variety of formats. This paper discusses the use of GIS in social work education. Steps for accessing geographical information systems resources for your social work program and a guide for teaching students how to use this software are presented.


## Introduction

The development of new information and mapping technologies has reinvigorated the discipline of geography (Wilson, 1996). These technologies, referred to as geographical information systems (GIS), integrate traditional mapping techniques with a wide variety of databases and are being used in a range of activities as varied as environmental management, urban planning, epidemiology, crime mapping. Most recently GIS is being integrated into the social work profession and academic environment (Hoeffer, Hoeffer, & Tobias, 1994; Queralt and Witte, 1998; Thompkins & Southward, 1999; Watkins, 1999; Weir and Robertson, 1998).

GIS displays and analyzes various types of geographic data derived from digitized maps, global positioning systems, airphotos, and satellite imagery. Standard GIS software programs include a database management system, geographic tools for data input, manipulation, query, analysis and visualization, and a graphical user interface (GUI) for user access (Greeves, 1996).

In one recent example, GIS was used by a social service agency to convince a county board of directors to allocate funds for new day care programs to the most economically disadvantaged districts in the county. These funds were earmarked originally for the more economically advantaged districts in the county. In previous years, information related to making these types of decisions would have been presented in tables with data that was difficult to visualize in relationship to the specific


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areas in each community. In this case, social service professionals used GIS to present the data that identified the exact locations of current daycare programs, showed their relationship to the specific boundaries of constituent districts, and integrated data about the percentage of children under the age of five in each district. These computerized maps demonstrated that the economically advantaged districts had adequate daycare facilities for the number of children in their districts and that the most economically disadvantaged districts had more children under the age of five and fewer day care facilities.

Almost 30 years ago, Smith and Hester (1974) warned the social work profession that ignoring the impact that technology would have in society would have serious consequences. They specifically addressed the profession's need to understand this impact at individual, community, and organizational levels. The profession's original efforts to integrate computer technology in social work education consisted primarily of teaching students to be computer literate; that is, teaching students basic skills in using word processing programs and data management programs for use in social work practice settings.

While integrating technology in an already crowded social work curriculum is a challenge facing all social work educators, computer-facilitated instruction is being used to address teaching goals across the social work curriculum (Finn & Lavitt, 1995; Gohagan, 2000). Educators are using previously developed software and some are even developing their own software to teach specific social work knowledge and skills. However, all to frequently, many of these applications are being used to teach skills specific to one course.

Today, there are as many technology-based instructional methods for teaching social work knowledge and skills across the curriculum as there are educators and many different software programs are used to teach course specific social work practice skills. While the use of any particular technology in a specific course should be directly related to the learning outcomes for social work knowledge and skills for that course, it is important to expose students to computer-based technology applications that can address the variety of social work skills that are required across the curriculum. This paper demonstrates the use of GIS, a computer-based analytical and visual mapping tool, to address multiple learning outcomes in social work education. ArcView™, one of the software applications available in today's market, is most often referred to for this discussion and for the teaching examples in this paper. This article provides a guide for the integration of GIS into the social work curriculum.

## Geographical information systems and social work education

Before the use of computers to draw and store information related to maps, geographical information was manually collected, stored, and then transferred to maps. The ethnicity maps from the Hull-House Maps and Papers (1895) which showed the ethnic composition of the neighborhood around Hull House in 1893 are one of the most familiar examples of mapping in social work history (Jane Addams' Hull House Museum, Unknown). The residents of Hull House collected, drew, and shaded the information for these maps. Research data prior to the use of computer-based technology has been primarily presented in one-dimensional tables, graphs, charts, and reports. Recent developments in the use of computer-based technology now allow the computer user to construct a map of an area that can simultaneously be linked to and show data from multiple databases. The power of GIS is its ability to combine and analyze spatial relationships in the data from diverse and multiple sources. GIS is well integrated into today's society. For instance, MapQuest ™, (http://www.mapquest.com/) incorporates this interactive mapping technology. It is an internet-based website that is frequently used by the 'average' citizen to make travel plans, find directions from place to another, or to check weather in specific parts of the world.

GIS software was first introduced in the early 1960s as aids in mapping the physical environment for geography departments and environmental science agencies (Sinton, 1996; Steinitz, 1993). In recent years, these computerized mapping programs have been used to show information that is useful for social work practitioners such as demographic data, population data, crime data, (see figures 1 and 2) location and incidence of social problems data, and the location and incidence of disease data. This data is integrated with pictures or representations of the physical and environmental characteristics of a community. GIS uses points, lines, or polygons to illustrate this data. For example, the specific addresses of social service agencies and other physical characteristics (rivers, roads, etc.) of a given community can be located on a GIS map (see figure 3).

