

Accessibility, Social Sciences and the Development of Content Management Systems

by Stuart Smith*

The World Wide Web is a remarkable medium, which allows the wide spread expression of information, opinion and debate as well as facilitating commerce, entertainment and many other forms of social activity. Educational institutions increasingly rely on the Web as a method of delivery of information for students. Most Further and Higher Educational establishments within the western hemisphere have large scale Web access. This access is increasingly spreading to schools and informal educational organisations, such as public libraries. With such wide scale access and reliance upon it for the delivery of information it was, perhaps, inevitable that the Web would fall increasingly under the control of legislation. Although the pace of development of the Web has been incredibly fast, this growth has many people in its wake: the disabled and other groups such as the elderly and the poor are finding access difficult. It has become clichéd to speak of the 'digital divide' (DDN, 2002) but it remains a very real risk for many sections of the academic community. Western countries are already enacting legislation to address this. However, if Web sites are to be truly accessible, particularly in the realm of education, academia must also address the technical and cultural issues that this enforced responsibility has raised.

To address this I wish to consider a particular example: the Manchester

InforMation Associated Services (MIMAS). MIMAS provides resources for a variety of data services, ranging from satellite to bibliographic. In essence, MIMAS is an umbrella organisation for a number of different services. These services in the main (with some exceptions) are funded to provide free access to data for UK academics. The Web provides support information about

the data services, such as how to register or how to use a particular service. In some instances, it provides access to the services themselves. However, this paper will only concern itself with issues surrounding the use of the Web to provide support materials. In effect, the MIMAS Web site is a primary site that provides overarching information for the data services and access to the data services Web sites (see fig 1.). Thus, whilst it is correct to describe a data service's site as being part of the MIMAS Web site it is also correct

to describe it as a Web site in its own right.

Traditionally employees of the data services have maintained these ancillary, but essential, Web services. Herein lies a problem for MIMAS when considering the management of its Web-based services. The staff members of data services are employed as 'content specialists', that is, they are considered experts in the field of a particular data service.

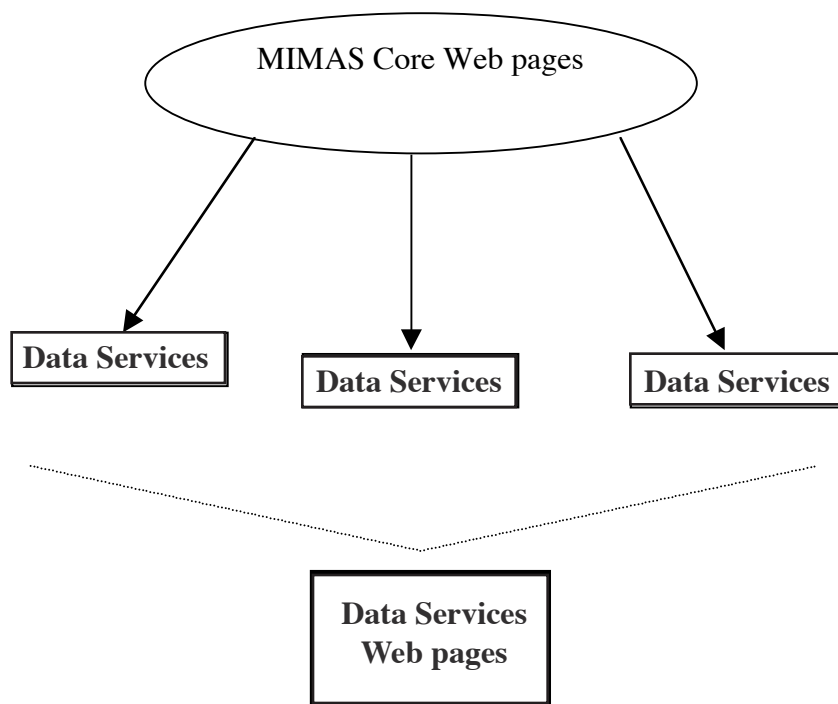


Fig 1. Top Level Structure of MIMAS Website

For example, librarians are usually involved in the Bibliographic services. If members of the various data services teams also happen to have a high ability in Web development, it is more of a happy coincidence than the result of direct planning. However, MIMAS expects its staff to produce and maintain Web sites. To meet this challenge employees without specialist Web skills have generally used WYSIWYG (What You See Is What You Get) Web editors to produce and maintain Web sites, rather than develop higher Web skills such as an understanding of HTML. This has resulted in a mixture of styles and standards within the MIMAS Web site. However, new legislation (SENDA, 2001) in the UK regarding the accessibility of educational facilities, which is similar to existing American legislation, means that this situation can no longer continue.

The organisation has considered various solutions. First was the retrofitting of the existing Web site. However, this itself is a massive undertaking since the site has never had any standards imposed upon it in terms of HTML versions and issues such as browser compatibility. The code that underpins the site varies greatly in quality and style. The use of WYSIWYG front-end editors, in particular, has led to HTML imbedded with ill thought out controls over style. The irony of this situation is that, originally, HTML was not intended to control the layout or style of a Web page (Siegel, 1996).

Effectively, HTML was originally a guide to the meaning or structure of a document: it pointed to which parts of a Web page were headers, which were lists, etc. However, it did not tell the local browser how to present the information. Choices like background colour and text size were left to the browser producers or to the users themselves through the preferences setting. However, as traditional print designers began to switch over to the Web they wanted their Web sites to be viewed as they wished them to be seen (Siegel, 1996, p21). Initially hacking and reinterpreting the original purpose of HTML achieved this. For example, tables were used to control layout, when their original purpose was actually to present tabular data. HTML, a language originally intended to describe the arrangement of content, was now bastardised to produce the layout as well. Developers took this increasingly further without really expressing any concern for those who had relied on the simplicity of original HTML to access information.

