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Innovations on the Internet

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In introducing the Information Technology column in the June 1988 issue of *Health Libraries Review,* Nicky Whitsed said of IT:

> 'These days it is hard to look anywhere without encountering the impact of information technology. Whether at home, at work, in education and training, leisure or politics, the subject is all pervading.'[1]

The same can, of course, be said today of the Internet. Hailed as a revolutionary new information medium, few could argue that we can do without it.

For the same reason, *Health Libraries Review* is launching 'Innovations on the Internet', a new series covering projects and services. As information professionals we are inevitably drawn to embrace the power of the new medium and to shape its development, as it begins to complement and at times to supplant the print medium as the conduit for information of all types and descriptions. It will be the purpose of this series to highlight innovative projects and initiatives originating in the UK health and medical library and information community. In a climate of perpetual change, it will aim to encourage the dissemination of experience gained. Unsolicited contributions will be welcome.

It was with the intention to harness the potential of IT-based solutions that the Electronic Libraries Programme (eLib)[2] was funded by the Higher Education funding bodies, following the publication of the Follett Report,[3] a key conclusion of which was that:

> 'The exploitation of IT is essential to create the effective library service of the future'.

As the first phase of the Programme nears its end, it will be of interest to see how the vision that unleashed an unprecedented £15 million translates into practice. In our own field of health and medicine, OMNI (Organising Medical Networked Information) has been a key eLib project and has sought to build a gateway to high quality networked information resources. In the first article of the series, Sue Welsh (OMNI Project Manager) looks at how the project has matured and what it hopes to achieve in the coming year.

A common theme discussed by both papers featured here is the issue of the quality of the information that is so readily accessible over the Internet. Many are convinced that without some form of selection, evaluation and organization, access to its rich seams of truly authoritative information will be hampered by time-consuming, serendipitous surfing. Concerns have been particularly strongly voiced about the veracity of claims pertaining to patient-orientated information.[4] The paper by Donald Mackay (Librarian,

HEBS) and Jane Sutton-Curr (Database Manager, HEBS) illustrates how such concerns are addressed in the development of HEBSWeb, a service offered by the Health Education Board for Scotland that aims to make health education information available to both health professionals and the public.

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OMNI: Organising Medical Networked Information

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Quality issues

Since the birth of the OMNI Project in 1995, the Internet has been through a lot. It has grown, diversified, become the latest buzzword and begun to fall from grace all in the space of less than 2 years. Sometimes, what seemed to begin as enthusiasm for free information appeared to have given way to gawping at the technology. In 1997, however, the evidence is there that for many Internet users, information quality is a real issue (see the Health On the Net (HON) Code of Conduct[1] and the British Healthcare Internet Association recommendations for Web publishing,[2] for example).

Concerns about quality have also been the driving force behind OMNI's activities. Far from being just another unevaluated list of sites, we have attempted to break the mould by drawing up and putting into practice detailed guidelines for resource selection.[3] These guidelines have been developed by our Advisory Group for Evaluation Criteria, who have recently established a Web presence on the OMNI server.[4]

In the future, OMNI will work with groups such as the British Healthcare Internet Association and others to bring an end-user dimension to the selection and evaluation of resources.

Building the OMNI databases

During the first 2 years of the project, building up the OMNI database has been our primary objective. When the OMNI Web site[5] was launched in November 1995, we had a small database of less than 300 resources. In April 1997 the core OMNI databases held rec-

ords for 1500 resources, each with a title, descriptive paragraph, MeSH indexing and URL, as well as other background information such as administration contact and publisher. By the time this paper is published, over 2000 items will be included.[6]

Additionally, alternative methods of creating metadata are being investigated. Automatic harvesting of data contained within the resource itself is nothing new, indeed, many of the most popular general search engines are made that way. OMNI has recently begun a collaborative Harvest experiment, creating records automatically from lists of resources suggested by subject experts.[7] Because the records are created automatically the process is very much quicker, but as they are compiled from selections made by subject specialists, the important process of evaluation is still built in. The OMNI Harvester can create a full text index of thousands of Web pages with no human intervention, and also check that those Web pages are still live, as often as we like.

The frustration of finding a Web page that has useful information and then returning later to find it has disappeared is commonplace on the Web, and keeping the main OMNI databases up-to-date is time-consuming. Regular sweeps are made, however, to ensure that our links remain live. The challenge in the future will be to find ways of establishing not only that a resource still exists, but also whether or not it has changed substantially since being added to the database.

In the future, OMNI will work towards integrating the Harvester and the main OMNI databases so that both can be searched simultaneously. The Harvester will also be expanded to cover more subject areas. In our vision, a user will search OMNI and retrieve evaluated, fully described resources first, backed up by hits from the Harvester.