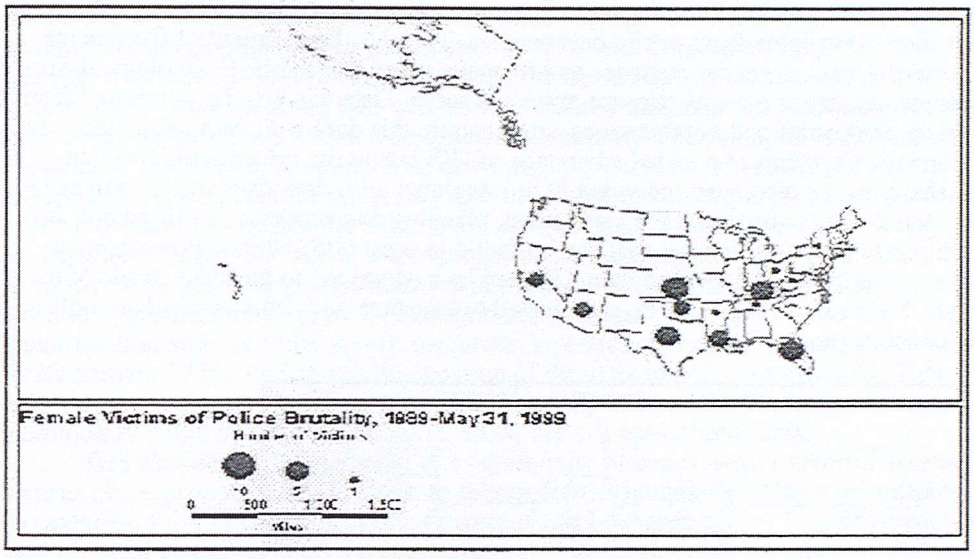


Figure 1

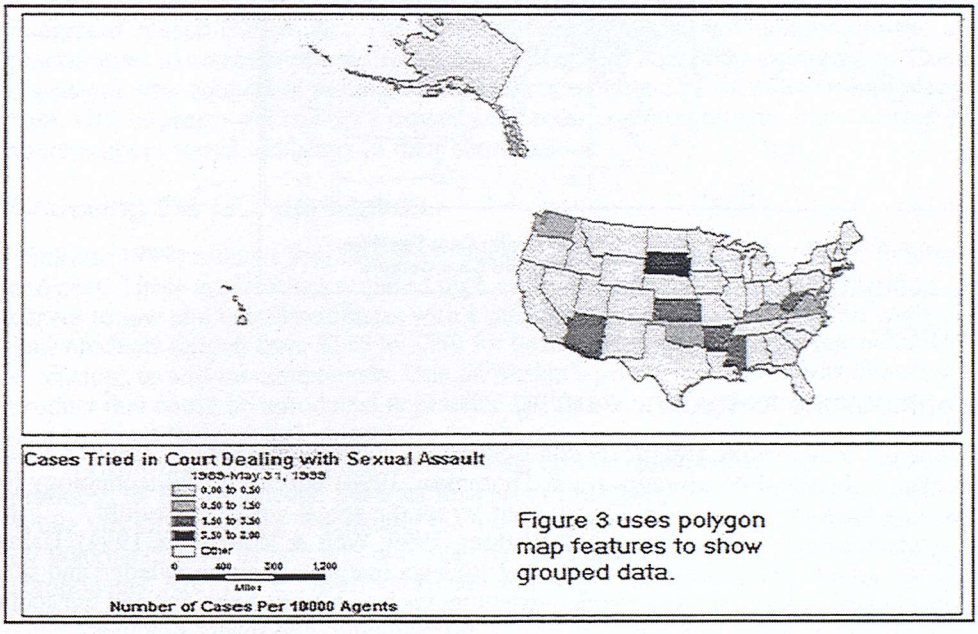


Figure 2

Once these physical characteristics have been located, users can analyze different factors and see patterns, relationships, and trends that aren't always evident in a table or a list between these characteristics (Greeves, 1996). GIS shows these relationships in a digital mapping format that changes with each action of the user.

New information from organizations or communities can be entered into one of the data management applications that can be found on personal computers, such as Microsoft Access™ and Microsoft Excel™. This information can be stored on organizational or institutional computers and, in some cases, this data can be accessed though the Internet. GIS provides a venue for large-scale data collection and analysis with a quick and flexible visual representation.

The essence of a GIS program is that data can be acquired, processed, stored, managed and presented in a digital map and in table format simultaneously. Much of this data is available from public data sources. The U.S. Department of Commerce provides access to census statistics and thematic maps and the U. S. Geological Survey provides access to general-purpose graphical maps. Data can also be purchased from private companies and organizations can integrate this data with data from their own information systems. An added advantage of GIS is that the information from any database can be displayed individually or integrated with data from other sources to provide a rich environment for assessment, planning and program development. In addition to the basic features that can be found in most GIS, which allows users to manipulate images, maps, and data, GIS can be customized to meet the needs of its users. For example, GIS can be customized to interface with other analytical tools such as statistics programs.

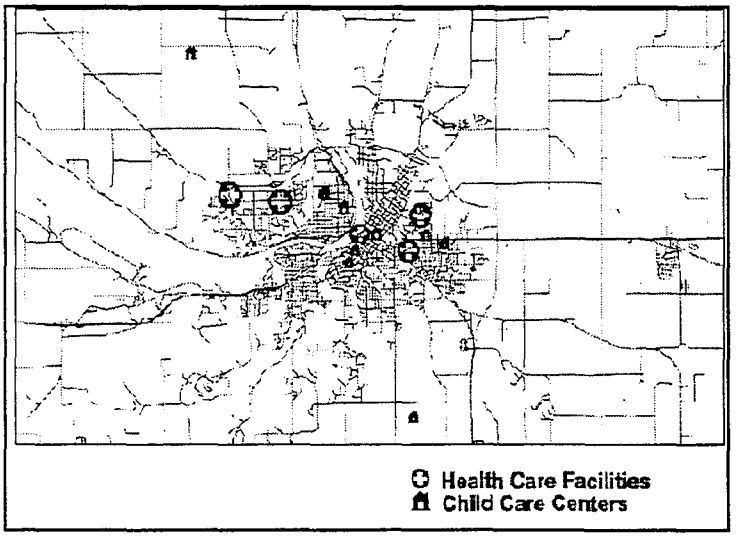


Figure 3

## Contributions to student learning

GIS is not only making significant contributions to social work practice arenas (Hoefer, Hoefer, & Tobias, 1994; Southward & Thompson, 1998) but is a useful technology for teaching the knowledge and skills required across the social work curriculum (Gohagan, Braun, & Andrews, 1998; Watkins, 1999; Weir & Robertson, 1994). Using GIS in social work education requires that students integrate their knowledge and skills from courses across the social work curriculum such as human behavior and the social environment, research and statistics, policy, management, and macro practice

