

An exploration of the importance of website usability from a business perspective

Kay McMahon
Student
e-Dissertation Module
MSc e-Business
Robert Gordon University
April 2005

© Kay McMahon 2005 - All rights reserved

The right of Kay McMahon to be identified as the author of this work has been asserted in accordance with Sections 77 and 78 of the Copyright Designs and Patents Act 1988

Executive Summary

There has been a vast amount of academic research and work by practitioners on the subject of website usability. This encompasses a diverse range of subjects from accessibility through to providing the optimal user experience. This work covers many disciplines from neuroscience (e.g. in the case of flow theory) to customer relations management (CRM), marketing, graphic design, public relations and so on. However, there appeared to be no existing work which summarised and evaluated from a business perspective the various writings on the diverse aspects of usability issues. The purpose of this report was to do just that and, having done so, to evaluate how aware business managers were of the issues, and how effectively they were working with their designers to create effective e-commerce websites.

Given the multi-disciplinary nature of the task, it was argued that teamwork is essential to create effective and successful e-commerce websites. It was also argued that business managers need to have an understanding of the issues involved to enable them to become useful and effective members of the team.

First an extensive Literature Review was undertaken, in which the micro and the macro aspects of usability were discussed and evaluated. Next the why and how of usability was discussed, including a section on who should be responsible for usability issues.

Having identified current thinking on the major issues, e.g. whether usability is paramount or whether it is necessary to provide something more (such as entertainment) the next step was to undertake primary research. This attempted to find if the empirical situation was a true reflection of what was suggested by the literature, and to what extent managers concerned themselves with usability issues.

Questionnaires were uploaded to FlowTheory.com, and managers, designers, and manager/designers invited to participate. The response to the survey was disappointingly low. Those who did reply appeared to be those who either had some interest in the subject or were interested in learning more. It is likely that those managers who allegedly cause problems for designers are those least likely to take part in such research. Nevertheless, this research showed some pointers for the future. It brought together a patchwork of disparate writings on the subject and created a starting point for future research. It also provided a means for managers to gain an overview of the subject from one document without the need to scour the vast amount of literature.

In conclusion, the participants generally agreed that teamwork was essential in the creation of successful e-commerce websites and that website usability should be taught on university business courses. How far these respondents are representative of managers as a whole is open to question – one that could perhaps be addressed by future research.

Table of Contents

	Page
1. Introduction	5
1.1 Background	
1.2 Aim	7
1.3 Objectives	
2. Literature review	8
2.1 Introduction	
2.2 A Macro Approach – The Big Picture	9
2.2.1 Introduction	
2.2.2 Usability and Accessibility	
2.2.3 Design must be consumer based	10
2.2.4 User Experience	12
2.2.5 Flow Theory	13
Introduction - What is Flow? - Does flow exist? – Dimensions of flow – Why might flow be important for e-business? - Conclusion	
2.3 A Micro Approach – The Details	17
2.3.1 Web design factors for managers to consider	
2.3.2 Other usability issues which managers should be aware of	21
Positioning of elements – Effectiveness of online advertisements – Banner blindness – Typography – 404 page design	
2.4 Usability – why and how	23
2.4.1 Cost-Justifying Usability	
2.4.2 Measuring Usability	26
2.4.3 Usability Testing	28
2.4.4 Standardisation	29
2.4.5 International Standards	30
2.4.6 Accreditation of usability professionals	31
2.4.7 Who should be responsible for usability?	32
(i) Accessibility	
(ii) Usability	33
(iii) User experience	34
2.4.8 Co-operation between disciplines	35
2.4.9 Delivering what the customer wants	37
2.5 Literature Review Conclusions	38
3. Methodology	39
3.1 Introduction	
3.2 Selection of approach	
3.3 Design of the questionnaires	
3.3.1 Type of information collected	
3.4 Pilot study	40
3.5 Selection of sample and collection of data	41

4. The Findings	43
4.1 Introduction	
4.2 Background information	
4.2.1 Managers	
4.2.2 Designers	46
4.2.3 Manager/Designers	47
4.3 Opinions	48
4.3.1 An e-commerce website has to be visually appealing	49
4.3.2 These days customers expect to be entertained while they are buying	51
4.3.3 Web design decisions are too important to be left to designers alone	52
4.3.4 Customers no longer want glitter – they want content and service, and they want it fast	53
4.3.5 Business managers have a key role in ensuring that the e-commerce website is easy to use	
4.3.6 Designers are paid to design and they should be allowed to get on with it	54
4.3.7 Website usability should be a component of all business management university courses	55
4.3.8 Views on the importance of various factors in the effectiveness of e-commerce websites	56
4.3.9 Importance of effective advertising	57
4.3.10 Importance of good customer service	58
4.3.11 Importance of product quality	59
4.3.12 Importance of ease of use	60
4.3.13 Importance of entertainment value	61
4.3.14 Importance of visual appeal	62
4.4 Additional analysis	
4.4.1 Managers only	
4.4.2 Managers and manager/designers	64
4.4.3 Pure play or not	
4.4.4 Entire sample	65
4.5 Limitations of this study	
5. Conclusions	67
5.1 Recommendations for future research	69
References	72
Appendix	
Smith’s UX Curriculum Diagram	84

1. Introduction

1.1 Background

In the early days of e-commerce website designers* often built websites to be visually appealing, without regard for usability. This led to some spectacular dot com failures. Boo.com is a prime example; the company “burned” around \$200 million of capital before it crashed in May 2000, only six months after its launch. Whilst it was not exclusively the website’s lack of usability which brought about Boo’s failure (there were also market positioning errors and a lack of financial control) the “memorably bad” interface is what is most remembered as being a contributing factor. (Walker 2004a)

In e-commerce the website is the firm’s interface with the customer, and its usability is crucial to the success of the venture. (Turban & Gehrke 2000) E-commerce success is determined in part by trust (Lee & Turban 2001), and the research shows a strong relationship between interface quality and trust. (Roy *et al.* 2001) However, at the most fundamental level, if a customer cannot **use** an e-commerce site then s/he cannot buy from it - regardless of how much trust the website inspires, how good the marketing campaign, or how efficient the firm’s Supply Chain Management (SCM) or financial control. It could therefore be argued that usability has become one of the most important issues in website design.

Thus an understanding of website usability and its underlying theories would seem to be at least useful, if not essential, for those who wish to succeed in e-business. However, there appears to be a skills gap in this area between business managers and designers, with each group working in isolation of the other.

* In larger firms designers design the website while developers build and test it. For brevity, these separate functions are referred to here as if the entire creation of a website is carried out by the designer.

“Business managers can make online projects [work] by accepting the responsibility for their design - or court disaster by letting technologists shape them.” (Walker 2004b)

A precedent has been set for this by the accountancy profession, whose members are now bridging the gap between business and technology. Today accountants are becoming experts in Internet security systems and other Internet based business applications. (Practical Accountant 2002) Business managers too need to embrace the new technology in this way, yet it appears that usability issues are held at arm's length and left solely to designers.

Despite the incredible growth of the Internet, very few researchers have looked at Web browsing in any depth.

“In particular, people's usability problems with current Web technologies have been little discussed in the literature. Perhaps in part because of this lack of research, the motivations behind many new Web technologies, such as eXtended Markup Language (XML) or public key infrastructures (PKI), are almost entirely technical and are only vaguely connected with the problems of end users. In the research literature there is a distinct lack of basic understanding of users' problems with current Web technologies, and the Internet more generally.” (Brown & Sellen 2001)

Usability has only recently been elevated to its present position of importance. This can be seen empirically by the emergence of many usability consultants and professionals, as well as by the increasing number of academic studies on the subject, such as those by Turban & Gehrke (2000), Kwon *et al.* (2002), and Choi & Kim (2004). Most of the recent academic work on usability focuses on the underlying theories of the subject, whilst work on specific design features is often proprietary research and expensive to obtain. (Much of it is based on eye-tracking and other usability laboratory tests.) There is a need to consolidate what is already known about the underlying theories with new thinking in the area. There is also a need to bring website usability theories into the public domain to enable them to be developed rigorously and to raise awareness of their importance to business.

More specifically, research is needed to ascertain the extent to which British business managers are aware of usability issues and how important they consider them to be. Research may also be needed in the future to ascertain the extent to which usability theory is taught in formal business education establishments in the UK. Will usability become a rigorous discipline in its own right or will it continue to be left in the hands of designers and unregulated usability consultants?

1.2 Aim

The aim of this report is to assess how far business managers in the UK are concerned with the usability of their e-commerce websites and to what extent they are working effectively with designers on usability issues.

1.3 Objectives

To review current thinking by academicians and practitioners on usability issues

To summarise and evaluate from a business perspective the various writings on the diverse aspects of usability issues

To assess UK business managers' level of awareness of usability issues

To assess the importance they ascribe to usability issues assuming they are aware of them

To determine who they think should be responsible for the usability of their e-commerce website: the manager, the designer, both together, or another party

To explore the reasons why they think responsibility for the usability of their e-commerce website should lie with the person(s) identified above

To critically evaluate whether there is a gap between managers' and designers' views on usability issues

2. Literature Review

2.1 Introduction

Website usability is not simply about the nuts and bolts of how websites work. Nor is it about creating sites which the technologists believe will work. There is some evidence to show that what customers want may be different to what experts believe they want. (Turban & Gehrke 2000) Although the study was conducted in the early days of e-commerce and based on a pragmatic approach (the number of times different factors of usability were cited by consumers and experts), it is likely that the findings are still relevant. Designers are trained to design and are not usually trained in consumer relations, marketing, and other business-related issues. Equally the business managers who concern themselves with these issues often do not have training in design-related issues.

