ILLUSTRATION: PAUL B DAVIES

Website design

Paul Ockenden explains how important aesthetics are to a website

I've just conducted an experiment, asking a small group of friends 'Which website has the best design?' There was no clear consensus: I ended up with 20 replies pointing to 17 websites. These ranged from simple, light and fluffy, text-based sites to heavy Flash-based monsters. The sites recommended also offered a mixture of information, fun, and e-commerce.

Market research people will probably scoff at my sample size, but this experiment clearly shows that there's no single 'right' way to design a website, which is a good thing. Imagine how dull the Internet would be if it was made up of millions of identikit websites, all looking and behaving the same?

Even within these 17 diverse websites, however, you can break each one down into a number of basic components. It's easy to think of website creation as a two-discipline process: one being the technical tasks and the other the 'design'. But

although this two-part split might work well for small sites that will never be updated, more effective sites are better divided into three main components: content, style and function.

Content encapsulates the raw words and pictures – the part of the site that 'tells the story'. Style takes care of the look and feel. It's the presentation used to display the content and includes elements such as the page layouts, the 'furniture' graphics and the look and feel of the navigation. Function is what activates the site and is all of those things that make a website so different from a magazine.

This three-discipline split works well, but there can be a significant overlap between the components. Take the navigation, for example: it's part function, part style and part content. The functional element is, of course, the actual working of

the navigation, taking the visitor from page to page. The style determines how the navigation is presented to the user, and the content is the actual navigation levels and text.

GETTING STARTED
So where is the starting point when creating a website? Should it be design or functionality led? The answer is usually 'neither'. It all boils down to teamwork and that great melting pot of skills and ideas. Obviously, with some sites the functionality will take priority over the design. Take an online bank, for example, where function has to be the driving factor, as without it the site would be useless. On the other hand, a 'brochureware' brand site, perhaps for a wine producer, might be driven more by design, but still the other discipline can't be ignored. At the end of the day, the

online bank would be a horrible place to organise your finances if it didn't look nice, and the wine site would do nothing for brand loyalty if it generated server and JavaScript errors.

The starting point for any successful web project therefore isn't design or functionality; it should always be a strategy. In fact, the project should start by defining a 'strategic imperative', which doesn't describe the site itself, but instead gives a single-minded goal for what the site is trying to achieve. Take our online bank example: the strategic imperative could be 'A site that makes it easy for our customers to manage their finances online.' On the other hand, it could be 'A banking site that aims to maximise the revenue earned from each customer.' Both are equally valid, but would lead to the production of quite different websites.

Karma chameleon

One of the bigger redesigns of the past year was the BBC's site at **www.bbc.co.uk**. When the new site was launched, there was a fair amount of PR puff about how wonderful it was, but little detail on how and why the design decisions were made. There had obviously been a lot of thought and energy applied to the new design, but there was no way of knowing the details. Until, that is, some kind soul from within the BBC's web design team leaked an 84-page PDF document called *The Glass Wall*. This document provides a fascinating and incredibly detailed look at the rationale behind many of the changes.

It's a brilliant insight. Did you realise, for example, that the colours on the main home page aren't constant? They're changed to reflect the main image on the page. The designers created several sets of colour palettes so that the page looks good whatever picture they use. Just think for a moment about what a radical design decision that is – changing the colour of a home page just so a photo looks good on it. Most other websites have a fixed colour scheme that will be a key part of its site branding.

Another thing you might not have noticed, even if you visit the BBC site on a

regular basis, is that the site changes colour the more you use it. The effect is subtle at first, but if you regularly visit a particular section you'll find its box on the front page will gradually darken. The overall effect is to lead your eye to those parts of the site you tend to use more often. It's a concept that has always been present in HTML – previously visited links were always a different colour – but the BBC has taken the simple concept and improved it beyond recognition.

If you'd like a copy of *The Glass Wall*, do a Google search on a regular basis and you're bound to find a copy eventually. The document keeps appearing on various websites and blogs for a while, until the BBC asks the site owners to take it down. Please don't email me asking for a copy, though.

Oh look, the BBC is blue today.

Once the strategic imperative has been set, it can be used to establish some design parameters. Let's take the two banking examples: if the site is simply trying to give the users a nice, easy place to control their cash, the design will probably be light and lean. Customers will want to log in, do their stuff and then log out. The whole process should be as fast as possible, without any unnecessary distractions.