sequences. Students who use GIS in their course work expand their skills in understanding communities when accessing data about their chosen communities or while mapping the assets of these communities. Students must apply research knowledge and skills in learning to define the research question(s) for a GIS project, in identifying the data needed to complete the GIS project, and in finding and using the appropriate database resources related to demographic and social problems for specific communities. They make significant increases in their general computer-based proficiency skills while developing specific skills in using and managing databases. Most importantly, these students strengthen their problem-solving skills while enhancing their ability to think critically about social problems.

GIS can be particularly useful in teaching students to address issues related to social and economic justice (Southward & Thompkins, 1999), in social planning and community development (Weir & Robertson, 1998) and in research for field practicum activites (Watkins, 1999). In courses in which students learn to understand and work in communities, students using GIS will learn to identify and map the exact boundaries, resources, and problems within a designated community. For example, statistical data from the U. S. Census, organizational or community surveys, and social service information systems can be integrated with the locations of programs, buildings or other physical resources of the community such as parks, schools, service delivery centers, and clinics. The use of a GIS program also supports the integration of an empowerment and strengths perspective in social work practice when this product is used to map community assets. A current trend in macro practice involves the identification and use of the assets, resources, and strengths in a community (McKnight & Kretzman, 1990). GIS shows the location of this data in points or symbols. This allows community residents and planners to visually analyze the strengths of the community while highlighting areas in which deficits are concentrated.

GIS also allows the mapping of a community in detail from a specific address, census block groups, zip code areas, to school district boundaries. Other geographic boundaries, such as counties, states, or nations can be mapped also. The infrastructure and physical characteristics of a community, such as rivers, roads, terrain, transportation, recreational centers, shopping centers, and transportation routes can also be portrayed in a GIS map. All of these topological features of a community can be integrated in each GIS project. The visual representation of a community allows practitioners to consider the environmental interactions within the community. This is consistent with ecological perspective that is a cornerstone of social work knowledge base. GIS increases the student's capacity to access and integrate the most current data sources about social indicators in their communities .

## Choosing the GIS application

Watkins (1999) reviews four GIS applications using the criteria ease of use, functions, and cost. These applications required high end user skills requiring steep learning curves to low end user friendliness with a minimal learning curve. Costs for each of the four products ranged from $145 to $250 for basic components with increased costs for extensions or add-on components. One of Watkin's primary concerns was choosing a product that could be introduced to practice settings. His team chose Community 2020 as it best met their project objectives.

However, one of the most sophisticated GIS products is ArcView™, which is produced by Environmental Systems Resources Institute (ESRI) (http://www.esri.com). While this GIS software is generally the more expensive product of the four evaluated by Watkins (1999), its cost was only slightly more than Community 2020 for the basic components. ArcView is the GIS software that is most often supported by geography departments in universities and colleges in the United States, is used by almost every

state government in the United States, and is frequently the GIS software of choice for research institutes (Jose Lopez, personal communication, July 12, 2000).

## Preparing to use GIS

One approach to integrating GIS into your social work curriculum is to purchase the software and site licenses, the related hardware and printing equipment, and the relevant databases, assuming your program has the computer facilities and staff to support this plan. However, most programs will want to start by establishing relationships with the geography department on their campus. There are many steps involved in preparing to teach GIS in the social work curriculum whether you are using your own resources or developing a collaborative relationship with your professional colleagues in geography.

## Identifying your campus resources

The first step is to determine if the geography department on your campus uses GIS. If they do, then determine their capacity and willingness to support access to their GIS resources by other programs. It has been this author's experience in several schools that geography professionals on college campuses are eager to work with other disciplines and are willing to share their GIS resources. This interdisciplinary collaboration is useful in large programs for research and funding as well in small programs that are working to build their resources and need increased funding. While access to GIS has always been free of charge in this writer's experience, the collaboration between disciplines in the use of GIS has strong potential to increase grant-related or private funding from the community. Another advantage of working with your local geography departments is that these programs usually have access to an extensive library of databases and maps and to advanced and expensive equipment for printing GIS maps of all sizes and types. In addition, geography professionals are also willing to work with social work faculty to develop relationships with local human service agencies in order to increase their department's access to current and local social problem data.

Geography departments offer introductory courses, advanced courses, and training sessions in the use of GIS. However, these courses and training sessions have historically been developed for traditional GIS users such as environmental engineers, landscape designers, and cartographers. These sessions can be confusing to the uninitiated social work faculty or students. As the vocabulary used to describe the GIS concepts and actions include terms such as vectors, rasters, cartography, topographical data, geocoding, geopositioning, shapefiles, themes, layers, and attributes.

Once a relationship between the social work faculty and GIS professionals has been established, it is important to clearly define and negotiate your needs. These needs include access to hardware and software and technical support for each, access to data, and training for social work faculty and students. Each area requires careful planning by all participants. There are many questions to be considered in this planning process.

### *Access to hardware, software, and technical support*

One of the first questions to be answered is whether you will be using the resources of a GIS lab or accessing the GIS software in your program's computer lab. Using a GIS lab makes access to hardware and software easy as well as provides specialized technical support, but getting access to a GIS lab during prime time for their students and yours may be difficult. It may be more feasible to have the software loaded to your program's computers.