Collaboration with other JISC-funded projects in our subject area is essential if our users are to be well served. It is now possible to search the DERWeb[8] dental image library through OMNI, either while searching OMNI's databases or separately, and we hope that this model of collaboration will be extended to other projects in the future. In addition, many subject gateways in Europe and further afield are engaged in similar activities. As rivals, much effort is wasted in each covering the same ground—in collaboration, much more may be achieved. Our long-term aim is to promote cross-database searching, thus removing the need for our users to visit many gateways to carry out an exhaustive search.

Training and awareness

OMNI's training programme has been necessarily curtailed by lack of funding, but we have still held a number of well-attended events for medical librarians[9] and two successful seminars[10,11] during the first 2 years of the project. Training will be a key activity in our third year; in May a substantial reorganization allowed us to expand and freed resources for this area. Watch the *OMNI Newsletter*[12] for more information.

Our publishing efforts have been centred around the OMNI booklet '*Internet Resources for Medicine and Bioscience*' aimed at introducing new users to the variety of services available to them. Now in its third edition, this has proved an immensely popular tool with trainers and busy librarians alike. Versions covering more specific subject areas have been

requested, and these will begin to appear in the third year of the project. Contact us at leaflets@omni.ac.uk for details of what is currently available.

The future

OMNI was originally funded for 2 years, from June 1995 to May 1997. Along with the other Access to Network Resources projects in eLib, its future has come under review. Interim funding until May 1998 has now been awarded, but in the future it is probable that we will need to attract some sponsorship from the commercial sector. Partnerships with the medical library community are vital to OMNI, and will continue to be so. It is hoped that the increasing number of users who access OMNI every month will receive a service which is driven by quality and focused towards the UK medical community.

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Hypertext links from HEBSWeb—a protocol to evaluate Internet resources

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As part of the Co-operative Health Information Network community Scotland (CHINs) the Health Education Board for Scotland was charged with using the Internet as a means of delivering health education to health professionals and the general public. As a result, HEBSWeb was launched in November 1996. The site offers HEBS advan-

tages in terms of improved communications and will develop into a well-used resource that enhances HEBS outputs significantly through improved delivery of information. It has taken many months to research and put together and will be constantly developed, enhanced and evaluated. Further information on the background and development of HEBSWeb can be found elsewhere in this issue.[1]

The World Wide Web (WWW) is an interactive arena which gives the user access to a vast amount of information and the ability to move around very easily from one Web site or resource to another. As a site on the WWW, HEBSWeb offers not only a wealth of information in itself but also the opportunity to gather information from many other Web resources. The HEBSWeb Steering Group felt that it would be useful to provide hypertext links from HEBSWeb to other sites of potential interest to users of HEBSWeb. As there are now so many Web sites in existence it is important that links are created only to those sites of a very high standard.

As other writers[2] have pointed out, the quantity of information on the Internet is unfortunately no assurance of quality. Virtually anyone can produce Web pages these days and a major problem for those seeking worthwhile and quality sources of information is the amount of trivial, inaccurate and out-of-date information that a search can produce. There are, of course, a large number of search engines and subject-based catalogues in existence on the Internet. However with a few notable exceptions, such as OMNI and Medical Matrix, the criteria used by many are often vague or seem to place more emphasis on the look of the site rather than the quality and accuracy of its content.[3] HEBS has a statutory duty to provide accurate information, so the accuracy of information contained within sites to which HEBSWeb is linked is paramount.

In light of this, it was decided that a set of criteria should be drawn up to which any sites or resources linked from HEBSWeb should comply. The problem of quality versus quantity on the Internet is fairly universal and a number of individuals and organizations have produced work in this area.[4–11] This work was drawn upon in the creation of the document below as were the standard evaluation criteria applied to print media.

The document will be used by a wide range of HEBS staff and possibly act as a template for other organizations, therefore, it was felt that the document should be as clear and concise as possible and include a summary. What follows are abbreviated versions of the current document and the checklist produced. It is anticipated that a disclaimer will be added to the site, stating clearly that a link from HEBSWeb in no way indicates that all of the material on the site is endorsed by HEBS.

HEBSWeb hypertext links

Criteria and considerations for evaluation of Internet resources

The following is a list of essential criteria and secondary factors which should be applied to potentially suitable, quality WWW sites to which HEBSWeb users could have access by hypertext links from HEBSWeb. It should be noted that Internet

resources do not necessarily have to meet the same high publishing standards as print material and that material can be published very quickly on the WWW and easily changed or removed.

Given the lack of standards, the volatile environment and the wealth of information which may be stored on any site, it would be impossible for HEBS staff to check all information held at sites to which links are created or to offer any absolute assurance of quality regarding material provided in such resources. In any case the very nature of the WWW encourages continuous linking from one site to another making it impossible to prevent users having eventual access to potentially 'undesirable' material.