As the Web became a commercial medium, the situation became more complex. Web developers demanded the opportunity to present other media such as animation and video. Technology responded without restraint. There were very exciting developments but increasingly it left behind those who relied on access technology or had low bandwidth connections.

Educational organisations such as MIMAS, without

commercial sector resources, were still expected to produce Web sites that, above all, were attractive to the eye. The obvious solution for many of MIMAS's content orientated developers in this atheistically dominated market was the adoption of WYSIWYGs. Unfortunately, the use of different brands of WYSIWYGs and other HTML editors and versions across the Web site by developers with little knowledge of HTML has resulted in a poorly planned site. It also ignores issues such as interface functionality or content construction. The advent of UK accessibility legislation (SENDA, 2001), which came into force in September 2002, has left MIMAS with no option but to review its entire Web strategy.

The organisation now recognises that it must find a long-term sustainable solution to this situation. It also realises that a rushed decision will lead to a continuation of the problems the organisation already faces with its Web services. However, as a short-term measure, it will retrofit the existing site to meet the Level 1 guidelines of the World Wide Web Consortium (W3C, 2000).

The W3C is generally considered the authority on HTML coding guidelines, especially accessibility. In general, these guidelines recognise that creators wish to control the appearance of their Web sites and that it is legitimate for the user to remove or adapt these controls should they interfere with accessibility. The proposed solution is the separation of style and content structure via the use of Cascading Style Sheets (Lie & Bos, 1999, Chp. 20).

Space precludes a detailed description of the methodology of CSS but, essentially, a style sheet allows a developer to remove the styling elements of a Web site to a separate section. This section can be called by multiple pages to allow the enforcement of consistency across a site. The content of the Web site itself is still structured in HTML or, in the more recent development eXtensible HyperText Mark-up Language (XHTML). Users, should they wish, can theoretically override the style sheet provided with a Web site and use their own or manipulate their browser settings, to provide an experience, which more directly meets their own requirements. Regrettably, although the use of CSS is spreading, it is only the latest versions of Web browsers (Lie & Bos, 1999, Chp. 20) that interpret the standards similarly and further development is needed.

The adoption and spread of CSS is very significant for an organisation such as MIMAS. This is because raw HTML or XHTML free from layout issues is relatively simple to learn. If Web pages are then developed with a more recent version of WYSIWYGs such as Macromedia's Dreamweaver 4.0, it is possible to rapidly create a Web page to a rigorous standard of HTML. It is unnecessary for the content provider to be concerned about the layout of a page because a CSS controls this externally. Products, such as Dreamweaver, allow the creation of site templates,

which can enhance this procedure by minimising the need for a thorough understanding of HTML by the content provider. The templates control standard issues on sites, which remain the same or rarely change, for example the logo of an organisation. These templates are then used to produce new pages for a Web site. The major advantage of a template and CSS is that it frees the actual Web site content developer or site manager from having to code every single page. Changing just one file can make site wide changes. In a situation such as that faced by MIMAS, which has extremely limited Web development resources, it means that a few Web specialists can assist in the development of Web pages for all the data services of the organisation.

This approach has been piloted for one of the MIMAS services, the MIMAS RLG Web site (Smith & Bell). This site was produced for an internal MIMAS client involved with the bibliographic services. The client wanted a relatively small site that was accessible and simple to maintain as they had only minimal HTML skills. A template was produced in Dreamweaver 4.0, which used XHTML, rather than previous versions of HTML, primarily to explore its potential as a coding system. The Web developer produced a CSS to control the layout of the site but a user could override or replace this. After minimal training and the introduction of Dreamweaver templates, the client is now managing the day-to-day running of the site without assistance. The client consults the Web developer only for major changes or advice. Various tests have proved the accessibility of the site.

Generically, the system just described is a 'Content Management System' (CMS). A CMS allows content providers to concentrate on providing the actual content of a Web site without being overly concerned about its layout. Depending on the complexity of a CMS the content providers require very few or no HTML skills. The long-term goal of MIMAS is to introduce a formal CMS to the organisation.

Overall, the relatively simple MIMAS RLG site has shown that it is possible to develop accessible sites that non-Web specialists can maintain. However, these specialists must be prepared to learn some Web skills if they wish their site to remain accessible as they add content to it. Importantly for an organisation like MIMAS, with limited budgets, the development of an accessible Web site through this style of CMS allows content staff to concentrate on their primary function; they are freed from the tension of having to learn advanced Web skills. Instead, a few highly skilled Web developers are now able to apply their skills economically across the data services.

MIMAS has yet to make a final decision about the direction of its ancillary Web-based services in the light of accessibility legislation. It is already acting to ensure that

its services are accessible as soon as possible. However, it must also address the longer-term question of maintaining this accessibility. The MIMAS RLG Web site is accessible and maintainable and, if the methods used in its construction were used in conjunction with a more formal CMS methodology, it could be the model for a realistic solution to the dilemma of accessibility and the challenge of balancing moral and legal obligations with budget and skills restraints.

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Private Communication

Ashley Sanders, Manchester Computing, May 2002.

Trademarks

Macromedia Dreamweaver 4.0

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