“Everyone in the group agreed that creating a usable Web site required real organisational commitment, commitment that could only come from senior management. And most of the designers and design managers around the table that day wanted to build such support. But few knew how to teach their colleagues about the importance of site usability.” (Walker 2004c)

The existing research on website usability tends to be insular rather than cross-disciplinary. Much of the literature is by journalists and respected experts in the field as well as by academicians. Whilst it was necessary to consider all of types of work to obtain a full picture, it was also important to consider the source of the information and note, where appropriate, its limitations.

An exploration of Flow Theory (Csikszentmihalyi 1990) - which encompasses optimal user experience - uncovers work in various disciplines of psychology and medicine, such as that by Donohoe & Palmer (in Marr, A.J. undated), Novak *et al.* (2003), and Korzaan (2003). Research on banner placement and banner blindness by Outing & Ruel (2004) relates to marketing management. Usability is also an important aspect of Customer Relationship Management (CRM) and creating customer trust and loyalty (Lee & Turban 2001; Roy *et al.* 2001; Choi & Kim 2004).

The literature discusses the legal and ethical, as well as the commercial considerations of accessibility. (Byrne 2003)

The foregoing is a small sample of the abundance of literature on the diverse aspects of usability. Yet until now there does not seem to be any single piece of academic work to bring together these isolated writings and look at usability issues from a business point of view.

Given the large scope of the subject, it was decided to tackle the literature review in stages:

- a macro approach
- a micro approach
- usability – why and how

2.2 A Macro Approach – The Big Picture

2.2.1 Introduction

Usability is a complex subject encompassing issues such as accessibility and consumer experience. These issues are discussed below.

2.2.2 Usability and Accessibility

“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.” (Berners-Lee 2005)

There is growing debate pitting accessibility against usability but the two are not mutually exclusive. Gustafson outlined in technical detail how it is possible to achieve both. (Gustafson 2004) The CSS Zen Garden (csszengarden.com 2005) website is generally regarded as the ultimate example of good practice to achieve an attractive yet 100% accessible site.

Apart from the obvious fact that a website must be usable to enable the customer to buy, there are also legal, ethical and commercial considerations as to why accessibility is important for business (Byrne 2003).

- **Legislation:** The Disability Discrimination Act 1999 requires UK businesses to make their online information accessible to disabled people.
- **Ethics:** Should a court action be taken against a company on the grounds of discriminatory practice, it could prove very damaging to the company's image. Such action is becoming increasingly likely to occur. In 2003 the Disability Rights Commission (DRC) announced: "One thousand websites will be investigated for their ability to be accessed by Britain's 8.5 million disabled people in the Disability Rights Commission's (DRC) first Formal Investigation." (DRC 2003)
- **Commerce:** There are numerous commercial benefits in having an accessible site. Being accessible to all increases the number of potential customers. Having more customers raises the profile of the site and creates a virtuous circle. Also, funding bodies are likely to insist on accessibility as a criterion when considering applications for funding. (Byrne 2003)

There can be no doubt remaining that accessibility is an important subject for business managers.

2.2.3 Design must be consumer based

Web design factors influence a customer's motivation to purchase. To achieve success in e-commerce, website design must therefore be focused on the customer, and the current trend is towards simplicity. (Kwon et al 2002)

"Users no longer want glitter - they want content and service, and they want it fast. This demand will continue to drive Web site design toward speed, navigation efficiency, simplicity, and elegance with an emphasis on customer focus and security." (Turban & Gehrke 2000)

Whilst the literature showed consensus that usability is important, there appeared to be two schools of thought as to whether simplicity was paramount or whether it was also necessary to provide something more. In order to understand the current thinking on the issue it was necessary to widen the literature search to include opinions of industry leaders as well evidence from scholarly articles.

A purely functional site may not be enough to attract and retain customers. They also want to participate in activities which make online shopping an enjoyable experience. (Koufaris 2002) Additionally, Cummins (in Choi & Kim 2004) argued that providing game-like interaction for e-commerce customers would increase the overall quality of customer experience. People like challenge and reward. (Fruhlinger 2001)

Nutley (2005) discussed how today's sites have become so easy to use that the customer can get through the transaction process too quickly and easily. This is good for customer retention, but if the customer misses all the other messages on the site, then it is bad for increased sales. Paradoxically, usability may be counter-productive.

Despite this, usability "guru" Jakob Nielsen continues to insist on function over form. Nielsen's website useit.com (Nielsen 2005) is almost devoid of any design, and is intended to be the ultimate example of simplicity and standardisation. As a result it is entirely lacking in features to enhance the visitor's experience, and many find its appearance unpleasant and dated. Nevertheless, although Nielsen may appear to be stuck in a 1990s time-warp, he has so far maintained his place as one of the world's leading usability experts. Others disagree with his views.

"Usability? Yes, that matters, but beauty, pleasure, and fun those are truly important.(sic) Yes, the product has to be balanced, yes, it should provide value, fulfill the needs of the users, and make good business sense. Sure, all of that. But if it is unattractive, if it doesn't feel right, who cares if it works?" (Schroeder *et al.* 2002)

Dodd (a senior user experience designer for the BBC) also argued that times have changed and usability is no longer enough:

"A few years back, usability was the buzzword in web design. Any site that was relatively easy to use was a welcome relief from the

typical quagmire of the Internet, and its designer was heralded as some kind of revolutionary.” (Dodd 2005)

Dodd (2005) stated that good usability used to put a site above its competitors, but now that most designers understood usability, this was no longer the case. Sites needed to do more to distinguish themselves – they must create a good user experience. This would become the standard in future.

It appears that consumers want sites which are simple and enjoyable to use. This would seem to be common sense, but the only way to know what customers really want is to ask them. This could be done by adding a feedback form or a discussion forum to the company website. The limitation of this, however, is that the company can only ask its existing customers, not its potential customers, nor indeed those who have already been put off by the website.

Wood (2004) stated that customers should be involved early in the process of designing a website. Usability should not be seen as something to test afterwards, “a check you do near the end of a development project to prove how clever the team has been at guessing what customers want”.

2.2.4 User Experience

Research has shown that efficient interaction features positively influence customer loyalty. (Choi & Kim 2004) People are increasingly talking in terms of “experience”. Pine & Gilmore (in McLellan 2003) suggest that we have moved from a service economy to an experience economy.

“There is support for Pine and Gilmore’s model from a diverse array of analysts. Wolf, a media industry strategist, argues that all businesses (even banks and supermarkets) will increasingly need to be entertaining to thrive.” (McLellan 2003)

If company websites are to deliver an experience, rather than just provide services, it would seem reasonable to assume that a company would aspire to providing the optimal user experience.

2.2.5 Flow Theory

2.2.5.1 Introduction

Since Csikszentmihalyi introduced the concept of “flow” in the 1970s, it has spawned considerable discussion in the literature, notably by Donohoe & Palmer (in Marr, A. J., undated) and Novak *et al.* (2003). An interesting commentary on flow was A. J. Marr’s undated work, in which *inter alia* he argued that a satisfactory theory of flow does not exist. This work was rejected by peer review. Despite this, the reviewers conceded that some of his ideas were thought provoking and useful.

2.2.5.2 What is flow?

Csikszentmihalyi defined flow as:

“...the ‘holistic sensation that people feel when they act with total involvement’. When people are in flow, they ‘shift into a common mode of experience when they become absorbed in their activity. This mode is characterized by a narrowing of the focus of awareness, so that irrelevant perceptions and thoughts are filtered out, by loss of self-consciousness, by a responsiveness to clear goals and unambiguous feedback, and by a sense of control over the environment” (in Koufaris 2002)

2.2.5.3 Does flow exist?

Csikszentmihalyi stated that it was difficult to define consciousness directly because

“...there is no single accepted definition of how it works. Many disciplines touch on it and thus provide peripheral accounts. Neuroscience, neuroanatomy, cognitive science, artificial intelligence, psychoanalyses, and phenomenology, are some of the most directly relevant fields...however, trying to summarise their findings would result in an account similar to the descriptions the blind men gave to an elephant: each different and each unrelated to the others.” (Csikszentmihalyi 1990)

Despite recognising the difficulties of creating a unified theory acceptable to the various disciplines, Csikszentmihalyi (1990, p.25) nevertheless went straight on to claim that he could provide a model for doing so, grounded in fact by using “a phenomenological model of consciousness based on information theory”.

A. J. Marr (2001), however, argued that “Csikszentmihalyi did not ground his observations to neural events, but rather to mentalistic entities such as ‘psychic energy’, ‘undreamed states of consciousness’ and the like.” What Csikszentmihalyi referred to as behavioural contingencies were exactly the same as those caused by dopamine release in the brain.

Marr stated that the major gap in the research was that “no one has ever undertaken an objective measurement of the physiological correlates to flow”. All that would have been required was for Csikszentmihalyi “to take the time before his interview of 5000 people to strap just one of them to a simple EEG, EKG, EMG, GSR, or other device to measure brain, cardiac, or muscular activity while they engaged in behaviors which created flow experiences.” (Marr undated)

The debate continues about flow theory and its validity. However, much of it ventures deep into theories of psychology and neuroscience, and is beyond the scope of this report.