If, on the other hand, the site is trying to increase the revenue per customer, it will

be up-selling wherever possible, attempting to get the customers to take out a loan, insurance, pension or other financial product. The key here is to slow the process down slightly so that the user has time to see and digest the various offers the site is shoving under his or her nose. The offers will probably be targeted too.

If the customer's current account balance is lower than normal, the site will be pushing loan products, and if they seem a bit flush, it will try selling savings products. If

this all sounds rather cynical and clinical, you've got the picture – a bank is a business, after all, and is there to make a profit.

Once you have the strategy in place, you can start to sketch out the site structure, as well as some examples of how certain key pages might look. But what's the best way to do this? Perhaps coloured pencils and a big sheet of paper? Or maybe graphics software such as Photoshop or FreeHand? Or even mocking things up in HTML or Flash?

Each has its strengths and weaknesses, but ultimately it depends on the designer, the budgets and the timescales. Some people can't draw a straight line, others hate designing on screen. Designing on paper or within a graphics package can sometimes be a problem, because it's possible to create things that simply can't be done in HTML. On the other hand, designing directly in HTML requires significantly greater time and effort.

SEPARATING DESIGN AND CONTENT
In the early days of HTML, keeping design and content separate was easy, as there was only content. The first versions of HTML allowed little in the way of design, but then new features were added: graphics, tables, fonts and so on. Before long, the average web page was a mish-mash of content and style.

Luckily, things have moved on since then. Cascading Style Sheets (CSS) allow the designer to divorce content and style. The CSS files contain the detailed 'look and feel' information, while the main HTML pages are responsible for providing and displaying the content. A great demonstration of the effectiveness of CSS can be found on a site run by Pete and Mac Jordan at **www.horus.org.uk.** Click through to the main part of the site and then try the little 0 | 1 | 2 | 3 links at the top right of the page. You'll be able to see how a completely new look can be achieved simply by switching style sheets.

The separation of style and content is taken one step further when the content is delivered from some kind of database. Usually, this will be when a Content Management System (CMS) is in place. With style being defined purely in CSS files, and content being dragged out of a database, the actual pages (be they ASP, PHP, JSP or whatever) will be responsible solely for function. The split into the three disciplines is thus complete.

PAINTING BY NUMBERS

Let's take a look at some of the design elements that make up a website and in particular some of the areas where it's easy to get into a mess. Colour is a prime example. Some sites make clever use of colour (*see Karma chameleon*), while others make a pig's ear of it. At its worst, this involves travesties such blue text on a red background. You'll see an example below but it won't look anywhere near as bad here as it would when used on screen, as when seen on a computer monitor there are few colour combinations more jarring to the eye. Almost as bad is the extreme opposite – rather than having clashing colours, some designers will have foregrounds and backgrounds so similar the text is nigh on impossible to read. Light blue text on a lightish blue background, and light brown on yellow seem to be used (or abused) more than most.

Bad colour combinations like this typically come from pure digital designers, as opposed to those who've come to new media via the traditional design route. It's easy to see why. Just think about the tools and the technologies that digital designers will be using.

Take HTML, for example: colours are defined in terms of three numbers representing the red, green and blue components of the shade concerned.
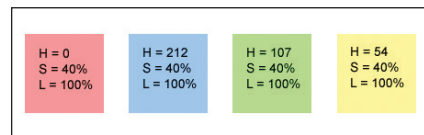
Often, when a designer wants a red, they simply set the red value to maximum and the green and blue to zero. The problem is that this produces a very bright and artificial red – the kind of shade you'd never see except on a computer screen. These unnatural colours look garish by themselves and dreadful when used in combination.

To combine colours well, and to produce an easy-to-read-and-navigate site, you'll need to stop thinking in terms of red green and blue and start seeing colours in terms of hue, saturation and luminance (HSL). HSL mode is available in most good graphics packages such as Photoshop or Paint Shop Pro. Hue is the base shade and is expressed in terms of a circle. At zero degrees, you find red, then at 120 comes blue, followed by green at 240. Saturation is the strength of that colour (a bit like the colour control on your TV set), and luminosity is the amount of light present (the brightness control on your TV).

When working in HSL mode, if you fix two of the values but vary the other one, you'll usually get a nice range of colours that work well together. Imagine, for example, that you're designing a site for baby clothes. You'll need a set of matching pastel colours. With HSL, you simply fix 100 per cent luminosity and 40 per cent saturation, then vary the hues. This will produce a nice set of pastel shades that will look great together.

