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Law Students and the Use and Abuse of Electronic Forms of Information

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Abstract

Increasingly, during the study of law at all levels, students are being introduced to electronic forms of information such as the World Wide Web and Law Reports on CD-ROM. This paper looks at the advantages and disadvantages of such exposure. It looks at how students are using electronic forms of data within their studies. How electronic data available by the Internet is changing patterns of use of 'bricks and mortar' libraries. The paper looks at what students are expecting from electronic forms of information. Questions in the form, 'Are Criminal Law Review cases on the ALL England CD-ROM' and, 'Are there cases on the WWW?' are frequently asked. The paper looks at the abuse of electronic forms of data - such practices as finding one case and down loading all hyper-linked cases or using the Internet for plagiarism. The paper concludes with a look at how good practice in research techniques in the use of electronic data can be incorporated into skills teaching for law students.

Introduction

Increasingly, during study at all levels, students are being introduced to electronic forms of information such as the Internet (in the form of the World Wide Web) and on-line databases and off-line databases (in the form of CD-ROM databases). These electronic forms of information are recognised by librarians as being important and as producing changes in the way academics and students use information in their studies. These types of digital databases are changing the nature of libraries and of students use (or misuse) information.

The Internet, though it had been in existence since 1969, became readily understandable by the 'lay person' with the development of the World Wide Web in browsers such as Mosaic (develped in 1994). The cheapness of computers and communication means that it is now readily available in university, office and home. The seemingly exponential rise in power for your pound in computing has meant that the Internet has become a multimedia source of information. If it is not as yet the main method of distributing materials but it certainly can be a faster way of distributing information with a world wide coverage. The Internet has also given us world wide coverage by electronic mail. Electronic mail is a form of information database, within discussion groups and networks of individuals.

The Internet gives access to specialised on-line databases. These on-line databases have moved from the realm of the librarian - with submitted request and results the next day - to specialised terminals and now networked PC's with open access to library and specialised catalogues such as BIDS. The smaller off-line databases, once held on single floppy disks, became multiple floppy disks and now

CD-ROM (soon DVD). CD-ROM databases have been invested in for a number of reasons: space considerations; cost considerations; and, in some cases, just because it exists. CD-ROM drives have gone from large single-speed machines costing several hundred pounds, to 24, 32 (whatever the current fastest is) almost pocket money priced devices with the CD currently the medium of choice for distribution of software of all types.

Information for lawyers, both academic and professional, has also gone down this electronic path. Sarah Carter (1998), in her look at the principal printed sources of legal information and electronic legal information, listed the following main electronic sources: Acts of Parliament, Statutory Instruments, Statutory Rules of Northern Ireland, Public Bills, Current Law, Halsbury's Laws, Lawtel, Lexis, Justis Statutory Instruments. The majority, if not all, of these sources are available via the World Wide Web.

Legal information workers (librarians) around the world both in professional and academic institutions think of the Internet as an important source of legal information. This is shown in the results of Joanna Scarlett's survey (1997). The survey showed that 52% of respondents using the Internet for 'serious' reference questions. Concerns were expressed though by 69% of the respondents about the inaccurate, out-of-date and unattributed nature of much of the information - "90% of the pages out there are utter drivel, and you have to really look hard for the 10% that is worth looking at" being one comment. Scarlett's conclusion was that 'almost all of the respondents to my survey had an extremely positive view of the future of the Internet...the only real danger to the information profession lies in ignoring or failing to grasp the implications of the Internet'. Also, the nature of location of research is changing. According to Banner (1996) 'In 1996 the focus of computer-assisted research in the law school is not in the library, but on the personal computer resting on the desktop in a faculty office, a student computer lab, study corral, or the home or dormitory'. and this effect is increasingly being felt by students (and academics). What do the students think, and has this change had any effect on them?

Electronic Resources at DMU Law School

The effect of these changes on one Law School, that at De Montfort University, is outlined below.

Over the last 10 years the number of computers has moved from a handful of standalone machines for student use, to a situation where all staff have a networked computers and there are two networked computer facilities for students with a total of forty computers.

The Internet provision has increased from one computer running such systems as gophers and veronicas to all staff having access to the World Wide Web via Internet Explorer or Netscape. Electronic mail has gone from being a rare commodity provided by an outside university to being a 'cheap' commodity provided for all students. Lexis has moved from a dedicated computer terminal to access from desktop computers.