Flow has also recently been studied in the context of e-business and “has been recommended as a possible metric of the online consumer experience”. Koufaris (2002) concluded that flow was a valuable construct but it was too broad and ill defined because of the many ways in which it had been tested and applied. However, some components of flow, i.e. those relating to intrinsic enjoyment, had relevance to e-commerce.

It seems therefore that the jury is still out on the theories underlying flow. Despite this, the conditions necessary for flow to occur would appear to be relevant to those attempting to provide the optimal consumer experience.

2.2.5.4 Dimensions of flow

Csikszentmihalyi outlined nine dimensions of flow:

- Clear goals
- Immediate feedback
- Personal skills well suited to challenges
- Merger of action and awareness
- Concentration on the task at hand
- A sense of potential control
- A loss of self-consciousness
- An altered sense of time
- Experience which becomes autotelic (self-contained goal experience)

(in Chen *et al.* 1999)

2.2.5.5 Why might flow be important for e-business?

There is a considerable body of academic work on flow and, whilst much of it relates to outdoor activities, some of the most recent work relates to e-commerce.

Csikszentmihalyi asked:

“Is it impossible to develop an economy...where consumption involves the processing of ideas, symbols, and emotional experiences, rather than the breakdown of matter?”

(in Novak *et al.* 2003)

Novak *et al.* (2003) argued that the Internet was beginning to make this happen. Referring to the spectacular failures of the dot com crash, they stated that the unique features of the Internet, “Webby applications”, would be likely to lie behind success in e-commerce.

Additionally, flow can create compelling consumer experiences online. “Thus the continued study of the contrast between goal-directed and experiential processes online is likely to further enhance consumer researchers’ understanding of the fundamentals of compelling online experiences”. (Novak *et al.* 2003)

Chou and Ting (2003) also argued that because of the causal relationship between flow and habit-formation, “it is critical for firms to master the process of evoking flow in order to create loyal customers.”

Koufaris (2002) was unable to find a significant relationship between flow dimensions and unplanned purchases and cautioned against explaining consumer behaviour using a multidimensional flow construct. The observed behaviour may be simply enjoyment of shopping.

Korzaan (2003) subsequently stated that “the role of flow in online shopping is unclear”, and did further research which concluded that flow was relevant in explaining online consumer behaviour.

2.2.5.6 Flow - Conclusion

It appears that flow does exist, although it could also be called “intrinsic enjoyment”. Some research has shown flow to be relevant (Chou & Ting 2003; Korzaan 2003), others have found the theory itself to be too broad and ill-defined to be of use (Koufaris 2002).

What is relevant to business managers is the need to create a compelling environment, and the need to understand online consumer behaviour. Whether or not flow theory has a role to play in consumer research, it would seem that the nine dimensions of flow are useful guidelines for building compelling websites.

2.3 A Micro Approach – The Details

Having seen how usability fits in to the big picture, it is next appropriate to look at some details of usability and how they relate to e-business. Much of the research in this area is proprietary. However, there is considerable discussion in the public domain.

After reviewing the literature in this area, it was decided that an in-depth study of each of the vast number of micro factors of usability was beyond the scope of this report. Thus, some of the most important factors are listed and described briefly below.

2.3.1 Web design factors for managers to consider

Managers who wish to ensure that their site is usable can use the following checklist to diagnose the most common website faults.

- **Speed of loading**

If a page does not load in less than 8.6 seconds (Moss 2004a) the visitor is likely to go elsewhere. There are several online tools to measure a site's loading speed, such as the one available at 1-hit.com. (1-hit.com 2005) A common cause of slow loading is un-optimised images. Images can be optimised to reduce their kilobyte (KB) weight without any noticeable loss of quality. Again, there are free online tools to do this task, including one at the 1-hit website mentioned above. Moss (2004b) outlined ten ways to speed up the download time of web pages, which is extremely useful but perhaps only for the more technically-inclined reader.

- **Navigation**

Poor navigation causes confusion and frustration. In addition, users have become accustomed to particular layouts, such as seeing the logo, which should also be a link back to the home page, at the top left of the web page. (Moss 2004a)

- **Objects blinking and spinning**

People find these annoying. Animated gifs (images that move) also lower the quality of a website by making it look amateurish. People have learned to ignore animations anyway because they often perceive them to be advertisements. (Nielsen 2004a)

- **Lack of proof reading**

Spelling and typing mistakes look amateurish and they put people off.

Superfluous apostrophes are probably the most common error. Even many corporate sites have them.

- **Overwide page size**

This requires visitors with small screen monitors to scroll from left to right, which is an annoyance.

- **Mandatory Intro Page**

People find these annoying. A “skip” option should always be offered.

- **Pop-ups**

Pop-ups are advertisements which “pop-up” in front of the web page being viewed. They are widely reviled because they are so annoying. 95% of users rated them “very negatively” or “negatively” in a survey based on 605 respondents in 2004. (Nielsen 2004b) Many people use pop-up blockers these days and do not see the pop-ups anyway. If they do see them, people tend to close them as soon as they appear without looking at them.

“pop-up purges mean that users close pop-up windoids before they have even fully rendered; sometimes with great viciousness (a sort of getting-back-at-GeoCities triumph).” (Nielsen 2004a)

- **Product information**

Managers should check that there is sufficient information about the product(s) on the website. Information about price is very important, as is delivery information.

“Imagine a department store where the staff gave you a blank look you when you asked about delivery times for your new fridge,’ says Wendy Hewson, research director at the Hewson Group and author of the [Profit or Pain from your user experience (in Mouncey 2003)] report. ‘That’s what it’s like shopping at most Web sites.’ Hewson adds that 44% of online shoppers in the UK said that, in addition to preventing them from completing a purchase on the Web, a bad online experience would discourage them from visiting a company’s bricks-and-mortar stores or buying from its mail order catalogue.” (CRM Today 2003)

- **Scrolling**

It is generally considered to be good practice to break up the information into chunks to minimise the need for scrolling.

“This not only aids in digesting the information but reduces scrolling (which appeals to the many who remain convinced that the general population still has no clue how to scroll).” (Gustafson 2004)

- **Contrast link text colour and main text colour**

Hyperlinks should be a different colour to the other text on a page. This helps the user to see them more easily and know that they are links. Avoid using blue text or underlining for any text that is not a link. (Nielsen 2004; Moss 2004c)

A comprehensive discussion of how to use links effectively is provided in the article “Writing Effective Link Text” by Moss (2004c).

- **Avoid Frames**

Apart from looking old-fashioned and causing problems for search engine robots (most search engines cannot follow links between frames), frames cause usability problems with printing, using the back button, history, and bookmarking. Frames are best avoided.

- **Sound**

Sound is an annoyance unless the visitor opts to hear it.

- **Consistency of design**

Managers should check that their site has a consistent look throughout. Best practice is to separate design and content by using cascading style sheets (CSS).

CSS is a way of building web pages, often in conjunction with templates so that the overall appearance of a website can be changed quickly, easily, and consistently. Style sheets also have the additional benefit of increasing loading

speed as they need to be loaded only once to enable the visitor to view many pages.

Managers can also try the “loo roll test”.

“...visit your favourite grocery website, type in loo rolls and see what happens. According to the [Profit or Pain] report a search on Tesco returns 4 headings and 137 items...but no toilet tissue! Go on, try it today...” (Mouncey 2003)

However, do not try this at Tesco’s “new and improved” website. (Tesco.com 2005) Registration is compulsory before a visitor can enter the groceries section of their online store. (Visited on 29 March 2005) (See Flander’s comments in Section 2.4.7 (ii) below for an explanation of why this is considered to be poor design.)

In addition to these usability checks, there are also several accessibility checks which should be carried out. Accessibility is a legal requirement and those who ignore the rules do so at their peril. Moss provides a list of ten quick accessibility checks. (Moss 2004e)

Ensuring good usability does not necessarily guarantee accessibility. The Bobby test (Watchfire 2005) provides an accessibility report when a web page’s uniform resource locator (URL) is entered into the online tool on the Bobby web page. Even Nielsen’s website, which emphasises usability, does not meet the stringent criteria required to qualify as being accessible, and failed the Bobby test with Priority 1, 2, & 3 errors when tested on 21st October 2004.

However, it should also be noted that simply passing the Bobby test does not necessarily guarantee that a site will satisfy all accessibility obligations. Whilst passing the test represents a tangible achievement, a pass can be gained without complying with what is now considered to be best practice.

2.3.2 Other usability issues which managers should be aware of

As well as the quick and simple tests outlined above, there are some more complex usability issues which business managers should at least be aware of.

2.3.2.1 Positioning of elements

Eye-tracking studies have shown that the positioning of elements (where things such as the logo and the search box are placed on the web page) can affect the user experience. (Outing & Ruel 2004b)

2.3.2.2 Effectiveness of online advertisements

Similarly, placement can affect the performance of online advertisements. (Outing & Ruel 2004a) “Bunnyfoot has calculated that of the £300m spent on online advertising in the UK, around 20% (£66m) was wasted due to suboptimal placing.” (Goff 2004)

How annoying the advertisement is also affects its performance. There is evidence to show that annoying advertisements are successful. (Penenberg 2004) In a study of consumers’ perceptions of different types of advertisements, including web advertisements, it was also found that frequency more than content was annoying in intrusive advertisements. (Dynamic Logic 2004a)

Web page clutter has been shown to affect advertisement performance. (Dynamic Logic 2002)

Also, Wanadoo (in Harwood 2004) found that “online consumers are more receptive to different Internet ad formats depending on their frame of mind.” The research identified four main mindsets depending on what the user is doing at the time (e.g. researching, entertainment, etc). Different formats were more successful for different mindsets.