Another step is to decide who will provide your technical support. GIS staff will be more successful in troubleshooting difficulties with the software, but your technology support staff understands his or her network and hardware. While this is

not an easy question to resolve, it is important that when involving your department's support staff that he or she has established a strong relationship with the GIS professionals on your campus. This is a crucial component if the software is being used in your lab or when GIS software is being used at times when staff may not be readily available, such as in evening or weekend courses.

### *Access to data*

Educators may prefer to use data that is readily available. ESRI provides a comprehensive introductory text and an international dataset of sociodemographic data for the United States, Canada, Mexico, and the city of Atlanta for use with ArcView 3.1 (ESRI, 1995). Another data source can be found in projects that GIS professionals have completed for your local county, state or region authorities. When using data that is already available, you will need to identify the specific variables and datasets that will be required by you and your students for course project(s). Some faculty will prefer to use new data that will need to be collected, stored in table format, and imported into ArcView. This data can be specific to course related requirements and may require additional training to teach students how to develop and maintain databases. This approach will allow students to gather data from their respective field agencies or agencies which have asked for assistance with GIS projects (Watkins, 1999).

### *Training*

It is important to decide who will be responsible for training. Social work faculty will need to be adequately trained to lead the session(s) if the GIS professionals are not able to do so. Having both professions represented in the training program is the ideal approach as it demonstrates collaboration between two very diverse disciplines. Also, if your GIS professionals have been trained in the more traditional GIS fields, they may not completely understand the social work approach and the social work faculty can clarify confusing points for students or for GIS professionals.

The amount of training your students will need to develop their skills in the use of GIS is affected by several factors. First, computer proficiency for your students should include a familiarity with Microsoft Window's operating system environments and a familiarity with data management applications such as Microsoft Excel or database programs. If these criteria are met, students can cope with the basic actions for ArcView 3. 1 in about one hour (Jose Lopez, personal communication, July 12, 2000). Basic skills for ArcView 3.1 include: finding folders and files on the server; opening and saving a project; using themes and layers (i.e., turning on and off themes and layers; promoting themes and layers); identifying attributes and determining attribute features; setting legends (i.e., shape maps or proportional circles maps); writing queries; managing tables (i.e., adding and defining fields; adding and joining tables); and selecting and printing charts and maps. Unfortunately, many social work students do not yet possess an adequate level of computer-based proficiencies with Windows operating systems and with data management applications and more time will need to be allotted in the training program to assist students in becoming comfortable with GIS.

Second, the amount of training time will depend upon the level of skill that you want your students to achieve and the learning activity you want them to complete. Educators may only want their students to have an introduction to GIS. This can be one or two sessions, depending on the length of these sessions. If students are expected to learn to manipulate the data after it has been entered in the product then more training time will be required. Training should extend two or more periods to allow student's time to cover GIS skills. If you also want students to gain skills related to finding, building, or merging databases, then continuous training and support will be required during the course of the academic session. In addition, these more advanced uses will

require not only GIS specific training, but may require training in data management applications necessitating increased training and support time.The time allotted for learning to use GIS and your access to GIS resources will affect the training program. Students in a course offered on the quarter system will have significantly less time to learn the software and develop their own projects. This may not be a realistic outcome unless the students have had substantial prior exposure to computers and to data management applications. Certainly, if the data has to be collected, stored in table format, and imported into GIS, it may be difficult to develop such skills in a quarter system. However, students, even those with limited technology skills, can manage the software as well as learn other skills such as database development and management in a semester long class in which frequent access to GIS has been scheduled. Other factors to consider in the training is the number of sessions you will be able to offer and whether training sessions will be included as part of the course or as a separate requirement from the course. These factors will be impacted by your access to resources and the availability of trainers.

When planning the training, it is important to clearly define GIS language and to identify the steps for opening and working with a GIS project(s) in ArcView in very basic detail. Using GIS software requires a specialized conceptual and action vocabulary as it uses terms that are very unfamiliar to most social work students. This unfamiliarity can contribute to an increase in anxiety that may negatively impact the students' skills in learning to manipulate the software. These unfamiliar concepts, terms, and software-related activities can easily be translated to concepts, terms, and activities with which social work students are familiar. In one training project, a "GIS Concepts Worksheet" and several "ArcView Cheat Sheets for Stressed Out Social Work Students" were developed by the GIS staff and the social work faculty to assist students who were learning to use GIS (Gohagan, Braun, & Andrews, 1998). Additional training and support can be found on numerous CD-based tutorials which are self-guided, easy to use, and well developed (ESRI Educational Services, 1995).

### *Teaching modules*

The complex nature of GIS requires that educators provide multiple opportunities for students to observe the use of GIS as well as to have hands on applied experiences with GIS. This can be accomplished by demonstrating the power of GIS using simple examples of relevant or at least interesting GIS projects. Next, adding a teaching example allows students to follow the actions steps in GIS and a final teaching example can be a project on which students work individually or collaboratively.

If the goals are to primarily develop literacy skills in the use of GIS, the ArcView 3.1 with the Introduction to ArcView textbook provides many social work appropriate teaching examples (ESRI, 1995). For example, the life expectancy of women can be shown in ArcView on a world map. These variables are shown in polygonal shapes and in a system of graduated colors representing 10-year increments. The trainer can, by pointing to a specific country on the world map, open a table with information that is relevant to the life expectancy for women in that country. Students can be encouraged to ask questions about the life expectancy for women in developed countries with the life expectancy for women in underdeveloped countries. This activity can be applied to any country on the map. Students are always 'amazed' or at least impressed with the ability of GIS to provide a visual map of the data so quickly and easily. Classroom discussion can then address the reasons for the differences in life expectancy between women in different countries and opportunities for international social work can be examined.