The thirty computers for undergraduate use in the Computer Resource Centre (CRC) have access to Butterworths' Books on Screen including All England Law Reports, the World Wide Web, the university e-mail system which is accessed via the web, Lexis (though they do not have open access and use the system only under supervision), and Iolis. The computers also use Word as a word processing package and printing from any of these systems is free to the students. The students are instructed on how to use the CRC facilities in the first year skills sessions.

In the main library the students have access to 300 computers with CD-ROM databases, the Internet, word processing, and of course printed books, law reports and journals.

Richard Banner (1996) gives a history of the implementation of information technology in Dukes Law School. This history is similar to that of DMU and, one suspects, a number of other law schools in the UK.

Student use of electronic information in DMU Law School

It had been realised that students' use of computers at DMU had increased over the last academic year - this coincided with all students being given e-mail accounts. A monitor of how students were using the computers in the CRC was kept over a 'typical' week. The results show that 32% of the time students were word processing; 35% of the time using the web; 27% of the time using e-mail; 4% of the time using the All England Law Reports; 1% of the time using Iolis; and 1% of the time they were doing other things such as using Lexis, or playing games (see fig 1).

The use of All England Law Reports does not seem high during the time of the survey, although anecdotal evidence puts it much higher at the start of the year- due perhaps to first year students having to find a large number of cases at the start of their studies. Future surveys should take account of this seasonal variation. Although this exercise was not a detailed review of computer usage it does provide a starting point for further work and discussion.

Figure1

What are the advantages and disadvantages of electronic forms of data for students within their studies

What are the advantages and disadvantages to the students of electronic information? There is a large body of work looking at students' exposure

to computer learning environments [eg Migdal & Cartwright (1998)] but little, it would seem as yet, has come to light on the exposure to the electronic, as opposed to the manual, forms of information. Many commentators have expressed opinions, however, for example:

A representative view of the disadvantages is given in a paper by Richard Haigh. He looks at use of electronic and traditional sources of information. One of the interesting comparisons he identifies is between downloading to a printer and photocopying from printed materials. He says: 'the paper based equivalent of downloading is photocopying . It too is fraught with problems, most related to excessive overuse and wastage, but downloading is even more insidious than photocopying and least in photocopying, the user is involved with the medium, making assessments as to which pages to copy, gaining an understanding of weight and relevance'. This gaining of understanding, weight and relevance is, of course, educationally highly significant.

'A majority of participants generally agree that without consistency and standardization computer research will not be truly accessible'.

'While greater access to data may be seen in a positive light, the alarming quantity of data accessible by computers could become a serious problem in itself. The electronic smorgasbord available from any terminal means that legal research competes with the top ten movies of the week, a few games, or the latest recipe - for some, the temptation to use the computer as an entertainment centre may be too difficult to resist'.

Of particular importance to lawyers, he says:

'Those who excel learn that it is possible to find a case to support virtually any position. But locating such a case is not as important as understanding legal reasoning, so that ultimately the position argued becomes persuasive regardless of whether a case on point exists or not'.

On the advantages of books, though perhaps not normally admitted:

'How many of us publicly declare our despair over the defacing of reports, but secretly read all the annotations, and thank those that went before us who found and noted the important points in a case?'

Paul Harwood in his 'slightly flippant approach' (1997) looks at some of the problems associated with electronic publications from the perspective of publishers, librarians and intermediates. He describes the plight of the academic librarian:

'Waiting 30 minutes to download an article is hardly going to encourage the increased use of electronic journals! Trouble is, the Finance Director thinks all this material is going to be free any anyway!'

It seems that paper and electronic versions of journals will coexist in the hybrid library for some time, but with the increase in material available on the Internet, concerns are being expressed by librarians. Kate Brunskill (1998) includes:

- 'Doubts about longevity of electronic formats;
- Worries about who will take responsibility for archiving and retrieval of titles provided by the Internet;
- The need to meet recurrent networking and hardware costs and to provide IT support;
- The implications of copyright in the electronic environment;
- The need to negotiate licences which ensure public library users will be able to gain access;
- The implications of electronic subscriptions and long-term access to back-files.'

