

# Preparing a web site to support pedagogical content for health service managers and nurses

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## Abstract

This paper outlines the present opportunity for universities to support health service managers and nurses in using the WWW and Intranets to enhance develop their continuing professional development. The paper then offers design guidance for the building of web sites to support educational products.

## Introduction

Health Care Managers and Nurses in the United Kingdom are facing the challenge of using the WWW (WWW) to help them enhance their professional practice. This has been prompted by a range of pressures which include:

- the introduction of Web technologies into the National Health Service (NHS Executive's Information Management Group);
- an increasing emphasis for using the web to support learning on University programmes and,
- the pressure to join in the WWW revolution by accessing it at home.

We have observed through teaching on open and distance learning, under / post graduate programmes that UK Health Care managers and nurses who do not work directly in information management are only beginning to use the WWW for their own professional development. However the UK's National Health Service (NHS) has now established a protected Intranet for the whole organisation (which is known as NHSNet).

The use of this IT infrastructure is limited by cost and major cultural concerns regarding sharing patient data electronically (Eaton, L. 1997). The current reality is that most health care managers and nurses are supported by older IT systems installed during the 1980s and early 1990s. A major frustration for these two groups is the continued growth in the home PC market and the ability of the health care professional to have access to the WWW at home but probably not at work.

The NHS during 1997 and 1998 reviewed its strategy for Information Management and Technology. This review was strongly influenced by the change of UK government in May 1997 and the following publication of the new Labour government's major policy document *The New NHS – Modern and Dependable* (Department of Health, 1997). There was a recognition here, that the ability of the NHS in remaining a national system, responsive to patient and public demand, partly depended on information technology. The implication here is that the health care professional should be able to use the potential of the NHSNet and the public WWW to speed up communication and enhance their practice. The long-term goal of the NHS is to establish virtual communities of health care organisations who can interrogate each other's computer databases. At present this is only happening on a pilot basis in some areas of the UK (Cross, 1998).

Universities have therefore a major role and opportunity to prepare the two identified professional groups, to integrate WWW searching and communication techniques into their professional development.

The implied expectations now made of most health care professionals by their employers and their professional bodies / associations are to:

- base their clinical and managerial practice on high quality research;
- develop strong professional networks;

- and to be able to communicate far more rapidly across health and social care organisations.

The individual and organisational capacity to address these increasing expectations can be increased if a healthcare professional with their colleagues can effectively use WWW technologies whether on the public WWW or using the NHSNet.

## Open / Distance Learning and the WWW

This has created a challenge to the open and distance learner, which the tutor must support if the learner is to successfully address this challenge (Daloz 1986).

Open Learning is empowering, allowing students to develop themselves and become autonomous practitioners and critical thinkers (Cassidy & Lucas 1998). This belief is congruent with Daloz (1986) who believes that success (in terms of change) can only be achieved if there is maximum support alongside maximum challenge.

The use of a tool, which can further develop these skills, can enhance the learning experience and create more support and challenge. A web site can be one tool to which the tutor turns to support the student to become more adventurous in their exploration of knowledge thus enhancing the challenge. Equally this tool could supplant the tutor by itself being supportive and challenging. The WWW poses a great challenge to health care professionals therefore the key to the support must be the design of the web site itself.

## Web site design to support educational products and programmes

With simple inexpensive tools anyone can publish on the Web in a few hours. This immediacy fosters dynamism, creativity and chaos. Almost infinite variety is a defining characteristic of the Web but consistency can not be expected. When variety means unreadable, slow and confusing the reader is unlikely to benefit. Just as in movie making, there are key principles which should be followed, 1,000's of cheap camcorders do not make thousands of Steven Spielbergs, the same is true of Web authoring, thousands of authors have created thousands of pages of rubbish.

For designers of educational material, this is especially salient. The interface should engage the student, not alienate them.

So are there style rules for the uninitiated? In fact there are, one of the best is written by Tim Berners-Lee (1998), the present director of the Consortia (W3C). Some of his suggestions are considered under the following headings:

- Structure
- Layout
- Size of documents
- Whether to refer to another document or copy it
- Printing and the relationship with print documents.

