

The Internet: Teaching Students to Evaluate this Communication and Research Resource

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ABSTRACT

The use of the Internet has grown exponentially as access has become easier and more generally available. Its potential to provide a range of educational, business, community and personal applications is widely recognised. The promotion of the Internet as a communication and research resource to support education and training programmes is also well developed. At tertiary education institutions in New Zealand, students are given access to the Internet to support their communication and research needs. Their access may be unlimited, or may be restricted by time, location or content.

This paper considers the role of the Internet as a technology for education, and the advantages and disadvantages of using the Internet as an educational resource to support students' communication and research needs. The main difficulties identified are ensuring equitable access to this resource, enforcing appropriate use, and finding relevant information and ensuring its credibility and currency. The overall conclusion is that using the Internet provides effective communication mechanisms, and

cost- and time-effective access to global information resources, however students require some direct training to be able to make optimum use of the technology. This training can be integrated into courses using Internet technology itself.

KEYWORDS

Internet, research, critical thinking, information, evaluation of information

1. INTRODUCTION

As the Internet developed, information was gathered and stored online, accessible in various different ways through connected computers all over the world. The growth in use and the recognition of the Internet's significance led to the evolution of interfaces enabling easier access to the stored information and the development of the World Wide Web. This has resulted in the creation of a huge number of web sites by individuals and organisations to support various aims and purposes, and which provide a wide range of information. Negroponte commented "the Internet provides a new medium for reaching out to find

knowledge and meaning.” (1995, p.202) and certainly in the context of education the Internet is now widely viewed as a technology that can be used to support student communication and research needs.

The Internet can be considered as an education technology system, providing both communication and information resource functionality. It can be analysed in the context of the four critical factors of an education system specified by Vygotsky (1978): learners, teachers, problems, and knowledge, and in conjunction with the communications functions of transmission, storage and processing. The concept of the zone of proximal development (ZPD) described by Vygotsky can be used to design appropriate situations during which the student can be provided the necessary support for optimal learning. Ideally, learning should take place in meaningful contexts, preferably the context in which the knowledge is to be applied.

Students are required to carry out research into various topics as part of assessment work undertaken to demonstrate competency in a number of subject areas. In the past, most research was carried out and information gained in the context of access to traditional information sources such as teachers, peers, classroom resources, libraries, books, journals, newspapers, and other resources within the community.

The development of the Internet as a communication and information resource has provided another dimension to student research activities, enabling them to both study this new communication and information technology and also incorporate it as the mechanism enabling the study. In other words, they use the Internet to learn what they need to know about using the Internet.

This paper considers how communication and information searching functions accessed through the Internet provide support for student communication and research needs and how these can be used most effectively. It examines the issues of credibility, currency and cost in the evaluation of information and information sources and offers some suggestions for appropriate training for students in using this learning resource.

2. COMMUNICATION AND

CREDIBILITY IN CYBERSPACE

As the Internet continued to develop as a communication and information resource, the status of information accessed in this way was questioned. Spender outlined the difficulty “Academic knowledge, along with the academics themselves, has historically enjoyed greater authority and prestige than the information presented in the mass media. But now ... There’s the Internet as well. ... What veracity goes with announcements of breakthroughs on the World Wide Web? This is the crux of the problem.” (1995, p.121).

The Internet is now often seen as just the World Wide Web and this part is viewed as providing the primary research resources. However there are other, earlier vast resources - databases, usegroups etc that are accessible through the Internet and which also provide valuable resources for research. The main problems are finding relevant information, and ensuring its credibility and currency. Stenmark, in a paper studying search engines and possible improvements to these, commented “finding things on the web is a problem that grows with the web itself” (1997, p1). He suggested the development of new search tools, based on visualisation techniques and relevance feedback, to help with navigation and selection.

Dyson commented “it may be fun to surf the Net and follow things randomly, but there’s value in structure. The Net is a playground of entropy - the structurelessness that occurs when energy dissipates from a system. Yes, the Net also fosters self-organisation, when individuals apply their energy, selecting and filtering information for others (aided by search and filtering tools). But there’s rarely much internal structure to what’s selected; the structures created by links are usually webs of cross-references rather than a clarifying analytical framework.” (1998, p.112).

Changes have occurred in the way research is carried out and published. Luke commented “computer-mediated communication and multimedia also are beginning to press our print-centred understandings of academic research to the limit. Learned discourse is already adapting to the on-line salon of email exchanges, chat rooms, user groups and list serves in ways that are accelerating the diffusion on research results, broadening access to scholarly debate, redefining the agendas of research programmes, and eroding the closed authority of disciplinary experts.” (1998, p.68).