Some advantages are shown in the empirical work of Andy Sloane(1997) who looked at the web as a teaching resource in modular courses. In this case the courses were on computer communications. Sloane looked at one graduate and one postgraduate course, each with a similar content. Students on these courses had to use the web in an open-ended (ie not going only to sites they had been told about) manner to complete the practical parts of the course. They had to find web sites that were of special relevance to the module. It was found that students tried to find the 'elusive page which was unique to themselves'. Commercial sites were used more than traditional academic sites. It was thought that, by comparison with other years, students who had completed the modules which had open access to the web benefited from it and gained skills in using it.

The use of Windows as the world PC interface has meant that databases share a standard feel to the interface, eg the method of searching invariably uses Boolean constructed searches. Gabriel K Rousseau and Brian A Jamieson et al (1998) looked at the use of advanced computerised library systems. These systems share such similarities with WWW and other databases as 'Boolean operators and the need to select appropriate search terms. Thus, many of the findings regarding user-systems interactions are relevant to a wide variety of systems'. Some problems were still reported as in the older system, such as difficulties in forming searches and difficulties in understanding some advanced features of the system. It appeared that training might provide answers although this might be difficult for other users of the site.

In the area of law teaching, Reijntjes and Vacke (1998), from their standpoint in the Netherlands, have produced ten statements on how the electronics or Information Communication Technology (ICT) can be incorporated into legal studies to bring together the best of distance learning studies (ie flexibility for the student) with the traditional methods of teaching. These are as follws:

1 The use of ICT in law teaching is unavoidable.

2 The simple creation of databases and expert -systems for educational purposes is not useful; however, their integration into law teaching is.

3 The use of ICT can save money and in the same time improve the quality and diversity of our programmes.

4 Only real integration of the use of ICT into the courses will lead to quality improvements.

5 The use of Ict in teaching will have to affect the whole curriculum.

6 Form is not independent from content. Change the form of a course without adapting its contents will seriously affect its quality.

7 Using ICT may save money, but deciding to use ICT in order to save money endangers the quality of teaching.

8 Electronics will not drive out books.

9 A good electronic course will at least partly consist of printed materials; the electronic component will be highly interactive and problem-centred.

10 Conventional and distance teaching will grow more alike, but there will still be separate place for distance teaching - although maybe not for separate distance teaching universities.

Eastham (1998) notes that 'push technology' services (where end customers are informed of new developments in their field by means of a screen-save tickertape, e-mail or electronic current awareness service) have been or are being tried in the legal field - Lexis, Lawtel and Butterworths

offer them.

'Searching electronic products, you also have the possibility of serendipity. Internet services such as the Dow Jones Interactive services have over 5500 sources on them. When undertaking a search, you can often find results of relevance to your research in the most unlikely places; and the sources may well be things that you would never have dreamt of looking at in hard copy, and certainly could not justify subscribing to in hard copy on a regular basis'.

What are students expecting from electronic forms of information?

Students are coming to expect both recreational and educational opportunities from the electronic forms of data, ie information about friends and holidays as well as learned papers. Word processing, WWW and e-mail all have a recreational potential while only the specialised databases are related purely to subjects studies. Students also expect electronic information to be quick, convenient, free, and all-encompassing.

Furthermore, some of these recreational uses are more than just trivial. Makenna and Bargh (1998) have shown that membership of Internet groups (of which it is estimated that there are at least 30000) may have real benefits for, and play an important part in the lives of, members particularly those who in *real* life are members of marginalized groups perhaps by reason of their sexuality or nature. By contrast, in the *virtual* group they may find their identity giving a measure of self-fulfilment and self-acceptance which may in turn be an important factor in successful study, although it is not clear whether this can be measured.

At DMU Law School the use of the All England Law Reports on CD-ROM in the form of Books on Screen has been the biggest change in the use of the computers that is definitely related to reading for a Law degree. In Books on Screen the interface is simple to use, especially if all you require is to download pre-identified cases. Within DMU, geographical and financial factors also make it 'a good bet' as the Law School is some way from the main library and, even better, does not currently charge students for printouts.

The use of electronic information, such as Books on Screen, provokes a number of questions from students, eg 'Are Criminal Law Review cases on the ALL England CD-ROM'. To date no record has been kept of such questions but it occurs frequently enough to lead one to question the students' understanding of the scope of these electronic databases. Another common question is why a resource available on the library computers is not available in the CRC or for use at home. This is a good question, but the answer lies in licences, organisation and time.