Banner Blindness

Users have learnt to ignore any advertising which gets in the way of their goal-driven navigation. “Banner blindness means that users never fixate their eyes on anything that looks like a banner ad due to shape or position on the page.” (Nielsen 2004a)

Typography

“In his quest to eliminate any sort of design from the web, standards fascist Jakob Nielsen doesn’t seem to realise that good typography is supposed to actually help usability, not hinder it.” (Knowles 2004)

Good typography is about getting text to do its job properly – allowing the reader to read the words it contains as well as conveying the tone. This is an important part of design yet “it seems to be one of the last things the average designer bothers to think about”. (Knowles, 2004)

404 page design

A 404 error results when a website visitor tries to visit a web page which does not exist, the visitor will then be redirected to the site’s 404 page. The error may be due to a number of causes, e.g. the URL of the sought-for page may have been changed because of a site redesign. If the 404 page is unhelpful it is highly likely that the visitor will click away to another site. Having a 404 page which apologises for any inconvenience, explains why the 404 error may have occurred, and directs the visitor to the home page, increases the likelihood that the visitor will stay within the site.

There are many other issues for the manager to be aware of, such as how their site search and print page facilities function. It is hoped that this report has provided a starting point for further exploration of the micro aspects in the future.

How a website works (or not) has a major influence on the consumer experience and ultimately, whether or not they buy. Business managers need not concern themselves with the technical aspects of every detail of the micro factors - these are subjects for specialists. However, it is argued here that business managers should at least have some awareness of the existence of these issues to enable them to communicate more

effectively with their designers. If the website does not look good or does not work properly the customer will not buy and is unlikely to return.

2.4 Usability – why and how

2.4.1 Cost-justifying Usability

Having looked at the big picture and the details of usability, the next stage is to discuss why it is important. In a nutshell, good website usability can both save money and make more money for a business.

“For e-commerce, ROI [return on investment] comes from increased sales: making it easier for customers to find the product, understand the product, and complete the checkout transaction.” (Nielsen 2002)

Usability:

- May affect the customer’s intention to purchase
- Can boost sales conversion
- Can increase customer loyalty

Usability may affect the customer’s intention to purchase

Research into online auction sites showed how web design factors affected the users’ intention to bid. It was suggested that future research was needed to determine whether there was a similar relationship between sales and website design factors. (Kwon & Kim 2002)

Winn and Beck’s (2002) research into e-commerce sites showed how “design elements on an e-commerce Web site carry out the rhetorical function of persuasion”.

“Knowing that the way in which the salient factors are presented on the site can affect their persuasive power puts designers firmly in command of the persuasive process... As a result, designers who understand the rhetorical nature of the interfaces they create will be

better equipped to make educated design choices.” (Win & Beck 2002)

Winn and Beck (2002) went on to outline a framework of evaluation tools for web designers. These tools could also be useful for business managers who want to ensure their e-commerce website is functioning as well as it could be.

Usability can boost sales conversion

The conversion rate for an e-commerce business is the number of visitors making a purchase directly from the website expressed as a percentage of the total number of visitors. Success is measured in terms of turning visitors into customers. To achieve this, goals and objectives must be clearly delineated and the website design must meet them. To increase sales, there are two choices – either a large advertising budget to attract more visitors or to spend money on improved web design to increase the conversion rate.

Laszlo Systems (2005) (developers and vendors of e-commerce systems) described research by Shop.org which suggests that as many as 75% of potential customers abandon their shopping carts prior to purchase. The key reasons given were:

- Making changes is too difficult (56%)
- Checkout process is too long (41%)
- Site requires registration before purchase (34%)
- Checkout is confusing (27%)

Simplifying and improving the checkout process by addressing the above issues increases the conversion rate by reducing the number of abandoned purchases. (Laszlo 2005) Starling (2001) provides a comprehensive and still-relevant article for those who want more details on this subject.

2.4.1.1 Usability can increase customer loyalty

Choi and Kim (2004) found that “efficient interaction features positively influence customer loyalty”. Loyalty is important for several reasons. It is cheaper to retain existing customers than attract new ones and returning visitors are more likely to buy.

Mauro (2002) compared online and laboratory-based methods of testing usability and discussed the ROI implications of integrating formal usability testing into web development projects.

“For every dollar spent acquiring a customer, you will spend \$100 re-acquiring them after they leave because of poor usability or bad customer service.” (Mauro 2002, p.9)

As Chief Executive Officer (CEO) of a professional usability consultancy, Mauro has a vested interest in promoting usability testing. However, his report was informally peer-reviewed and his claim is believable.

In addition, returning visitors are more likely to buy than new ones.

“Statistics have consistently shown that in terms of e-commerce and sales over the Internet, the chances of a visitor buying something increase dramatically after the third visit.” (Wilson 2005)

Reid Smith suggested that e-marketers should develop “e-loyalty design standards” to ensure that all web design stimulates customer retention. These standards are the strategy behind the website design and cover the navigation strategy, the basic usability, and the degree of interactivity. These strategies need to be developed before the website is created by the web designer. “Integrating e-loyalty into all areas of your website should be your ultimate design goal” (Reid Smith 2000, p232)

Koufaris (2002) stated that customer retention was one of the primary goals of all companies, but customer loyalty online might be low because of low switching costs. Also, a simply functional site might be unappealing for those customers who viewed shopping as a chance to go out and have some fun. If the website did not provide an enjoyable experience the customer might return to the more enriching real world.

Chou and Ting (2003) stated that addiction was an ultimate form of loyalty, and it “is critical for firms to master the process of evoking flow in order to create loyal customers”. They did, however, caution that causing addiction could be harmful to the individual customers.

2.4.2 Measuring Usability

Having discussed why website usability is important for e-commerce, the next step is to look at how it can be measured. There is a vast amount of literature in this area, notably that by Georgio Brajnik (2005), who has produced a copious amount of useful work about evaluating various means of measuring usability. One method of measuring usability is by using automated tools, of which there are many, including UsableNet's LIFT - generally considered to be the industry leader - (UsableNet 2005), the Bobby test - free - (Watchfire 2005), and the WAVE tool (Webaim 2005). Brajnik (2000) critically compared and evaluated eleven such tools and identified gaps which he believed should be filled. A problem he identified was that there was no standard way to evaluate the tools themselves.

Whilst automated tools can be used to measure usability, they are not the only means available.

“To test usability of a website a developer can adopt two kinds of methods: usability inspection methods (e.g. heuristic evaluation [Nielsen and Mack, 1994]) or user testing [Nielsen, 2000]. Heuristic evaluation is based on a pool of experts that inspect and use a (part of a) website and identify usability problems that they assume will affect end users. With user testing, a sample of the user population of the website is selected and is asked to use (part of the) website and report things that they think did not work or are not appropriate.” (Brajnik 2000)

Mauro provided an extensive “Methodology trade-off matrix”, which details the pros and cons of the various methods. (Mauro 2002, p41)

Tiedke *et al.* (2002) put forward a framework for automated website analysis and usability evaluation, AWUSA (Automated Website Usability Analyzer). This framework interrelates the two main ways of detecting usability problems: directly by analysing the website itself (to discover problems such as broken links and incorrect syntax); and indirectly by analysing visitors' behaviour on the website. This model is likely to be of interest only to professional usability specialists.

In any case, heuristic testing is now somewhat outdated as research has shown the process consistently produces false positives (“problems” that do not actually exist in the real world). To rely too much on a heuristic approach could result in a company wasting money on fixing things which are not in fact broken.

“This points us back to a simple truth: real users will show the way. Without them, usability experts, for all their PhDs and pseudo-science, can't guide companies to more effective interaction online.”
(Wood 2004)

Frulinger (2001) stated that whilst “rules and heuristics can be effective measures of usability”, they do not take the idiosyncrasies of different user types into account. If strict heuristics are applied to web design, and all websites look and function in the same way, there will be no challenge for the user and they will become bored. He added: “I propose that, with sufficient user research, a sense of ‘flow’ can be achieved that challenges users sufficiently without boring them. You don’t want to make your product usable for just **any** user. Rather, you want to make it usable for the **right** user.” (Frulinger 2001)

Participants of the Knexus community gathering in November 2004 identified three best practice understandings:

“1. Include usability throughout the Web development. It saves time and money in development by getting it right the first time.

“2. Analytics are a key part of usability. Once you have identified the metrics, there is a constant process of:
A Measure the metrics B: Analyse the metrics C: Modify your site

“3. Usability testing does not have to be expensive - you can use colleagues within your organisation to review your site.” (Barnet 2004)

Membership of Knexus Community is restricted to corporate executives only. There are no SMEs, Information Technology (IT) vendors or management consultants allowed. However, it would seem that this outline of best practice would also be useful for SME managers.