Or, if you're producing an

H = 0	H = 212	H = 107	H = 54
S = 40%	S = 40%	S = 40%	S = 40%
L = 100%	L = 100%	L = 100%	L = 100%

Some nice pastel shades.

'environmental awareness' site, you'll want a site where the main colour theme is green. You simply pick a hue of an appropriate green and then produce a suitable palette of colours by varying either the saturation or the luminosity, but not both. The first will give a range of increasingly greyed-out greens; the second will provide a palette of bright through to dark colours. In both cases, though, the colours won't clash.

Sometimes, rather than colours that look nice together, you need colour pairs with strong contrast. You simply pick colours from the opposite side of the colour wheel and add or subtract 180 from the hue value. If you're doing this for text against a background colour, you should probably adjust the luminosity value for the pair, with one high and one low.

TAKEN AS RED?

The other thing to remember when selecting a colour scheme is that around one in ten males may have some form of colour-vision problem. For a small proportion, this will be true colour blindness – they'll see everything in black and white. The majority, though, will have a weakness with one colour. Even if you

THIS COMBINATION LOOKS HORRID WHEN USED ON-SCREEN

Some colour combinations are very hard to read

BROWSERS	JAVA	FRAMES	TABLES	PLUG-INS	FONT SIZE	FONT COLOUR	JAVASCRIPT	STYLE SHEETS	GIF89	DHTML	I-FRAMES	TABLE COLOUR	XML
Explorer 6	P	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Explorer 5.5	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Explorer 5	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	P
Explorer 4	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	
Explorer 3	✖	✖	✖	✖	✖	✖	✖	✖	✖		✖	✖	
Explorer 2			✖		✖	✖							
Explorer 1			✖		✖	✖							
Netscape 7	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Netscape 6.1	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Netscape 6	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Navigator 4.7	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖		✖	
Navigator 4.5	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖		✖	
Navigator 3	✖	✖	✖	✖	✖	✖	✖		✖			✖	
Navigator 2	✖	✖	✖	✖	✖	✖	P		✖				
Navigator 1.1			✖		✖								
Mosaic 3		✖	✖		✖								
Mosaic 1													
Mozilla 1.31	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Mozilla 1	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Firebird	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Opera 7.x	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Opera 6	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖	✖
Opera 5.11	✖	✖	✖	✖	✖	✖	✖	✖	✖		✖	✖	✖
Opera 4.02	✖	✖	✖	P	✖	✖	✖	✖	✖		✖	✖	✖
Opera 3.60		✖	✖	P	✖	✖	✖	✖	✖			✖	
Opera 3.5		✖	✖	P	✖	✖	✖		✖			✖	
Lynx		✖	✖										

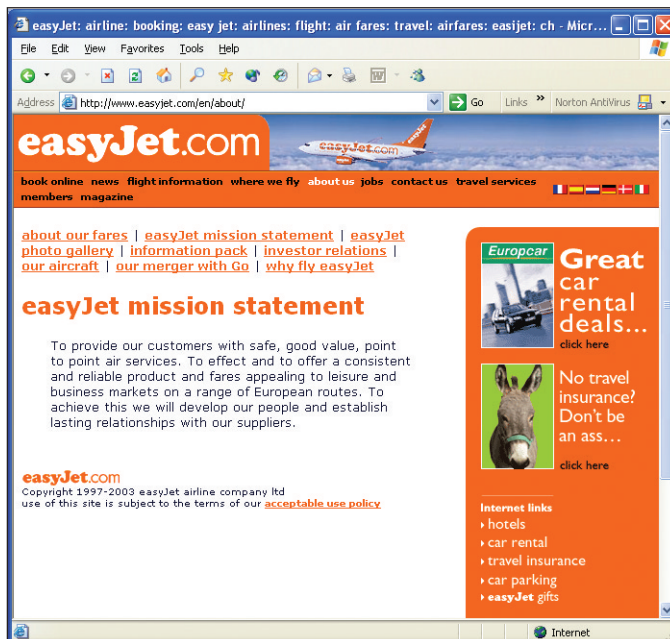**DESIGN FEATURES AND BROWSER COMPATIBILITY**

Key: supported ✖; partially supported P

There's little creative freedom when the brand has a strong image.

have perfect colour vision, there's an easy way to determine whether your site has poor colour visibility. Simply grab a screenshot and open it in Photoshop. Working in RGB mode, you'll find that the Channels palette allows you to switch different colour components on and off. Check your site is readable using any of the individual and combined channels and then, as a final check, convert the image to greyscale and again check it stays legible.