During the last three years students have increasing requested e-mail accounts. E-mail is not currently used in any educational way in the Law School at DMU although investigation into its use on distant learning courses provided by the School are in progress. Students are beginning to see for themselves how e-mail could be used within their academic work, however, and there is currently a group of students wishing to set up an internal mooting competition group on e-mail and the web. Shortly all members of staff will be going onto e-mail for the purposes of internal communications, and this may change the way staff and students communicate. We do not yet know, although some readers may already have experienced such changes.

Andaleeb and Simmonds (1998) say that 'it is quite likely that when selecting a college, some students are influenced partially by the college's academic library and the quality of service the library provides' though, as the authors admit, 'without any supporting evidence'.

'Resource strategy is important because academic library users frequent their libraries to find solutions to their problems and needs. In today's dynamic environment of information, availability, resources does not mean only the size of a library's collections but, rather, also includes a variety of

other resources that, to the users, make access to information the key to judging resources adequacy. Consequently, academic librarians must continuously monitor the academic environment to provide customer-focused services'.

This work suggests that 'the availability of resources and the assurance provided by the library staff have the greatest impact on user satisfaction'

It must be wondered whether academic libraries do not actually come as a 'shock' to students as they are vastly different in size and holding from sixth-form and local libraries.

Misuse of electronic forms of data

Data has always been open to misuse, as in the old adage 'lies, damned lies, and statistics'. Abuse can vary from the downloading of too much material just because it is there, to the academic offence of plagiarism. These abuses can equally be carried out with printed books and a photocopier but this involves time and cost and these constraints allow the user to review the information. The key question is whether electronic data leads to more or less misuse without any educational gain.

Bastardi and Shafir (1998) in their paper 'On the Pursuit and Misuse of Useless Information' discuss how pursuing information that is of no use can affect decisions made by the user and how the techniques involved may themselves make the useless information seem useful. This situation must arise with the web with its overwelming mass of information - it might be worth a future investigation.

It is the ease of use of these systems that gives them much of their potential for misuse. Examples include: the ability to print out too much data due to the Hyperlinks; the ability to print out multiple copies for distribution to other students who may then miss out the active process of finding the material and reviewing it for themselves; and the ability to download a long list of data from many subjects and printing them without regard for the relevant context.

E-mail is also potentially an important source of misuse, both by facilitating plagiarism (considered below) and as a source of distraction by making it easy to keep in touch with an ever-widening circle of acquaintances.

Misuse of electronic data at DMU Law School

At DMU the books on screen is misused by down loading too much material - start with one case then down load all the hyperlinked cases and so on. A student will at times be down loading of finding data for a group - judging by the number of copies printed. Lexis is also open to such abuse. There is a tendency for students to believe that one session on the system will reveal all that is needed.

At DMU there is currently no CMC use for e-mail. Most academic discussion groups are for academics, so at DMU it is assumed that the e-mail is being used for recreational pursuits (a glance around the CRC confirms this). What are these recreational uses? Well, they may include keeping in contact with family and friends and general socialising - some may suspect plagiarising. But this communication with friends and relations may also be adding to their educational experience by allowing them to share and discuss problems, although it may also be taking them away from academic work, and this too is worthy of further investigation.

Is electronic information being used for plagiarism?

In his paper 'Plagiarism and the Art of Skilful Citation" John Rodgers points out that 'Plagiarism is not so easily defined. In general, definitions of plagiarism [as found in any dictionary] include the idea of theft of language, wording, or ideas. One definition often repeated (and quite possibly plagiarised) specifies the intent to "pass off" language "as one's own". This definition is of fraud rather than really of theft'. Rodgers states that plagiarism 'in many cases...is committed simply because the student or scholar does not know the proper techniques of citation'. He goes on 'to some it might appear that plagiarism is easy to spot, but it is easy to find situations where "reasonable people will disagree". For example copying an entire sentence without citation would be considered by most to be plagiarism. What about three or four words in a row? some sentences are short! What about phrases of three or four words?' He admits, 'I once borrowed the phrase "hurtling toward death" from a fellow undergraduate. It had been used by the originator in a paper on existentialist philosophy. I used this phrase, without attribution, in an in-class exam essay in political science, where it was marked for praise by the instructor'.