Demonstration of the power of GIS is easy to accomplish with the datasets that come with ArcView 3.1, but using projects that have a local context to demonstrate the power of GIS is also important. In a graduate, macro practice class in a large southern

university, students were shown data that identified the locations of pizza parlors in their state and the locations of colleges and universities. Students then asked questions about the distance to the nearest pizza parlor from their school or home and the information was available within seconds for each question. Food, particularly pizza, appears to be a universal student language whether in geography or in social work.

A second demonstration example showed the locations and concentrations of churches by denominations in this same state. This use of GIS sparked a discussion about the role of churches in communities and the ways in macro social workers could use churches as resources. In addition, information about the location, the type, and the number of churches in any given area was identified as useful knowledge for a community organizer or organizational planner. Students also identified information that would be useful to include in future data collection activities, such as social programs offered by the churches, economic income of neighborhoods and social programs that may be needed in each neighborhood that may not have been currently available.

The teaching example was developed in collaboration between the GIS professionals and social work faculty. In designing the teaching example, if a pre-established database is not used, datasets with very specific values or categories will need to be identified. Data requests also need to specific to a designated geographic region such as a census block groups, zip codes areas, school district zones, and county or state area. The teaching example for this project used 13 variables from the census for the county in which the university was located. These variables were included with their file names in a "GIS Cheat Sheets for Stressed Out Social Workers".

Datasets for the teaching example were imported into a GIS project and the files were placed on the server. Next, students were given the "GIS Concepts Worksheet" which consisted of 8 primary questions and which was presented for the students use in landscape mode. GIS information was placed on the left side and social work relevant terms, phrases, questions, and examples on the right side. Space was provided on the social work side for student responses and notes. These questions related to the GIS focus, study area, layers needed, scales for layers of information (data), presentation of features for layers, attributes and their formats, and sources for data layers. After a review of the worksheet and a demonstration of the GIS teaching example, students were given the opportunity to use GIS. Also, as the questions from the worksheet were covered, students were encouraged to follow the trainer in using the software.

Upon completion of the initial training session, students were provided individual support by social work faculty and GIS professionals in narrowing their focus to a specific community, establishing the boundaries, and identifying their data needs and sources in order to complete the first part of their course assignment. At the next training session, held approximately halfway through the semester, students were given the opportunity to access data from databases maintained by GIS staff that was relevant to their projects. Much of the data the students requested in their individual sessions were already in the GIS teaching project. GIS staff also arranged to assist students with the printing of maps for this project.

### *Teaching project summary*

The overall datasets for the teaching project allowed the mapping of multiple approaches to each of the 8 questions in the GIS Concepts Worksheet. This allowed students to personalize their projects. For the teaching example, a specific focus was provided and students were encouraged to contribute to the content of this project as it was discussed. Finally, students were encouraged to identify and complete the worksheet in regards to one of the social problem areas in which they were most interested.

A GIS project focus is the question that the user wants answered. This GIS project focus for this teaching example began with the following scenario:
"You are a social work community organizer at a local self-help agency and you want to obtain a planning grant to develop new programs for at-risk children in your community. In order to be awarded the grant, you must show areas in your community that are considered 'socially distressed' such as high rates of poverty, juvenile crime, drop-out rates, or lack of daycare facilities. Several study questions were suggested and students were asked to develop a study question. Questions in the teaching example included: 1.) Where is the highest concentration of children under five without access to daycare? 2.) We have a high rate of juvenile crime in our neighborhoods after school hours. What afterschool programs exist for children in this community?

GIS must have a very specific study area upon which to build the project. The GIS project question(s) automatically implies an 'area for study' or an 'area of interest'. Area refers to geographic locations such as census block groups, neighborhoods, housing projects, school districts or counties. The study area for this project was the county in which the university was located.

GIS then incorporates this data in layers. Layers in GIS are used to represent roads, physical types of structures, other environmental markers, types of facilities, social characteristics of the persons you are studying, and social characteristics of the community you are studying. Each of these data types is referred to as a 'layer' of information. Project planners must determine the data types or layers required for this project. Layers for the teaching example included physical data for the county that was also subdivided into census block groups and school districts. Other physical data types included information about building structures such as locations of day care centers and school buildings. Social demographic data types or layers included median household income, number of children under the age of five, household types, types of day care and types of afterschool programs.

All layers require a specified scale of measurement and often layers can be shown in multiple scales of measurements. If the user wants to view the world, the scale of measurement would be in very small units. For example, the US Geologic Survey produces maps of the entire United States at 1:24000 and at 1:100000. If the user wants to only view the school district that constitutes their service area, the scale of measurement would be much larger. The larger the scale, the greater the detail on the maps. Fortunately, for most social work students (and for some faculty) GIS staff are proficient in knowing what scales of measurement are available for each layer and can often facilitate this part of the project development very rapidly as was the case for this master teaching example.

Layers once identified and accessed can be represented using different feature types based upon the size of site area (study focus). Features are shown as points, lines or polygons. Point data is used to pinpoint specific places or features. A dot in differing sizes and colors or even shapes is the symbol most often used to identify the location of a building, a place, or a city. A graphic image, such as can be found in the bullets files in word processing applications, is often used to identify these features. If you were studying specific communities or counties within a given area, the city or county could be represented with a polygon. Line features are used for rivers, roads, and other geographic boundaries.

After deciding on the layers, the level of detail to map these layers, and what feature type you will use to represent those layers, you must determine what attributes are required to describe each layer. For example, if one layer is income of citizens of your community, attributes of this variable include household composition, race, and median income of the community.