As a final check on the quality of resources accessible from HEBSWeb, two members of the HEBSWeb Steering Group will act as 'gatekeepers'. When a suitable site has been judged to satisfy the following criteria by a member of HEBS staff, its URL and a brief outline of its content should be forwarded to these individuals who will then check the site before a hypertext link is created by the Information Services Manager.

Criteria

Relevance. Links maintained from HEBSWeb should be links to health promotion or health education resources or organizations of interest to potential users of HEBSWeb. This includes consumer health information resources. Whenever possible resources chosen should be based in the United Kingdom to ensure a reasonable response time, however, the Internet is a global resource and relevant sites from abroad should also be considered.

Authority. Links should only be made to sites which have been produced by a recognized professional association, reputable charity or independent organization. In each case it is worth considering whether it is an organization with which HEBS would form a partnership. Examples of appropriate organizations may include the BMA, the Terrence Higgins Trust, ASH or the Imperial Cancer Research Fund.

It is important that the organization has taken clear and unambiguous responsibility for the site. In general, links should not be made to sites created by individuals.

Content. What type of information does the site contain? It should primarily contain original work rather than consisting of bibliographic details or a list of links to other sites. It is frustrating when seeking resources on the WWW to move from one site to another only to find it does not actually contain much full-text information. Having access to bibliographic details may also prove frustrating if resources are then not immediately available. There are, however, quality Web sites such as OMNI which are primarily concerned with providing access to other sites and cannot be discounted as useful resources.

It is important to consider whether the information provided is objective, factual material or just somebody's opinion; individuals often set up their own pages within the web site of an organization. HEBS also needs to be wary of creating links to sites pub-

lished or sponsored by commercial organizations, because material may be biased towards their products or services.

Accuracy. As far as possible the information provided by the site should be checked for accuracy. However, as members of the HEBSWeb team do not have the time (or always the expertise) to check the accuracy of every piece of information provided, much reliance will have to be placed on the authority of the organization responsible for the site (see above).

Other factors for consideration

Audience. It is anticipated that HEBSWeb will be accessed by a wide range of user groups with varying levels of health-care knowledge. Therefore, it may not always be possible to find sites where relevant information is pitched at an ideal level for each user. Rather than discard potentially useful resources because of apparent incongruity between actual and intended audience, it is proposed that an indication may be made next to each link on HEBSWeb of the broad category of audience level, e.g. professional audience, public audience. Users would thereby have some idea in advance of the nature of the resource and could decide themselves whether or not to visit it.

Scope. It is important to consider what subject matter the site actually covers and to be aware of its limitations. In particular the breadth and depth of the resource need to be considered. Are all aspects of the topic dealt with and in how much detail?

Currency. Obviously, it is important to provide access to information that is as current as possible and to know when a resource was published. Some issues to consider are:

- Is the site a static one or is it kept up-to-date?
- Is any indication given regarding maintenance and stability of the site? (e.g. date of last update and contact name ?). HEBSWeb staff should make a periodic check of all links to ensure that sites still exist and retain their original integrity. Software is available which can check that sites still exist at a given URL.

Workability. Although the primary reason for maintaining a link to a site or resource should be the content of the resource, some attention should also be paid to the accessibility and user-friendliness of the resource. Issues to be considered include:

- Has the site been well designed?
- Is the information clearly laid out and easy to find?
- If there is a search engine is it easy to use?
- Is on-line help available?
- Does the site have a uniform look and feel?
- Are passwords and user IDs required to access the site?
- Does the site require special software (e.g. Adobe Acrobat Reader) or a particular type of browser?
- Is payment required to use the site?

Conclusion

While it is important that factors such as audience, scope, currency and workability are taken into account, a link should only be made from HEBSWeb to another site if the criteria for relevance, authority, content and accuracy have all been met.

CRITERIA AND CONSIDERATIONS FOR EVALUATING INTERNET RESOURCES: a checklist

Criteria

- **Relevance**
  The site should be a health promotion resource or produced by an organization of interest to potential users of HEBSWeb.
- **Authority**
  The site should be produced by a recognized association, charity or independent organization who has shown clear and unambiguous responsibility.
- **Content**
  The resource must contain objective and factual full-text information rather than be a list of links to other sites.
- **Accuracy**
  Links should be made only to resources containing accurate information. As this is very time-consuming to ascertain, it will rely, in most cases, upon the evaluation of the authority of the organization (see above).

Other factors for consideration

- **Audience**
  How appropriate is the level of the resource to the intended users?
- **Scope**
  To what degree is the subject matter covered and in how much detail?
- **Currency**
  Is the site kept up-to-date and is any indication given regarding its maintenance and stability?
- **Workability**
  Is the site user-friendly and easy to access?

The above criteria and considerations are currently being used to review links already in existence on HEBSWeb and will continue to be applied to other resources in the future. It is hoped that the document produced will prove useful both for HEBS and other organizations concerned with directing their users towards quality Web resources. HEBSWeb can be found at: http://www.hebs.scot.nhs.uk/

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