Plagiarism, like the poor, is always with us but does electronic information make it more likely or easier? And what if anything can be done about it? Perhaps all academic work (and this is no exception) can be thought of at least partly as an exercise in document assembly. Whether the work is plagiarised depends on how references are used. It would be nice to think at all plagiarism was accidental, but Tenpenny and Keriazakos (1998) have shown that inadvertent plagiarismie recalling an idea without remembering the originator is a rare occurrence when people are trying to produce truly original work.

The web certainly provides an easy way of distributing academic work which could be used for plagiarism. There are a number of 'term paper' factories available on the web, and for example Boston university has filed a lawsuit against eight term paper mills and several states have enacted laws prohibiting their activities (see Stebelman (1998)).

Stebelman (1998) lists various types of plagiarism opportunities on the web. For example, translation software produces a new tool for the plagiarist. Altavista can translate a document on the web from one language to another, and the example given by Stebelman is on the subject of Picasso: 'there is nothing to prevent a student from searching articles on Picasso, limiting retrieval to those in Portuguese, then translating an article into English [and fine tuning it], tracing it will be impossible'. It is possible that this may not be such a problem in law, but Stebelman goes on to list another kind of cheating which 'involves downloading an official document from the web, altering the language or data, then submitting it with a research paper as supporting material. For example, 'I took a Congressional bill from the 102nd Congress, first session. The intent of the bill is to require that landlords give elderly tenants at least 120 days notice, after beginning proceedings, before evicting them. The URL for the House document appears in the location toolbar (thomas.loc.gov/), lending weight to the document's authenticity. As realistic as the bill appears, it is a forgery. I downloaded it to my computer, edited it in Netscape 4 (using Page composer), changing the "60 days" notice to 20 days. I added the House URL to the toolbar (when saved originally and reopened to Netscape, my C drive directory was the URL), then resaved. A savvy student could argue that the congress favoured the elderly over landlords because of the lengthy notification time required by landlords. Unless an instructor was intimately familiar with the legislative history surrounding the specific bill the alteration would be accepted.' Documents in pdf format are apparently more difficult to change.

Stebelman lists some of the methods of avoiding 'cybercheating'. These are from the Bruce Leland home page at www.wiu.edu/users/mfbhl/witu/plagiarism.htm :

Faculty should visit sites of papers to see what is being written.

Faulty work on such sites should be pointed out to students.

Students should be encouraged to use web sites but at the same time point out the

importance of scholarly attribution.

Faculty should set assessments which are on generic subjects using narrow or highly specific subjects which are difficult to replicate.

Plagiarism is an ethical/moral problem and ethics and morals are constantly changing. Should universities be obliged to teach this, and what attitudes are set in the sixth-form colleges and in the outside world generally? It is not uncommon to be told by students from their previous experiences that it is considered acceptable at 'A' level to plagiarise in non-assessed work but not in assessed work. Some work on computer ethics has been investigated by Wong (1995), although sadly this did not include plagiarism. The work looks at computer ethics amongst Hong Kong students. It reveals that undergraduate students saw nothing wrong in copying software, although after a six weeks course on computer ethics some change in attitude was seen. Arguably, such ethical considerations should be incorporated into skills work with all students.

How electronic data available via the Internet is changing patterns of use of 'bricks and mortar' libraries.

The nature of libraries is certainly changing due to the availability of electronic information - the cabinets of index cards that formed the catalogue in the academic libraries of twenty years ago were first replaced by microfiche, then by dedicated terminals with the electronic index, and now replaced by PCs linked to the CD-ROM servers and the Internet. Of the two academic libraries in Leicester, one has replaced book space with PCs and the other has devoted its considerable extension (approximately half as big again) to computers and discussion areas rather than to books. Students who (increasingly) are in paid employment may not necessarily be able to attend the library during 'normal hours' and so need more flexible access to information.

A survey of a 1000 Americans by the Benton Foundation quoted by Bales (1998) found that the 18-24 age group were unenthusiastic about libraries in their current form, and gave little support to the idea of maintaining library buildings in the context of a digital future

It has been shown in Scotland that electronic catalogues can successfully be brought together - 'clumped' (see Nicholson & Stewart (1998)) - and then searched as though they were one catalogue. The UK, with the technological infrastructure of JANET linking 180 higher education and research institutions together with links to the Internet, is in a good position to create the 'National Electronic Library' (see Breaks (1998)), and most universities have institutional networks to take its services to students and other potential users..