2.4.3 Usability Testing

Having discussed how to measure usability, the next step is to consider how to test it. There are at least two schools of thought in this area too. On the one hand, those such as Nielsen suggest that:

“Anybody can do usability testing. We run a workshop where we teach a team how to run studies in three days: we do this by actually conducting a complete, if small, usability project in those three days, complete with planning the test, running the test, and analyzing the test results and turning them into redesign recommendations. The key point is to do simplified testing.” Jakob Nielsen (in Evans & Finck 2002)

On the other hand, usability professionals, such as Mauro (2002), scoff at the idea of “guru usability”. To be worthwhile, usability should be tested by those with professional training in the many rigorous disciplines involved.

The “truth” probably lies somewhere between the two views. Extensive testing, including laboratory testing, can be expensive and may not be appropriate for SMEs on smaller budgets. When considering how to run usability tests, managers should select methods suitable for the size and nature of the venture involved. Whichever methods are chosen, it is likely that testing with real users would be beneficial in most cases. However, before testing anything “you need to define what it is you’re measuring, and then the best way to measure it.” (Howell 2004)

There is considerable discussion in the literature about how many participants are required. Eight participants was considered to be best practice in usability testing as the number delivers an optimum number of issues with the least number of participants. (Marr, L. 2001) However, there is some evidence to show that this may no longer be the case due to the increased complexity of modern e-commerce websites (Perfetti & Landesman 2001). It is also crucial to select a group of testers who are representative of the intended user, or the testing will be flawed. (Mayhew undated)

Molich *et al.*'s (2004) work on assessing the consistency of usability testing across organisations revealed the following:

“Nine independent organisations evaluated the usability of the same website, Microsoft Hotmail. The results document a wide difference in selection and application of methodology, resources applied, and problems reported. The organizations reported 310 different usability problems. Only two problems were reported by six or more organizations, while 232 problems (75%) were uniquely reported, that is, no two teams reported the same problem. Some of the unique findings were classified as serious. Even the tasks used by most or all teams produced very different results - around 70% of the findings for each of these tasks were unique. Our main conclusion is that our simple assumption that we are all doing the same and getting the same results in a usability test is plainly wrong.” (Molich et al. 2004)

For those with the budget to afford it, laboratory testing can reveal some unexpected results. Outing and Ruel’s (2004) work on The Eyetrack III project contains many valuable insights about how people behave when visiting websites.

2.4.4 Standardisation

Sing (2004) stated that “consumers face a proliferation of poorly-designed electronic stores giving rise to poor usability and information overload.” He attributed this to designers tending to focus on technological aspects. The wide variety of store designs and transaction processes cause confusion for consumers.

Problems with usability include:

- Confusion
- Overload of information
- Unfamiliar environment

Nielsen (2004d) argues that there is a need for web design standards, so that site visitors know what to expect. Nielsen’s approach, to make all sites look and function in the same way, is vehemently disagreed with by many other professionals in this area. (Schroeder *et al.* 2002; Knowles 2004) Cecil (2000) argued that it was possible for the two groups to find a middle ground and outlined a process to achieve it.

2.4.5 International Standards

There has, however, been a movement towards standardisation and the development of industry standards at an international level.

“The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication, and collective understanding.”
(Berners-Lee 2005)

W3C sets industry standards, which most designers adhere to because it is generally considered to be best practice to do so. Most professionally-designed sites are or aspire to be compliant with the W3C standards on XHTML (eXtensible HyperText Mark-up Language) and CSS. In addition, W3C set up the Web Accessibility Initiative (WAI) in 1997 to promote accessibility for disabled people. The W3C website offers a large amount of resources, such as accessibility checklists and various online site evaluation tools. Websites which are W3C standards compliant often display W3C's logo at the bottom of the web page.

The ISO (International Organization for Standardization) is a worldwide federation of national standards bodies who work together to create international standards. In addition to issuing its own standards, the ISO is also a signatory of a Memorandum of Understanding (MoU) on electronic business with the other three main organisations which develop international standards in this area: International Electrotechnical Commission (IEC), International Telecommunications Union (ITU), United Nations Economic Commission for Europe (UN/ECE). (ISO 2004)

“The purpose of the MoU is to minimize the risk of divergent and competitive approaches to standardization, avoid duplication of efforts and avoid confusion amongst users.”(ISO 2002)

There are several ISO standards relevant to usability including those defining measures of effectiveness, efficiency, and satisfaction. The Usability Company (TUC) website provides a concise overview of the subject, including an outline of the Common Industry Format (CIF) developed by the National Institute of Standards and

Technology (NIST). (TUC 2005) These standards are intended for use by usability professionals.

2.4.6 Accreditation of usability professionals

“An accreditation scheme for the industry is supported by 90% of UK practitioners.” (TUC 2005)

The idea of accreditation for usability professionals has been discussed for several years. Support for such a scheme is strong in Europe, although not in the US. Bevan (2003) outlined the advantages and disadvantages to stakeholders, and discussed various initiatives to implement a professional development scheme for usability professionals.

From a business manager’s point of view, as a potential purchaser of usability services, the pros and cons are:

“Advantages: Provides criteria to choose a service provider, requires less expertise on part of purchaser to make decision, helps justify decisions to management, likelier to get better services resulting in a higher quality product.

“Disadvantages: Needs to be properly advertised and managed, a certified person will cost more, could stifle innovation, guarantees mediocrity.” (Bevan 2003)

Plans are going ahead in the UK for an accreditation scheme:

“The British Web Design and Marketing Association (BWDMA) created the Usability and Accessibility Working Group (UA-WG) in September 2003 as a specific initiative to formulate an Accessibility Accreditation Scheme.” (UA-WG 2004a)

Phase 1 has been completed and Phase 2 was still in development at the time of writing. (22 March 2005)

2.4.7 Who should be responsible for usability?

In theory it could be argued that accredited usability professionals should be responsible for usability. In practice, however, most SMEs do not engage such external services. Therefore someone inside the business must be responsible for accessibility, usability, and the user experience.

The author was unable to find any academic literature specifically about who should be responsible for the usability of an e-commerce website. Therefore the information for this section was gleaned from articles written by industry experts in Internet magazines and usability-related websites.

The primary research undertaken as part of this study also addressed this issue and the findings are discussed later in this report.

(i) Accessibility

It is important to consider who would be legally liable for an inaccessible site. The analogy is often drawn between web designers and architects. In the construction industry, architects are responsible for ensuring the buildings they design for clients meet legal requirements, including those related to disabled access. Currently it is the website owner who is liable for the site's inaccessibility. It is possible that the same "duty of care" which applies to architects could be extended to website designers. "After all, it could be argued that one of the reasons a client would employ an agency would be to ensure that the resulting site meets all the legal requirements, which the clients wouldn't expect to be aware of themselves." (Nutley 2004)

(ii) Usability

"Interactive design [is] a seamless blend of graphic arts, technology, and psychology." (Wieners 2002)

Burton-Taylor (2004), director of a usability consultancy, stated: "Building an effective website is often seen exclusively as the job of the web team, and viewed as a design or technical issue." This can lead to situations where the organisation itself

prevents improvements to the website. Organisational change may be required before an effective website can be developed.

“A good user experience is one where a user achieves their goals and is highly satisfied with the process; it will encourage reuse and recommendation of the site. If the organisation is not focused on providing a good user experience, then the web team will be unable to build an effective web site. Understanding the user experience, through research methods like usability testing, can be a powerful tool in driving the organisational change needed to develop effective websites.” (Burton-Taylor 2004)

Websites have often been designed to reflect the internal structure of an organisation. Vincent Flanders (2004) named BestBuy as the “Daily Sucker” on his website which showcases bad website design. Flanders is one of the usability industry’s most prominent commentators.

“BestBuy is missing an opportunity here. Get me on the page. Get me salivating over their product. Then, only when I go to order it, tell me I need to accept cookies to buy on their site... BestBuy has designed their site to solve BestBuy's problems... they want to track how visitors use the site ... rather than design their site for their customers. This is stupid! stupid! stupid!” (Flanders 2004)

Burton-Taylor also experienced this phenomenon.

“Web sites are often designed to reflect the internal structure of the organisation. But users don’t care about departments and functions; users just want to achieve their goals, and this is likely to cut across internal structural boundaries. Organisational staff will be very familiar with how their organisation works; users do not come with this knowledge. So, without a detailed understanding of users, their likely goals, and how they want to achieve these goals, the web site will inevitably end up with an organisational rather than user focus.” (Burton-Taylor 2004)

There was also considerable anecdotal evidence, including that by Burton-Taylor, to suggest that managers were creating problems for designers, for example, when designers felt unable to overrule a senior manager who liked a particular feature and wanted it to remain, even though the feature was known to cause usability problems.

Building an effective website not only requires commitment at all levels, including senior management, it also requires a variety of skill sets. Hannah (undated) outlined a typical skill set:

- Web Application Programmer
- Database Developer
- Project Manager
- Information Co-ordinator/Manager
- Graphic Designer

Whilst it is not impossible for one person to possess all these skills, the time required to specialise in any of these roles makes it unlikely that one person can successfully take on all of them. Add in other related roles, such as marketing and CRM, and it becomes very clear that building an effective e-commerce website should be a team effort. The business manager, with an overview of the company's objectives and activities, should be an essential and useful member of that team.