A good web designer will also be considerate when it comes to the size of any text. It's important to remember that while you have 20:20 vision and a fabulous 19in TFT, the person accessing your site could be a myopic teenager surfing on a Dreamcast connected to a knackered portable TV. The best advice is to keep the fonts as large as you can. If you're using CSS, you should also avoid specifying font sizes in absolute pixels, as this overrides the user's ability to browse using bigger fonts.

GIVING YOU THE LOOK
Given that you know some of the design problems to watch out for, how do you come up with the site's 'look'? In some cases, this will be dictated by the brand. Take easyJet as a prime example. There isn't much to do design-wise, because the brand already has a strong and well-established look. The colours, logo and even the 'personality' are set in stone.

There are also whole product sectors

where the websites tend to look the same; for example, car sites. Take a look at the UK sites for all of the main automotive manufacturers and you'll see some striking similarities. If you're designing a site for a car brand, you might decide to join the herd or perhaps go out on a limb. Both would be valid design choices.

The target audience and the site's function can both have a strong influence over the design. A site aimed at kids, for example, will look very different to a site aimed at hard-core techies. Even nationality plays a big part. Take a look at some of the more popular Japanese sites and you'll find many differences to typical Western creations. Likewise, the design parameters can be different depending on whether you're telling or selling.

With so many design choices, the key to a well-designed site is a good creative brief. Unfortunately, few clients (be they internal or external) seem able to give one. For this reason, you'll almost certainly have to provide a range of creative routes and then let the client chose which one they want to run with. Whatever you do, try to avoid 'design by committee'. The more people involved in coming up with a look for the site, the more bland the results will be. Everything will be pegged down to a lowest common denominator.

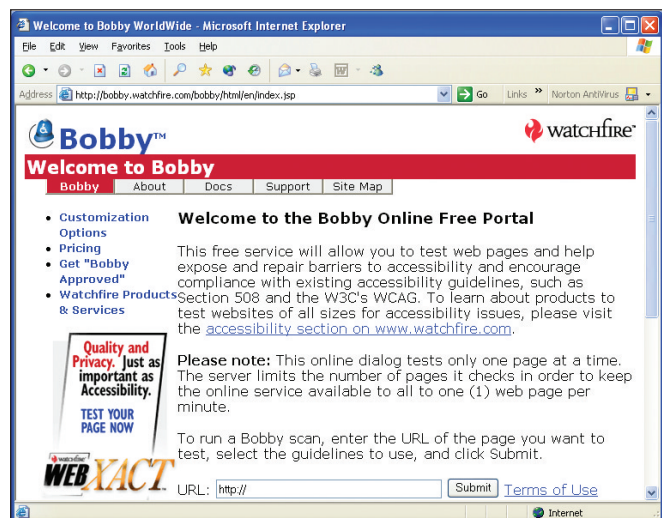If you're overseeing someone else's design, either

as a client or as a supervisor, you must learn to bury your own prejudices. You have to accept that something could be right for the site, even though you might not personally like it. If, on the other hand, you're the poor designer, bear in mind that the client is paying the bill and so will always get what they want in the end.

TAKING THE TEST
If you don't want users (or, indeed, reviewers) complaining about the design of your site, you'll need to test it. Usability testing is critical to any web project, but it often gets overlooked due to tight deadlines and even tighter budgets. One way to get testing right is to start it even before the site is built. The first step is to 'user test' any screen layouts and mock-ups you may have developed. If you leave the testing until after the site's built, you'll only be able to make minor tweaks. Any fundamental design disasters will probably have to remain in place until the next substantial redesign.

There are companies that will organise the testing for you, or you could set up your own test panel with some existing customers and internal staff. A good alternative, though, is your friends and family network. You can always rely on your relatives to beat the hell out of any site, as well as giving honest feedback. I've found that it's often someone's mum, using an ancient version of AOL, who'll be the most valuable tester.

Once the site development is complete, you'll need to retest. A full PAUL test (Platform, Accessibility, Usability, and Logic) should always be undertaken before

Bobby is a useful accessibility testing tool.

a site goes live. Platform testing ensures the site will work across all common browsers, machine types and operating systems (*see table for guidelines, p147*). Accessibility testing will check that less able visitors are able to see the site. Usability testing checks the site works for the users. And, finally, logic testing checks there aren't any script errors and that all of the functional parts of the site work as expected.

The best PAUL tests are when all four areas of testing are performed together, where forms are tested on both Macs and PCs, and you'll then be sure that the navigation works for those with disabilities.