The 1997 work of MaCarthy, Krausse and Little looked at the 'Expectations and Effectiveness' of using CD-ROM databases at the University of Rhode Island (URI). They found that of the 489 undergraduates surveyed 85% had used the CD-ROMs, of the undergraduates, 40% had used them 2-5 times in the that year, 31% 6-10 times, 15% 11-20 times, and 14% 21+ times. When asked "Which do you prefer, the CD-ROM version or the printed version?", 85% preferred the CD-ROM version listing such reasons as faster, more efficient, and better access. A few did not even know that printed versions existed.

In the survey of Internet use at Seton Hall University reported by Bao (1998), 596 undergraduate 160 graduate and 30 staff were surveyed. Those surveyed were studying in a number of fields, although unfortunately law was not one of them. The survey showed that of the undergraduates, 31% used the web daily, 30% weekly, 8% monthly, and 1% on a yearly basis. 4% seldom used the web and only 2% not at all. 64% used it for nformation relating to academic studies, and 58% for information not relating to academic studies. The time spent on the web to obtain satisfactory results per session for undergraduates was 5-10 minutes 4%, 11-20 minutes 18%, 21-30 minutes 24%, and 31+ minutes 24%. The three major problems identified by the undergraduates were: 'Do not find information

needed' 38%, 'Not full information' 34%, and 'Too many hits' 29%. The most popular way to search the web was using Internet search engines at 65% followed by entering URLs (web addresses) at 49%. When asked who should be teaching them about the Internet, their academics and computer services came out top with 35% each, with librarians at 12% and others at 10%. This survey makes very interesting reading and thoughts of what a similar survey would produce at DMU arose.

A pilot questionnaire has been used to investigate use of the library and CRC within the School of Law. The students surveyed said that, of the total time spent in the Library and CRC, they spent on average 36% of the time in the library and 64% in the CRC. In the library, 14% of time was spent using books, 41% with journals, 23% of the time with Law Reports, 8% of the time word processing, and 5% with other electronic forms of information such as the WWW. In the CRC, 36% of the time was spent with the All England Law Reports, 11% with word processing, 37% of the time with e-mail, and 16% with other forms of electronic information such as the WWW. These results are summarised in Fig 2. They represent at present only a small number of replies from the total student body and only students that were in the CRC. There may have been a confusion between what was meant by Journals and Law Reports but it does seem that students use the library mostly for printed materials. Student use of the All Englands in the CRC seems high when compared with the use recorded earlier (fig 1) but as noted earlier its use is much higher at some times of the year compared with others. These preliminary results are interesting but further investigation is required. More students need to be involved as do library staff if the definitive picture is to be revealed.

A number of people have discussed new standards and definitions of law libraries which will need to be produced when large part of library holdings are virtual (see Daly (1995)) and available not only in the physical library but at home, in the office, or computer centre.