(iii) User Experience

Smith provides a useful overview of the vast complexity and multi-disciplined nature of user experience (UX) in his UX Curriculum Diagram. (Smith 2005) (See Appendix)

“Good UX crosses technical (information and technology), reflective (testing and psychological) stuff, creative (design and emotion), sales (marketing and business) and social network boundaries without even trying.” Smith (in LukeW.com 2005)

Although the diagram is idiosyncratic, it illustrates perfectly that teamwork is the best option to achieve successful web design.

2.4.8 Co-operation between disciplines

Having argued that teamwork is essential, the next step was to examine the literature to find what evidence there was of co-operation between the various disciplines involved.

Korzaan stated that understanding consumer behaviour in cyberspace was not only important from a marketing perspective, it was also important from an IT (Information Technology) development standpoint:

“Understanding the dynamics of consumers’ online experiences may be beneficial for developers creating applications that provide optimum possibilities for online purchases and possibly facilitating relationships with marketing personnel who will most likely be key contributors in Web development efforts.” (Korzaan 2003)

This implies that marketing personnel do have an input into their company websites, and that teamwork does happen between disciplines. Interestingly, Korzaan argued that the developer should bridge the gap in this instance, rather than the business manager as is argued in this report. It could be argued that both should bridge the gap. If the marketer is to have any influence on the website’s appearance and functionality, then a basic understanding of usability would be useful for him/her too.

The Robert Gordon University (RGU) announced:

“e-Business has now become a mainstream opportunity for many businesses. It does not belong solely in the IT department or the PR (Public Relations) team but rather it impacts upon all of us.” (RGU News 2004)

However, there is evidence to suggest that usability is generally not taught on Masters of Business Administration (MBA) courses.

“Unfortunately, many web development executives have not had exposure to rigorous usability engineering and testing methods. This leaves them without sufficient background for critically evaluating project proposals and team expertise profiles when allocating development funds. Even the best MBA programs and IT graduate schools offer a superficial overview of software development methods using professional usability engineering and testing case studies or course materials.” (Mauro, 2002, pp. 22-23)

Mauro is perhaps going further than some would, by suggesting that anything more than a superficial overview of software development methods should be taught on

business degrees. What is argued here is that a basic understanding of usability issues should be taught. This does not appear to be a controversial idea - the majority of managers and designers surveyed for this report agreed that website usability should be a component of all university business management courses.

Rainger (2004) identified that accessibility also encompasses many disciplines in various industry sectors.

“Some of these sectors have completely different routes and often will never cross paths. Yet unless everyone from all sectors embraces accessibility, recognises their own identity, and pro-actively seeks out expertise in other fields, then wonderful opportunities will be lost.” (Rainger 2004)

This lack of co-operation between disciplines should be taken seriously by anyone involved with e-business, but perhaps even more worrying is that Rainger goes on to state:

“Indeed some Usability postgraduate degree courses today only have the odd class that even mentions accessibility.” (Rainger 2004)

Rainger argued that

“...[there] must be an equal exchange of knowledge - usability professionals need to continue to research into accessibility but also accessibility professionals need to move towards taking their work from a practitioner base to a more academic format.

“Accessibility knowledge is currently trapped in all these sectors and only relatively few people, like myself, have moved between sectors and as such it is difficult for the average person to see the wider world of accessibility.” (Rainger 2004)

Cloninger (2000) discussed the “war” between usability experts and graphics designers in an amusing and informative article entitled: “Usability experts are from Mars, graphic designers are from Venus”.

In conclusion, the literature revealed evidence that there is a gap between disciplines. The works examined in this section called for usability experts, graphic designers, accessibility professionals, software developers, the IT department, PR team, marketing personnel, web development executives, to work together as a team. Unless business managers also act to bridge the gap they may find that their key business concerns are addressed either imperfectly or not at all.

2.4.9 Delivering what the customer wants

Ultimately what is the point of all this discussion about usability? It is argued here that the primary purpose of most e-commerce websites is to sell things. (Some sites may exist primarily for branding or other reasons but these are the exception rather than the rule.) If this is the case, then delivering what the customer wants must be a primary objective. The only way to find out what they want is to ask them.

There are a variety of methods to obtain customer feedback, from simple “Contact Us” hyperlinks to laboratory testing with focus groups. In an audit of “Website User Feedback Best Practices” OpinionLab (2004) identified and outlined feedback best practices. These are recommended for use on all e-commerce websites regardless of whether the company is a large corporation or an SME.

OpinionLab's 5 Feedback Principles

- Visibility
- Consistency
- Stability
- Accessibility
- Anonymity

Having obtained the consumer research, it is important to consider what to do with it.

“If you run an online business, you're in the user experience business: all the value flows through a user interface. It's essential to develop the expertise to interpret user research and an understanding of when to run usability studies... You... have to know how to deal with the reports and make the research findings relevant to your business.” (Nielsen 2004e)

Even Nielsen is now talking in terms of experience. Customers have been empowered and are more demanding. Creating a personalised interface is a popular way to enhance the visitor's experience. Dell.com is considered to be the ultimate example of how to do this well.

“Dell has what is probably the most visitor-centric site of all the computer manufacturers. For years now they have built a homepage that holds back on saying, ‘Look at us, we’re great.’ Instead they devote a significant part of the page to an area where visitor can self-select.” (Usborne 2004)

Getting personal with the customer also increases switching costs. Once they have learned how to use one system they may be less likely to go elsewhere and start afresh.

2.5 Literature Review Conclusions

The literature review revealed the following major issues:

- Currently there appeared to be two schools of thought as to whether simplicity was paramount or whether it was also necessary to provide something more on an e-commerce website.
- There was no evidence to show that either business managers or designers were bridging the gap between business and technology.
- There appeared to be little consensus or academic research about who should be responsible for the usability of an e-commerce website.

3. Methodology

3.1 Introduction

The Literature Review identified gaps in the existing research and revealed the issues to be studied further. From this the sample was identified, the survey run, and the resulting data analysed.

3.2 Selection of approach

The objectives of the report were concerned mainly with finding business managers' and designers' opinions, therefore a qualitative approach was selected.

“[A] Qualitative approach is concerned with subjective assessment of attitudes, opinions, and behaviour. Research in such a situation is a function of [the] researcher's insights and impressions.”
(Kothari 2002, p.6)

In order to make such an assessment of British business managers, it was decided to create an online questionnaire, and a website was set up for this purpose at FlowTheory.com. (FlowTheory.com 2005)

3.3 Design of the questionnaires

3.3.1 Type of information collected

Classification and analysis data: information on the size of the company and the length of online presence was required for background information.

Administrative data: to ascertain whether the respondents were willing to participate in any follow up studies.

Target data: questions were developed to find out:

- Whether managers and designers had different views on usability issues - was there indeed the gap that had been envisioned earlier?
- Given the two schools of thought about usability being paramount versus the need to entertain – what were the views of each group?
- Who each group thought should be responsible for the usability issues of the e-commerce website
- Whether the groups thought that usability issues should be taught to business students

Three questionnaires were designed, piloted (due to the similarity of the three only one pilot for all was deemed necessary), and administered. The survey was online at flowtheory.com.

3.4 Pilot study

The purpose of the pilot study was to ensure the initial questionnaire itself was usable and whether the questions were seen as relevant and appropriate by business managers. Seven suitable contacts were selected from the author's email contact list. Those selected were known to be Managing Directors (or similar) of a business with an e-commerce site. Those selected were known to have different types of businesses, some selling goods, others selling services, some pure play*, others not. Testing was also done to ensure cross-browser compatibility of the survey website. Whilst the pilot group were not part of the initial main sample population (i.e. included in the affiliate agent's directory), these people had similar attributes to the main sample and their comments or suggestions, if any, would be valuable.

*Pure-play, a term used in stock trading (especially on the Internet), refers to ownership in companies that focus on and specialize in a particular product or service area to the exclusion of other market opportunities in order to obtain a large market share and brand identity in one area." (techtarget 2001) The term is used here to mean those who focus only on Internet activities and have no offline sales outlets.

The pilot study responses to the questionnaire were very favourable. In summary, the pilot was a success and it was planned to go ahead with the main survey without the need for any changes or refinements.

3.5 Selection of sample and collection of data

Initially, it was planned to take a random sample from an online directory of British businesses. However, closer inspection of the directories revealed that many of the businesses included were not e-commerce ventures and were therefore unsuitable. (Many were simply brochure sites for tradespeople.)

It was necessary to find a large collection of e-commerce sites which were likely to have both a business manager and a designer. Affiliate agents were identified as a suitable source in that their purpose is to bring together merchants (vendors with e-commerce sites) and publishers (other websites which are willing to display the merchants' advertisements). A business which had spent money to create an affiliate programme via an affiliate agent was actively promoting an e-commerce website, was likely to have a small or medium business where the design was not done by the owner/manager, and was likely to have a "business manager". Therefore, it was decided that the affiliate agents were a logical source to find the type of business manager required for the survey.

The first step, therefore, was to visit a leading British affiliate agent to view their directory of merchants. Next, each merchant's site was visited to ensure they met the criteria (British, SME status) and to find a contact email address. One problem encountered was that, presumably due to the amount of UCE (unsolicited commercial email and Spam) currently on the Internet, many businesses did not have a contact email address on their site, but used a "Contact Us" form instead. In these cases, the generic info@theirwebsitename was used. This was likely to reduce the response rate. Another problem encountered was that many sites only had the contact details of their customer service or sales departments. Some sites did not appear to have any contact information at all.