Next, decide how each attribute for each layer will be stored. One layer of information may be school districts within your community of study. Thus, an attribute format can be stated in total numbers of persons in the district, percentage of the total

number of persons in the district between 0 and 5 years or age, the percentage of the total population of your community of study, a number assigned for each school district, a median number for household income, or a number assigned for each type of household in the population. Each attribute for each layer will need to have a specific format for storing in a table format and retrieving the data in ArcView.

The final step in the first stage of training is to locate the potential sources of your data layers for all your desired information. If, as a community organizer, you were assessing the need for more day care facilities, information about the location and types of all known day care facilities would be required. If this information is not available courtesy of your local GIS program, the organizer could conduct a survey of the community and make her own map or she could contact the local or state agency that licenses daycare facilities to obtain addresses and other relevant information. Information about many sociodemographic characteristics can be obtained from census bureau statistics. State and local school district offices can be contacted to obtain information about their constituents.

## Summary

GIS is only one example of many powerful computer-based applications that are rapidly being integrated into the mainstream activities related to funding sources, community assessment, policy making and program management in the social work practice arena. GIS is widely used by government agencies and very soon social work graduates will be routinely collecting, mapping, and analyzing data using a GIS application. GIS will become as common in social service programs as electronic mail, management information systems, and web-based interactive applications have become today. Can you remember when these were computer-based applications that only academic institutions used?

Social work programs as suggested by Smith and Hester (1974) have a responsibility to society to prepare their graduates to work with complex computer-based technologies. Exposure to this type of technology increases a student's ability to integrate learning from all areas of the curriculum while preparing her or him to compete in a very technologically advanced job market. Students who graduate from social work programs with these types of technology competencies will be better prepared to contribute to the social work practice of the future.

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# Managing technological change – strategies for colleges and university leaders

*Book review by Sue Orton*

A W (Tony) Bates (2000)
*Managing technological change – strategies for colleges and university leaders.*
Jossey-Bass Inc. San Francisco
ISBN 0-7879-4681-8

I was very drawn to the description of common faculty web-based course development as the 'Lone Ranger and Tonto approach' outlined in Chapter 3 of this book, Planning and Managing Courses and Programs. 'Tonto is the computer skilled graduate student who does the HTML mark-up and scanning and generally tries to keep the professor out of technical trouble. (Ch 3. P.60)

It seems to fit rather well with several of the case studies I am finding to illustrate the use of technology in Social Work and Social Policy for the Learning and Teaching Support Network in UK HE. Some of us will remember the image of the cowboy on the white horse. Perhaps a little whimsical but it helps us visual learners. The author goes on to provide a context for this model and suggest how it helps and hinders technological change. This example also illustrates his ability to observe in a pleasingly ironic tone, which runs through the book.

The enormity of the task facing HE in the UK to manage technological change should not be underestimated. The university world is an environment that celebrates autonomy, individual research and independence, both for its faculty members and for the institutions themselves, most have hierarchical management structures and expenditure driven financial systems which are currently under pressure to do more for less. Attempts to make significant changes within universities can easily drown in the sea of committees and institutional inertia and are sabotaged by intellectual autonomy.

This is the first book that I have read which successfully takes on the challenge of considering both the strategic and process implications of change in the development of academic applications of technology. The book demonstrates knowledge and practical experience of:

1. The context and management implications in which these changes are contemplated in western higher education

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2. The infrastructure, administration and finance implications of technological change
3. The emotional, psychological and behavioural responses, which change, ignites.

Then best of all, offers tried and tested models and suggestions bringing together all three of the above in each chapter.

Bates argues that people at all levels of organisations will have to think very carefully indeed if they are to confront the technological challenge. To guarantee a modicum of success, embracing technology will require: huge expenditure, vision, teamwork and project management approaches, more time and energy spent on teaching, new administration and accounting procedures for activity based accounting, partnerships and collaboration at all levels, and will change the way academics work. He suggests that this is perhaps a Faustian contract and that many institutions are not yet ready to sell their souls for the benefits of technological changes.

This book is useful, pragmatic and challenging of current practice, confirming that you don't get effective change on the cheap. Tony Bates demonstrates the key dilemma in this whole process. The management of change is a dynamic and personal process. It is not cheap because it not only requires investment in new systems but a comprehensive investment in training, support and development to change the way people work. This is the bit which, in my experience, most organisations don't do because it is too difficult.

He also makes a real case for the benefits. Benefits for academics who find the collaboration and innovation revitalises their teaching. Benefits for students on and off campus who have access to tutors and courses when they need them and finish their studies with IT skills equipping them to work anywhere. Benefits for universities in widening access, financial security and innovation.

Bates draws on research and best practice to offer a wide range of strategies for ensuring successful use of technology. He covers winning departmental support for teaching with technology including decision making and reporting structures. He gives detailed descriptions of the procedures and issues around costing the use of technology, copyright, reward systems, monitoring ongoing educational effectiveness and funding for new technology based systems.

This book provides insights into this process at a number of levels. The wealth of experience the author brings, as director of Distance Education and Technology in the Division of Continuing Studies at the University of British Columbia and as a founding member of the British Open University has given the arguments considerable authority. This authority is based upon both managing and experiencing the introduction, assessment and efficacy of using technology as well as managing and supporting the people involved.

> ..... *whatever the philosophical arguments for or against the use of technology for teaching, improving cost effectiveness in higher education requires more than just investment in new technologies. It will also require radical changes in teaching methods and organization (Ch 1, p.35).*

My fear is that like many a management book, this will remain on the shelves of academics who wish for vice-chancellors to be more consultative, on the desks of managers who wish that academics would collaborate more, but in the briefcases of consultants who will make money out of both, but change organisations not a jot. My advice is don't just read it but gather your colleagues together and decide to take a step or two.