'A recent cost-benefit analysis comparing on-line legal information sources to traditional hard-copy materials notes a number of cost savings inherent in on-line services: charges are incurred only for what the patron/searcher actually uses, as opposed to fixed costs of subscription that are incurred whether or not the material is ever used; there are no costs for maintenance (eg receipting, claiming, filing); and storage costs are drastically reduced. This same analysis notes: "By relying on on-line services for certain titles, the library may be able to cancel some expensive textual sources and save the cost of housing, updating, and storing the materials". Perhaps so, but not if library quality is still measured by volume count and if accrediting agencies require duplication of formats'.
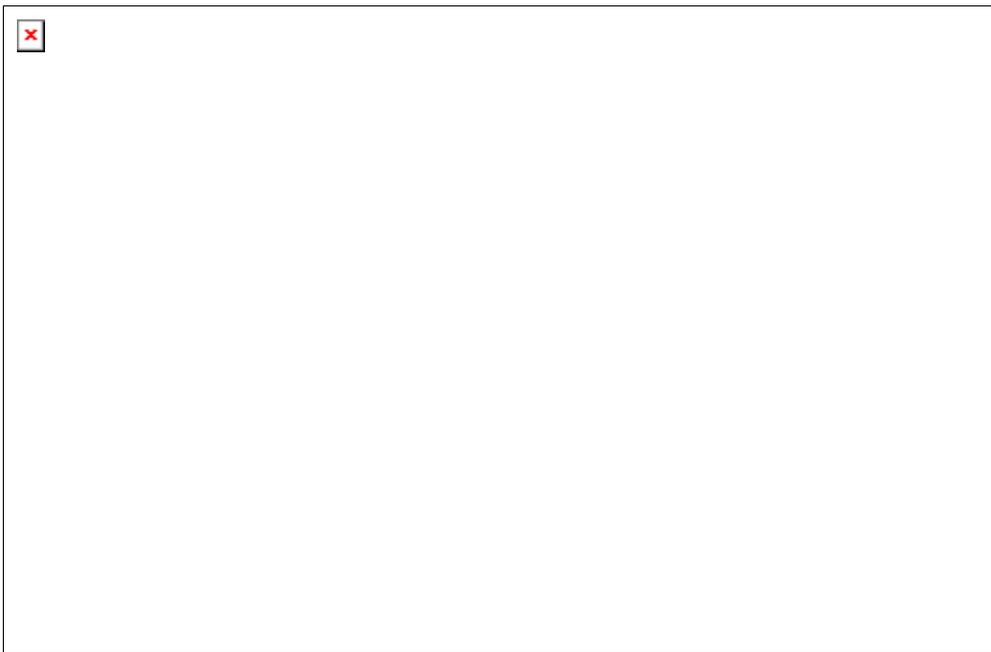
Figure 2

Some thoughts on good practice in research techniques for undergraduates in the use of electronic data.

Colin Johnston (1998) cites as an example that the Internet 'can be a singularly inappropriate place to look for information' the problem of finding the date of the Battle of Trafalgar. After a twenty minute search that revealed a school project, a game and a picture of Nelson's Column the answer was found but the same information could be found in 20 seconds from the Enclopedia Britannica (printed version). By contrast, when I recently needed the name of a Susan Vega song with the word

'green' in its title (to help someone with a charity quiz) it took me only two minutes with the web, not moving from my desk. It is clear that sometimes the Internet is the solution and sometimes it is not, so the question arises whether is it becoming more useful.

It is appreciated by Sloane (1997) that the information on the web is not appropriate or does not exist for all learning situations, but where it does then use of the web can be beneficial.

For this to be true, tutors must:

- Ensure there is an adequate range of material available. What are the best sources from coverage ease of use. Research has been done on this topic eg a comparison of newspapers is given by Cree & Lees (1998b).
- Ensure that information about what are the appropriate search engines is known. There has been work on this topic eg a 'current' article is by Cree & Lees (1998a) and which looks at different search engines and notes that the ideal search can change from week to week.
- Try to eliminate of distractions. Reducing the misuse of information (see Bastardi & Shafir (1998)). Perhaps limiting sites with software.
- Provide help in the form of humans. Students seem to want help from tutors in the topic they are studying.

Students must be taught the basic skills of using electronic information, where it is to be found, how it is to be found, and how it should be used. Free-standing skills modules can be off putting so the skills should be included in subject modules.

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Conclusion

Electronic information is with us for good or ill and we must learn to live with it. The nature of libraries and those who work in them are also changing. The bricks and mortar library is being supplemented and in some cases replaced with virtual holdings. Students are making much use of the electronic forms of data and its availability fits with the changing nature of the students' experience. Students, it would seem, need to be taught about research skills and in addition there is evidence that students wish their subject tutors to teach them about technology. This argument is somewhat analogous to the question whether EU Law should be taught as a separate module or incorporated into other modules - the answer is the same, ie it depends on the institution. There is some evidence that students are unaware of the extent of the librarians' role (at least beyond the merely administrative - stamp your book, make you pay a fine, tell you to be quiet, etc). In reality they are keepers and providers of information. Although universities must provide the right scaffolding for the use of electronic information, much of the debate would seem to about what IT skills should be and how should teach them. Librarians want to teach these skills but so do information technologists (perhaps the two will become one in due course). If this work is to be carried forward then wider co-operation between library staff, technical staff, subject academics and students must be developed and encouraged.

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