All the merchants in the directory were contacted, where possible, excluding sites for gambling, lotteries, Business to Business (B2B), not British, or obviously larger than SMEs. The Department of Trade and Industry (DTI) definition of SME was used (under 250 employees, turnover less than GBP35m, balance sheet total less than GBP30m). Sister-sites which were likely to have the same manager were also excluded to avoid sending the same person the request more than once.

Out of 330 business managers contacted, there were only 12 responses - a very poor response rate. It was decided to revisit the sites which had "Contact Us" forms and make the request individually via each. This resulted in a few more responses.

The low response rate was likely to be partly because (as someone who did reply said) managers are tired of the proliferation of questionnaires they receive from students. Additionally, it is probable that due to the prevalence of UCE the email message about the questionnaire was simply deleted. Sending the questionnaire by traditional post might have increased the response rate, but due to cost, time, and other constraints, it was decided not to do this.

Instead, publicity was sought for the questionnaire among many online areas where managers and/or designers were likely to be found. This included emailing all the online British Chambers of Commerce requesting them to ask their members to participate, writing an article about the research which was published in the Federation of Small Businesses (FSB) magazine, posting on several business and designer related discussion fora, advertising on several websites, and various other activities to advertise the survey. Eventually the responses trickled in. The low response rate is discussed further in the Findings section.

Partly due to the poor response rate of managers and also to provide additional data to ascertain whether there was a gap between managers and designers, a second questionnaire was added to gather data about designers' opinions. A third one was added to include managers who were also designers. This widening of the sample population, plus the additional publicity which had been generated for the questionnaire improved the response rate somewhat. The final number of responses was 82.

4. The Findings

4.1 Introduction

There were many positive comments about the questionnaire itself. It was found to be “quick and easy to do”. Another business owner commented that the questionnaire had made him think about his website more and perhaps rethink how things were done.

All the data were entered into Statistical Package for the Social Sciences (SPSS) databases.

4.2 Background information

The classification data was analysed to provide background information on the sample. A summary of the results is below.

4.2.1 Managers

- About 75% of respondents had been trading online for more than two years
- There was a wide spread of how important the e-commerce turnover was in terms of the whole business. Most responded either more than 80% or less than 20%, with very few where the e-commerce turnover was between 20% and 80% of the business.
- There was an even split between those businesses which were pure play and which were not.
- Most, 71%, had between one and five employees. None had more than 50.

- 44% had web design done in-house, 29% out-sourced, and 27% used a mix of both.
- Most sites had “occasionally” or “sometimes” had a major redesign since their launch, with few outliers in the “frequently” category. But over a fifth had “never” had a major redesign.
- 54% of managers took responsibility for deciding when their site should be redesigned, 34% replied that the manager and designer did this together. The small remainder either left it to the designer, had a management team in place, or replied that the Managing Director was responsible.
- Most managers, 85%, had either “a fair amount” or “a lot” of input into the appearance of the e-commerce site.
- The number was slightly lower, 80%, for input into the functions of the site.
- 56% said they had “sometimes” asked the designer to make changes to the sites appearance. There was an almost even bell-curve between “never” and “frequently”.
- Asking for changes to the site’s functions produced different results: 12% “never”, 20% “rarely”, 51% “sometimes”, and 17% “frequently”.
- When resolving differences between the manager and the designer, 7% said that they did things their way, 54% compromised, 20% took the advice of the designer, and 10% never had any differences.
- 95% said they had personally tested their own website.
- 63% of sites had not been tested by an external party such as a usability consultant. 24% had been so tested. The remainder did not know whether their site had been tested or not.

- 59% said that they and the designer together were responsible for testing the site, 2% relied on an external party, the remainder were mainly evenly split between either the manager or the designer. A few had some other system in place, such as usability being the responsibility of a Technical Manager.
- Most had some means of collecting customer feedback on their sites. Email links and “Comment Forms” were the most common methods used.
- When deciding whether to implement customer suggestions it was mainly either the manager, or the manager and designer together who were responsible. A few had other systems in place such as a Management Team.
- 85% of managers had been using the Internet for more than five years. No one had been using it for less than two years.
- 93% used the Internet most days. The remainder used it 2-3 days a week.
- 100% had bought something online other than from their own website.
- 83% had experienced difficulty when attempting to buy something online – and all of them had given up before completing the purchase. The remainder had not experienced any difficulty.
- 42% had no experience of web design, even as a hobby. 34% had a “little” experience, 22% a “lot”.
- 71% had no training, formal or informal, in web design. 24% had a “little” experience, 5% a “lot”.
- 73% had no training specifically in usability, 22% had a “little” experience, 2% a “lot”.

4.2.2 Designers

- 26% worked for a design company, 37% for “another company”, and 32% were freelance.
- 32% said that their manager or clients had “a little” input into the appearance or the website. 42% replied “a fair amount” and 10% “a lot”. The remainder did not respond.
- The same question relating to the functions of the website elicited the following responses: “a little” 26%, “a fair amount” 42%, “a lot” 15%, and 15% did not respond. Interestingly it appeared, therefore, that managers want to have more influence over the functions rather than the appearance of their websites. This contradicted the managers’ views.
- When asked whether the managers ever asked for changes to the appearance of the website, the majority 52% answered “sometimes”. The other responses were: 5% “never”, 16% “rarely”, 11% “frequently”, and 15% no response.
- The same question about the functions of the site resulted in the following: 5% “never”, 21% “rarely”, 47% “sometimes”, 5% “frequently”, and 21% no response. When it comes to making changes, it seems that managers are more likely to make changes to the appearance rather than the functions of the site.
- How differences of opinion between managers and designers were resolved revealed the following: 10% of designers did things their way, 53% compromised, 10% gave the manager what s/he asked for, and 26% did not respond.
- Of the non-responses above, several gave “other responses”, such as resolving differences by “logical debate”.
- On the issue of who is responsible for testing the e-commerce website: 32% said the designer was, 42% the designer and manager together, 16% an

external party, 5% said “other” such as the firm’s Q&A department. 5% did not respond.

- 68% had been designers for more than 5 years, of the remainder there was an even split between those who had between 1-2, and 2-5 years experience.
- Those having formal training in website design were in the majority: 21% “a lot”, 42% “a little” and 37% “none”.
- Those having formal training in usability were in a small majority: 32% “a lot”, 26% “a little” and 42% “none”.

4.2.3 Manager/Designers

- There was a wide spread of how long designer/managers had been selling goods or services online: Less than 1 year 23%, 1-2 years 36%, 2-4 years 23%, more than 4 years 18%.
- Again, there was a wide spread according to how important the e-commerce business was in term of the entire business. 14% said less than 20%, 27% between 20% and 50%, 13% between 50% and 80%, and 45% more than 80%.
- 77% were pure play, 23% were not.
- 91% had 1-5 employees in the e-commerce business, 9% had between 5 and 20.
- 68% outsourced some of their design/development work whilst 32% did not.
- When asked how many times the site had had a major redesign since its launch, they answered: 27% “never”, 36% “occasionally”, 4% “sometimes”, 32% “frequently”.
- 95% had personally tested their own site, 5% had not.

- 23% had had their site tested by an external party, 77% had not.
- 91% said they were responsible for testing their own site, 9% said an external party was.
- 82% had been using the Internet for more than five years. 13% between 2 and 5, and 5% did not respond.
- 100% “surfing” on most days.
- 95% had bought something online other than from their own website. 5% did not respond.
- Of those who had purchased online 81% reported having difficulty, and 76% had given up before completing the transaction.
- There was a broad range of amount of formal training in web design: 23% “a lot”, 32% “a little”, 41% “none”, and 5% did not respond.
- Training in usability specifically showed similar results: 23% “a lot”, 18% “a little”, 55% “none”, and 5% did not respond.

4.3 Opinions

The section of the questionnaire which asked for opinions provided the target data. Whilst the three questionnaires had been customised to ask background questions relevant to each individual group (rather than putting them through the process of avoiding questions which would not apply to them), the opinions sections were almost identical for all three groups. Thus it was possible to create a new database and input all the opinion-related data into this. Participants were assigned a group number according to whether they were (1) managers, (2) designers, or (3) manager/designers. The next step was to see if there were any differences between the groups.

4.3.1 An e-commerce website has to be visually appealing to be successful

	Business Manager		Designer		Manager/Designer	
	Count	%	Count	%	Count	%
Strongly agree	19	46.3%	8	42.1%	4	18.2%
Agree	19	46.3%	7	36.8%	15	68.2%
Neutral	3	7.3%	3	15.8%	3	13.6%
Disagree			1	5.3%		
Total	41	100.0%	19	100.0%	22	100.0%

Most managers agreed or strongly agreed. Surprisingly, the designers were less positive. One might have expected those with an interest in design itself to believe in the importance of visual appeal. However, ease of use may be more important in the case of an e-commerce site. The designer/managers bridged the gap by holding opinions roughly half-way between the opinions of the former two groups.

One manager's opinion:

“Usability is probably the most important thing. It MUST look reasonable. But it may be highly successful but ugly - checkout ebay!

“For OUR target market - high income A/B professionals, primarily male - the site MUST look the part. We are selling a lifestyle. Our goods are highly ‘aspirational’, and an ugly site would cripple us.