Accessibility for disadvantaged users is a big issue and one that still divides the web-development community. On one side, you'll find the campaigning bodies, wanting all websites to be accessible to anyone, no matter their disability. In fact, they want this absolute accessibility to be enshrined in law. On the other side, you find web designers and site owners trying to maintain some budgetary control and creative freedom.

Like many of life's conflicts, what this boils down to is where you draw the line. It makes sense for national and local government sites to be fully accessible. Newspaper sites too. At the other end of the spectrum, you have experimental and personal home sites created by individuals. Should these too be subject to laws dictating HTML standards compliance and navigation? Almost certainly not. Somewhere between these two extremes will be a blurred line, and site owners need to judge carefully which side of that line their site sits. And for commercial sites, it's almost certainly safest to judge on the side of caution rather than bravado.

Although the disability discrimination laws, introduced by William Hague, demand that services be fully accessible for people with physical disabilities, it only makes a passing specific reference to websites. As a result, things are muddled, and the only way we're going to get some clarity is with a legal test case or two. Various bodies, including the Disability Rights Commission, are currently investigating the sites of several private-sector firms and may well take legal action where they feel there might be a breach of the law. Do you want to be one of the people defending a test case? I thought not.
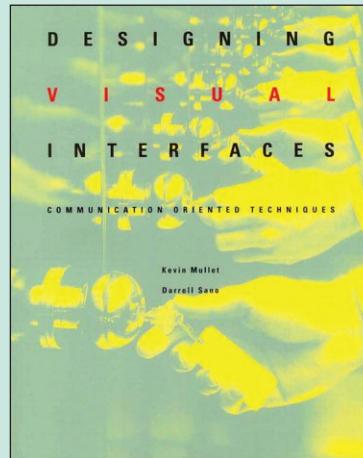
Web designer's essential reading

A frequent question from those starting a web design career is: 'Can you recommend a book on website design, something for absolute beginners?'.

Here's a tip – if you want to become a great web designer, forget web books for a while. Just go and read some general design books like *Design for the Real World* by Victor Papanek, one of the most thought-provoking design books you're ever likely to read. It was out of print for a long time, often changing hands for silly money in specialist bookshops. Luckily, though, it was recently reissued – search for ISBN 0500273588 on Amazon.

After that, go and read the three brilliant Edward R Tuffte books: *The Visual Display of Quantitative Information* (ISBN 0961392142); *Envisioning Information* (ISBN 0961392118); and *Visual Explanations: Images and Quantities, Evidence and Narrative* (ISBN 0961392126). In fact, you should read these Tuffte volumes twice, as they're potentially three of the most important books any budding web designer will ever read. They aren't about web design – Tuffte published the first of these

The alternative bible of website design.

volumes back in 1983 – but despite this the subject matter is bang on target.

Next, go and find some of the classic user-interface design books. Most people would point you in the direction of *Usability Engineering* by Jakob Nielsen (ISBN 0125184050), which is a very good and worthy book. Although it isn't specifically about websites (it covers all aspects of user-interface design), many consider it to be the web designer's bible.

For those who like to rebel against the bible, though, a worthy alternative to look out for is *Designing Visual Interfaces: Communication Oriented Techniques* by Kevin Mullet and Darrell Sano (ISBN 0133033899). This book is both useful and accessible, and probably ranks alongside the Tuffte volumes in the web designer's essential reading list.

Only once you've made your way through these non-web books should you even consider purchasing something like 'Janet and John Teach Web Design to Dummies in 21 days'. Sorry, I can't find the ISBN for that one.

How accessibility affects design is a huge subject – far too big to cover in detail here. A good starting point for your research is the W3C guidelines and resources, which you'll find at **www.w3.org/WAI/gettingstarted**. You'll also find some advice from the government at **www.e-envoy.gov.uk/Resources/WebHandbookIndex1Article/fs/en?CONTENT_ID=4000092&chk=XHiT3L** or, more succinctly, **http://tinyurl.com/jmug**

Don't be fooled into thinking that accessibility issues only affect the disabled. They can be just as much of a problem for the able bodied. Some sites' navigation

systems, for example, are virtually unusable if you browse the site using a laptop with a trackpad rather than a mouse.

FULL CIRCLE
At the start of this article, I mentioned my experiment and how the 17 websites were all very different. They did all have some things in common, though: they all had elements of good design; they didn't make mistakes with colour; they all had usable navigation; and they were all easy to read. With careful and thoughtful design, it shouldn't be difficult to produce sites of a similar standard.