# Human service technology: understanding, designing, and implementing computer and internet applications in the social services

*Book review by David Colombi*

Schoech D (1999)
*Human service technology: understanding, designing, and implementing computer and internet applications in the social services*
Haworth Press, USA
ISBN 0-7890-0108

It was said of Sidney and Beatrice Webb that they 'put the backbone into English socialism'. It's a phrase that came to mind when reading this work, as Dick Schoech's book is a massive contribution to the literature on social work and information technology. An earlier notable pioneering landmark in that literature was *The Human Edge: Information Technology and Helping People*, which was published in 1986 with Dick as one of the many contributors. The present book may lack the sheer innovative force of *The Human Edge*, but stands as a measured and expert survey of the extraordinary developments in IT that have taken place over the last decade and half and of their relevance and significance for all human services.

Unlike many other collaborative contributions to the literature, Human Service Technology stands as one man's vision – the perspective of someone who has been at the heart of developments as a social work teacher, writer, software developer, founder of CUSSnet and editor of the journal Computers in Human Services recently renamed as Journal of Technology in the Human Services. Intrinsic to that vision is Dick Schoech's continued focus on the human dimension – how human service workers perceive, understand and make decisions about how they can use information technology to improve the services they provide. He uses simple thought provoking statements that present complex information in ways that are accessible, human and relevant, as in the assumptions he sets out in the introduction:

> *A fourth assumption is that many clients in the information age will often have better technology and better information than their practitioners* (p5).

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*Human Services Technology* was originally published in 1990 as *Human Service Computing*. At 450 pages, the new version is 176 pages shorter, but is complemented by a website at (http://www2.uta.edu/cussn/hst/contents.htm) which includes resources to support learning on the subject such as exercises and additional web links. The book has been substantially restructured and rewritten not only to cover new developments, but also to re-examine previous ideas. As the author was rash enough in the earlier volume to write a section entitled 'The Future' we can also examine how his earlier prognostications have stood the test of time. It's what friends are for. The key concept that separates the two books is the Internet. The earlier book talks about email, bulletin board systems and the potential of communication technologies, but nothing prepared future watchers for the extraordinary impact of the Internet and the World Wide Web.

*Human Services Technology* is in four parts:

- Basic concepts and history
- Applications of Information Technology in Human Services
- Designing, Developing and Implementing IT systems
- Maintaining Information Technology

## Part I: Basic concepts and history

In this section and throughout the book, the author uses a rich variety of scenarios of how individuals at different levels in particular organisations have used IT to tackle problems. The analysis of situations faced, of problems and pitfalls encountered, solutions found and benefits achieved involves the reader by maintaining the human dimension whilst illuminating the issues.

> *Skepticism (sic) about IT do did not bother Bill. He believed that change takes time and that a critical perspective was healthy. The skeptics brought IT problems to Bill before large mistakes were made (p18).*

These scenarios are supplemented by 'Themes and Issues' at the end of scenarios and 'Review and Discussion Questions' at the end of each chapter where the author has the gift of asking the right questions:

> *What clinical tasks can IT applications do well, and what tasks do they perform poorly? (p19).*
> *What qualifications should human services personnel have who are in charge of agency information management?* (p22).

This approach is not only rich in helping readers understand the technology issues but has the bonus of enabling understanding of how the same problems are seen by people at different levels in organisations. There is much in this book that illuminates how human service organisations work, even allowing for the different context and structure of services in the USA. A key variable is how organisations vary in their use of information technology:

> *(Meals on wheels) volunteers would use the Internet to designate the hours they were available and view their records.(p23).*

Not that often in the UK I suspect! Moving on from an exploration of personal views of human service technology, IT changes are set in the historical context of earlier changes in information processing. These range from the decline of oral traditions as represented by Seneca through to the comment attributed to Leibniz *that 'the mass of books will surely exhaust people's curiosity'*. Inevitably the historical survey is sketchy but it helps to set IT changes in context and provide perspective. Here and throughout

the book parallels and analogies are made between development of information technology and of transportation systems.

## Part II: Applications of information technology in human services

From the statement that 'Information technology is best seen in its applications', the author introduces us to what is available under headings of generic, research, educational and assistive technology. Alongside well-established technologies are less familiar but promising applications such as neural networks analysis, simulation software and memory augmentation. He moves on to consider management applications, taking a broader view than the ubiquitous client information systems to include expert systems, case-based reasoning, decision support applications and performance support applications. These are illustrated by detailed, practical examples, for example, a child abuse expert system and a worker safety adviser performance support system.

Use of applications is then considered at different levels: policy level, community level (not much happening), agency management level, direct service level and the client level, with the latter described as *"could be the 'sleeping giant' in the human services application market."* (p133). At a direct service level, there is the continuing and often promising evidence about the potential of IT to assist in assessment and treatment facilities, accompanied by a paucity of funding for developments and a lack of professional enthusiasm. In contrast we see the rapid rise of Internet self-help groups and the use of 'pop-psychology' tests. The author notes that *'apprehension about self-help consumer applications is not coming from consumers but from professionals'* (p138). In medicine more and more of us are using information from the Internet to empower ourselves in our dealings with doctors. In a similar way social workers may be increasingly marginalised as their clients turn to on-line sources of help and information. Perhaps social workers need to become as proficient as paedophiles in using the Internet.