These considerations, and some of Berners-Lee's advice in each section, are discussed below.

### Structure

Educators will have a clear body of information to communicate. Berners-Lee recommends the retention of this structure, without it readers don't know where they are and cannot plan ahead. The author should also consider the readers' previous knowledge of the subject. If they are newcomers, then the organisation of knowledge may be as important as the knowledge itself. Conversely, knowledgeable students may find a rigid, linear framework off putting. Overlapping content with different starting points and layout, which reflects prior knowledge can accommodate each. For example a beginners page may be devoted to the structure of the cell, a graphical representation may be used with labels, which are hyperlinks to separate pages on each of the specific structures within the cell. The advanced reader may simply choose structures from an alphabetical list and go straight to the same content as the beginner, without having to navigate content already known to them.

Tables of contents (TOC) with annotated notes for each section provide a "road map", whose potential to promote cognitive organisation may be enhanced by the use of visual aids or metaphors.

### Layout

Learning materials should be consistent and rigorous. Clear signposting is necessary as readers may not be able to distinguish essential reading from non-essential, or activities from information summaries. Headings, icons and button bars which signpost parent, same level and child level pages are all useful ways to identify sections and permit navigation between documents.

Some students may leap straight into a later section of your work without completing the previous section. You may wish to prevent this by using passwords that require completion of the previous page, or you may welcome it. If the latter, you must ensure that the content is not without context, i.e. it should relate back to earlier principles, perhaps by making reference to these in the opening remarks.

## Size of the document

Large documents are slow to download, cumbersome and off-putting. However, there is no point breaking up an idea into bite size chunks that leave the reader frustrated or with an incomplete grasp. Ideally, a well-laid out page will take up no more than a screen and a half, permitting scrolling whilst retaining context.

Pictures and graphics should be as small as possible, with reduced colour depth and saved in a compressed form. Thumbnail images which hyperlink to larger images are good practice.

Some web authoring packages enable the use of frames, themes, Java and more. These are never necessary and rarely useful. They add complexity and reduce speed, and most browsers cannot handle them. Significantly, the W3org web site is one of the clearest and the most basic available, suggesting this is the way to do it!

## Refer or Copy?

Much of the added value on an educational web site will be the hyperlinks to external documents, this can save money, time and provide information of a richness well beyond the parameters of your project. Hyperlinking is acceptable practice, as with very few exceptions it is not regarded as publishing or a copyright infringement. Copying content is likely to be an infringement of copyright. Even when this not a problem, copying will date your web site as most web pages don't remain unchanged for long. Brake (1998) cites a study that showed that on average web pages were updated within 75 days of publication, with some lasting only 10 days.

## Printing and the relationship with print documents

Most if not all print documents can be turned into web pages. Any documents in electronic form, such as word-processed documents can be converted easily. Presentations such as PowerPoint can also be converted for web display. Printed documents can be added via a scanner and displayed as pictures, as readable documents in PDF format or even as elements within a new document.

Web browsers are able to print out what is shown on the screen, with a few exceptions. Image files are not usually printed, and the content of documents hyperlinked from the printed document are likewise unavailable to the reader. If readers are likely to print the entire document, it is useful to create a printable, single, long document for the purpose, and hyperlink it as such.

In direct contradiction to most Web content, the most user-friendly and effective communication is achieved through simple, consistent, well structured materials with a common interface and obvious sign posting and functionality. There is simply no need for animation, video or bandwidth hogging extras such as Java and Active X. And whilst computer enthusiasts may chafe, content must come before style every time!

## Conclusions

Most health care professionals are poorly served by electronic learning media, as the technology has been slow to catch on, access is restricted and most Universities catering for these customers have failed to see the potential of the Virtual classroom.

The easiest way to publish electronically is to use the Web, it enables media to be accessed from a distance or in the classroom, by students using cheap, almost ubiquitous computer facilities. Whilst multimedia publishing and videoconferencing are exciting, they are expensive, difficult to set up and represent major problems in terms of enabling students access from home.

Although we argue the medium is not the message, given that IT skills are now regarded as a core competence for an information based workforce, the opportunity to facilitate IT skills simultaneously with other programmed learning is too good an opportunity to be missed

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