There are a large number of educational web sites that recognise the problems, and attempt to address these, often through extension of their library services. For example, a selection from a number of university and other tertiary education sites provides the following useful resources for teachers and students:

Beck (1998) compared research on the Internet to the uncertainty of mining for gold or dross and suggested various strategies for researchers to follow. Beck has developed an online web resource “The Good, the Bad and the Ugly or Why It’s a Good Idea to Evaluate Web Sources” providing examples, criteria and a list of further resources to follow (New Mexico State University).

Grassian (1995, 1997) developed useful checklists “Thinking Critically about World Wide Web Resources” (University of California Los Angeles College Library).

The McIntyre Library at the University of Wisconsin provides ‘The Ten C’s for Evaluating Internet Sources: content, credibility, critical thinking, copyright, citation, continuity, censorship, connectivity, comparability and context’ (UWEC, McIntyre Library, 2000).

Smith developed “Criteria for evaluation of Internet Information Resources. A ‘toolbox’ of criteria that enable Internet information sources to be evaluated for use in libraries, and helping users evaluate information found” (Victoria University of Wellington, Library and Information Systems, 1997).

These are just a few examples of what is available and easily accessible online. The problems are now recognised widely, and there are a large number of other reputable sites which can easily be found and accessed, and which provide similar approaches.

It is useful to consider that the concept of “the Internet as an education technology” provides not only the communication infrastructure and an information resource but also access to specific material which helps students and teachers critically evaluate what they are doing when accessing information. This approach fits with and reflects Vygotsky’s zone of proximal development concept, as the required knowledge is available openly through the Internet itself in a large number of different places.

3. A POLYTECHNIC EXAMPLE

As at many other tertiary educational institutions, students at Whitireia Polytechnic are given access

to the institution’s network system, email facility, and the Internet. These facilities are controlled and managed by a global Computer Services unit. Before access is enabled students are required to read and indicate understanding of the institution’s policy and regulations surrounding the use of the computer system.

In relation to the Internet as a communication medium, students are given instruction in how to use email and a number of programmes of study include specific units covering this topic. They are also advised on the generally accepted etiquette for use. It is suggested they regard email as a “postcard” rather than a confidential, sealed letter, and advised that email messages may be monitored by Computer Services. The dangers of email, including how misinterpretation of messages can easily occur due to the asynchronous nature of email, its informal character and ease of use, and its loss of physical cues, are discussed with students.

At present list serves and noticeboards are available but chat is not permitted. Staff and students would like access to this facility to provide another channel for course-related discussion and this appears reasonable given the general development and use occurring with such technologies. The polytechnic is currently evaluating two applications designed to help tutors develop online material more easily and both include chat functionality. Protocols in using this facility will be developed as part of access procedures for staff and students.

The majority of students are also given access to the Internet through a World Wide Web browser but the amount of direct instruction in how to use this resource varies widely between programmes. Access for all users is managed and monitored by Border Manager, an application which can restrict access to certain categories of web site deemed not relevant to course work, or offensive or illegal.

Gaining access to Internet enabled computers does not appear to be a major problem although at some times there is great demand. Whitireia does not provide 24-access to computer suites however there is some after-hours access during the week and at the weekend. A number of problems have surfaced at Whitireia in granting open access to all students. In particular, there have been concerns about students’

lack of knowledge about efficient and effective search techniques, information overload, plagiarism issues and lack of knowledge about correct referencing of material, and slow Internet access due to insufficient bandwidth. Some problems relating to addiction to accessing the Internet are suspected, but no accurate data exists on this yet.

The need to provide direct instruction for students in completing effective online research is recognised at Whitireia and is under review in a number of areas. As the use of online referenced material grows, staff and students must develop effective skills in evaluating the worth, validity, credibility and currency of this content. Knowledge of information sources on the Internet other than web pages is also required.

4. CONCLUSION

"... many new web users are often shocked to find out that the World Wide Web is not an online encyclopaedia, where information on absolutely anything is available in an instant. The Web is simply a reflection of what we as an online community have chosen to put online ... In terms of education, there's a wealth of resources online ... assuming you can separate the occasional nuggets of informational gold from the evergrowing glut of cyberdebris (Carvin, 1999)."

In conclusion, it is clear that access to the Internet provides students with a valuable communication and research tool. The main difficulties identified are ensuring equitable access to this resource, enforcing appropriate use, and finding and evaluating relevant information. It is critical that students learn to evaluate both the source they are accessing and the information content. Just as students are taught the difference between information sourced from a reputable text or journal and a tabloid newspaper, they must be taught to evaluate information they find on the Internet. An appropriate approach is to include, as part of training in how to use the Internet, education and training in critical thinking and evaluation of information gained through this Internet access.

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