## Part III: Designing, developing and implementing IT systems

This part considers the practical processes and issues involved in developing applications and is the largest and at times most technical section of the book. The first three chapters focus less on the technology than on decision-making processes and theory and their application to human services. The first (chapter 6) starts with analysis of the processes and stages involved, including change theory and such concepts as the 80/20 rule (80% of an application requires 20% of the resources, and the remaining 20% requires the other 80%). The next chapter notes that *'IT applications become information models of the decisions they support'* (p181) and develops a detailed exposition of systems theories, and decision making theories, including Dewey's concepts of *satisficing* as a more practical goal than *maximising* (p195). This is followed by a chapter analysing human service information needs. External factors such as socio-economic, political, cultural, technological and legal imperatives are complemented by internal dimensions of goals, people, structure, tasks and technology. My concern throughout these three chapters is that the author, while admirably thorough and detailed, is less inclined to challenge or criticise. On p172 he identifies the need to use outside consultants, where the reality, in the UK at least, has been of public services ill served by some consultants. His comment on p 207 that the Diagnostic and Statistical Manual of Mental Disorders (DSM) *is 'a good example of a set of terms and procedures for working with mental illness'* contrasts with Walter Hudson's description of DSM as *'a tool for the benefit of insurers not patients'* (Steyaert, 1996). What we get is useful analysis of how change needs to be planned and thought through in detail within agencies. What we don't get is a questioning of why so

many large scale IT projects go so disastrously wrong, although he does provide some answers to that question in the penultimate chapter of the book.

The second half of Part III is an exposition of IT developments under three headings of 'hardware and software influences, database management and networking. The first covers ground that occupied three chapters in the earlier edition, reflecting how far the ground has shifted away from software applications to the internet. The database chapter highlights many of the complexities surrounding managing large scale databases, particularly where they are operating across state and organisation boundaries with competing or conflicting requirements. In both of these chapters there is a question of whether the level of technical detail is greater than most human service workers managers need. The final chapter in Part III is almost completely new and provides clear information about the Internet, networking activities such as video-conferencing and chat rooms, and description of local and wide area networks. There is also helpful information on topics such as cyberspace, viruses and 'netiquette'.

## Part 1V: Maintaining infonmation technology

The final part of *Human Services Technology* has two chapters and is broader in its range that the title implies. The first chapter is M*anaging, Supporting and Evaluating IT Applications* and the lessons set out are as much about developing systems as maintaining them, covering concepts such as 'information as a resource' and issues such as centralisation v decentralisition, end-user control and evaluation. In contrast to the earlier Part III sections a more critical tone emerges as shown by the illustrated section on page 360 on:

*"The 'true' application development process:*

- *Unwarranted enthusiasm*
- *Growing concern*
- *Unmitigated disaster*
- *Searching for the guilty*
- *Punishing the guilty*
- *Punishing the innocent*
- *Promoting the uninvolved"*

The final chapter, '*Trends, Issues and the Future'* attempts what it describes as evolutionary and revolutionary thinking to explore ideas. In doing so it sets out a number of imaginative scenarios in different settings – medicine, social work, community practice - of how human service workers might operate. It considers issues such as the gap between haves and have-nots, values inherent in IT, software liability and the control of the internet: -*'The internet has no corporate headquarters, no chief executive, no budget and no strategic plan'* (p278). On ownership of information, the question of values reflects our hypocrisies and human frailties:

> *Most people are in favour of matching to eliminate fraud if they think it will involve someone else. Of the public 87 percent think that matching welfare recipient's names to find fraud is justifiable but only 68 percent think that matching income tax records with credit card records to find tax fraud is justifiable (p403).*

Significantly, there is however only passing mention of technology and the environment, which is perhaps, the most pressing and complex issue of them all. Technology adds massively to global warming through more computers, but can lead to more efficient heating controls and reduction in travelling if we increase home working and virtual meetings. However the author works in Texas which is not at the forefront of environmental issues.

At this point it is perhaps both relevant and wholly unfair to look back to the earlier edition and see how the earlier prognostications fared. Whilst there is no mention then of the internet, there is discussion about email and, in relation to education, about student tasks changing *with 'massive information available via-telecommunications'* and *'in essence the process will change from students trying to find information' to information trying to find students'*. What was not seen is how in 10 short years the process of information access would radically permeate every aspect of social and organisational lives, not just the world of education. The Internet is as much a political and social phenomenon, as a technological and educational one.

One problem about forecasting technological changes, apart from the obvious one of almost inevitably getting it wrong, is the interaction with other forces for change, particularly unfettered global capitalism. In his education scenario, the author examines how student learning is changing through technology but also suggests that *'Corporate virtual universities will compete for students and offer more flexible ways to receive education and degrees'* (p394). I fear he is right and as academic freedom becomes an increasingly soiled and disposable commodity, it is a prospect that makes retirement so welcome. The author is right that information technology promises much and can make for a better, more democratic, equitable and just world, but, in the words of the song, it ain't necessarily so. The internet may have stolen a march on the corporate world over the last 10 years, but in a world where we plainly love our cars more than our children and have declared war on our own planet, virtual futures look more promising than real ones.

## Glossary

There is a helpful glossary at the end that is wide-ranging, including terms such as compiler, cybernetics and emoticon (symbols used in emails to denote emotion). There are however some notable omission such as ASP, DVD, server, html, JavaScript, gopher, multi-media, shovelware, telnet, virtual learning environment, although several of these are discussed in the text.

## Conclusion

Despite some minor or even carping criticisms, this is a wonderful, lucid and at times funny book that deserves to be widely read by students, academics, practitioners, managers and policy makers. When other voices have argued that we should focus on information and not the technology, it stands as an assertion that the technology is not merely a means to ends, that it stands in its own right as a driving and shaping force in how we relate to the world, make sense of it and engage in the shared business of helping people.

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