“High quality photos that load in a reasonable time are absolutely crucial to us.”

It is possible that sites selling services rather than products may be different. One manager commented:

“I am selling services online. Selling products may well require a different set of criteria, especially the requirement for visual appeal.”

This comment is worthy of further exploration. Certainly a site selling products has to somehow meet the desire of the consumer to touch, hold, or feel the product before buying. (For further information on the need to touch, i.e. haptic information processing, see Peck and Childers (2003) work.) Those selling services may be more likely to need to satisfy the consumer's need to trust the people running the site. In

the case of financial services, for example, it may be that a customer is more concerned with the level of service they perceive they will receive rather than the appearance of the website.

Another manager's view:

“My opinion is that an e-commerce website should be visually appealing enough so that it comes across as professional and credible. The design element should exist to give the site instant credibility so customers feel happy about buying from it.

“This can be achieved without over-complicating the design, and while keeping the image file size overhead to a minimum so as not to impact on performance, as speed of the website is still a critical factor despite broadband gaining traction now.

“In my opinion, people want fast, easy to use (well laid out) websites where they don't have to think about where to find something. Just make it obvious how to use the site.

“I think the designer/developer role and business manager role are incredibly closely linked. In my experience these have to work hand in hand to get the right mix across to customers on the site.

“My mantra is always ‘keep it simple’, because the simplest way tends to put up the least barriers to potential customers.”

It seems therefore that managers think visual appeal is necessary to create trust and make the site look credible. Certainly an amateurish-looking site will not inspire the customer to buy. In the case of e-commerce, then, visual attractiveness is not simply about aesthetics – it is good business sense.

4.3.2 These days customers expect to be entertained while they are buying

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	1	2.4%				
Agree	7	17.1%	1	5.3%	3	13.6%
Neutral	12	29.3%	6	31.6%	6	27.3%
Disagree	20	48.8%	9	47.4%	11	50.0%
Strongly disagree	1	2.4%	3	15.8%	2	9.1%
Total	41	100.0%	19	100.0%	22	100.0%

There appeared to be little enthusiasm for entertainment value. This is surprising, as the latest thinking in the industry is that it is essential to provide an enjoyable experience for the consumer. Interestingly, further analysis (see below) showed that business managers with specific usability training showed most agreement with this statement.

One manager's opinion:

“We do use humour quite a lot to entertain. This works for us but it's a VERY subtle game. For us we don't want to go laddish (too down market) but we like to sound independent (we are) and not in the pockets of our suppliers (we are not).

“The fun tone and our support of charities are two of the most important things to our customers.”

Whilst entertainment value on its own may not necessarily be desirable, hypothetically, take two sites each offering the same product or service: both look equally visually attractive, both are equally easy to use. It is likely that the one which uses humour to entertain its customers while they are buying will be the one with the best customer retention. This of course is conjecture, but if it works for this manager's business then it would appear to be “right” for them. Others might also consider offering some form of entertainment. An e-commerce site must offer something extra to set it apart from all the others who are vying for the same customers. One manager suggested that strong branding was the most important way to provide differentiation. Further research into the importance of branding is recommended.

4.3.3 Web design decisions are too important to be left to designers alone

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	14	34.1%	2	10.5%	8	36.4%
Agree	21	51.2%	5	26.3%	11	50.0%
Neutral	3	7.3%	5	26.3%	1	4.5%
Disagree	2	4.9%	4	21.1%	2	9.1%
Strongly disagree	1	2.4%	3	15.8%		
Total	41	100.0%	19	100.0%	22	100.0%

Managers appear to want to be involved in design decisions. Designers, predictably, are less keen. However, it may be that designers do not want managers involved because managers do not understand the subject. There was considerable anecdotal evidence to suggest that designers were frustrated by managers interfering when they did not know what they were talking about.

However, one designer made an additional comment that their differences were resolved by: “Logical debate - sometimes the manager will not comprehend something fully and other times I will not comprehend business reasons.” This was a good example of an attempt to bridge the gap between disciplines.

Given that designers were mainly in favour of managers being taught about website usability on university business courses, it may be that designers would welcome managers’ involvement if the managers had some understanding of the subject.

One manager’s view was that designers cannot be expected to understand the product and therefore it is essential for the manager to be involved:

“We operate two entirely different websites selling entirely different products. Although the general feel and menus are similar on both sites overall navigation is quite different because of the difference in products. For this reason I would say it is vital that the business has significant input in how the site is designed as you cannot expect a web designer to have prior knowledge of the products you intend to sell.”

4.3.4 Customers no longer want glitter - they want content and service, and they want it fast

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	17	41.5%	5	26.3%	10	45.5%
Agree	20	48.8%	9	47.4%	11	50.0%
Neutral	4	9.8%	1	5.3%		
Disagree			4	21.1%	1	4.5%
Total	41	100.0%	19	100.0%	22	100.0%

There appears to be a general agreement with this statement. However, a significant number of designers disagreed, which suggests that they think customers do want more than simply functional sites. Customers do want content and service, and they want it fast, but perhaps they want something more too?

One manager's opinion:

“The design and glitz versus usability is grossly dependent on the product in question and target audience's perception of that purchasing experience based on the traditional alternative.

“In my opinion, if buying regular basics such as condoms (they know exactly what they are getting and just need to purchase) for instance, then the user will be looking for easy and simple process (they will be shopping on price mostly). If, for instance, they are shopping for presents or leisure items they will be looking for more of an experience.

“Either way a strong brand is essential for differentiation on the net.”

4.3.5 Business managers have a key role in ensuring that the e-commerce website is easy to use

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	19	46.3%	1	5.3%	9	40.9%
Agree	18	43.9%	9	47.4%	12	54.5%
Neutral	3	7.3%	4	21.1%	1	4.5%
Disagree	1	2.4%	4	21.1%		
Strongly disagree			1	5.3%		
Total	41	100.0%	19	100.0%	22	100.0%

There was very little disagreement in the managers and designer/managers groups. Therefore it seems that they believe they do have some responsibility for usability issues. Predictably the designers are less keen for the managers to be involved.

4.3.6 Designers are paid to design and they should be allowed to get on with it

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	2	4.9%	6	31.6%		
Agree	11	26.8%	4	21.1%	7	31.8%
Neutral	16	39.0%	6	31.6%	7	31.8%
Disagree	11	26.8%	3	15.8%	4	18.2%
Strongly disagree	1	2.4%			4	18.2%
Total	41	100.0%	19	100.0%	22	100.0%

Whilst managers appeared to be interested and involved with their websites, the designers did not always welcome this involvement. They believed they were trained to do the job and should be allowed to get on with it. There was some anecdotal evidence of managers “screwing up perfectly good websites”.

Also, the problem of “scope-creep” is a major one. Scope-creep is where a designer agrees to do a specified job for an agreed amount of money and then once the agreed work is finished the client wants several changes or additions or “tweaks”. The first thing anyone learns about on a web development project management course is scope-creep and the additional charge sheet.

Business managers need to be aware that requesting changes, even ones which they consider to be small, can result in several hours of work for the designer. Requests such as: “Can you change that colour?” could result in hours of work to change the CSS, re-do the logo, images, buttons, banners, send these new creatives (website artwork) to other people linking to the site, and a plethora of other tasks involved in making that “simple” change. A manager should have at least a little understanding of what is involved before requesting such a change. Of course, things evolve and all sites should be redesigned sometimes to keep up with current trends. Change is inevitable – and desirable. Planned change is better for all involved.

One designer wrote:

“Initial brief says XYZ. He gets XYZ. If he then wants ABC, he pays extra.”

There was even some hostility from designers on this issue:

“Web usability should be decided by the designer, we do more than paint pretty pictures and we're damn good at it...business managers are glorified secretaries...”

The business managers who completed this survey are clearly much more aware of the issues than this comment suggests. However, the comment was included here because it shows the degree of frustration designers sometimes feel. There is often a gap between business managers and designers and both groups need to make an effort to bridge it.

4.3.7 Website usability should be a component of all business management university courses

	Business managers		Designers		Designer/managers	
	Count	%	Count	%	Count	%
Strongly agree	8	19.5%	7	36.8%	7	31.8%
Agree	19	46.3%	7	36.8%	10	45.5%
Neutral	12	29.3%	2	10.5%	5	22.7%
Disagree	1	2.4%	3	15.8%		
Strongly disagree	1	2.4%				
Total	41	100.0%	19	100.0%	22	100.0%

The respondents mostly agreed that universities should teach business students about website usability. In the light of the findings, times have moved on, and in any future study this question should be amended to replace “website usability” with “the influence of website design on optimal user experience”.

It was interesting to note that designers generally agreed that usability should be taught to business students. This suggests that the designers might be more receptive to their manager’s influence if the manager had some training in the subject.

One manager/designer commented:

“I started in the Web industry in 1995. I’ve never been formally trained in anything, because I was almost in there at the beginning and certainly involved as it developed from a little used research tool. (I think there were only about 1 million users at that time.)”

Training does not have to be formal, but for those coming to the Internet later it may be a quick way to catch up.

However, one manager had a different viewpoint:

“I do not believe that usability should be taught other than to explain that it is essential to employ an expert Graphic Designer or Web designer or Brand consultant to do what you need them to do. In my experience a little knowledge is dangerous.”

It is difficult to disagree with the idea that a little knowledge is dangerous. However, if managers are to be effective in hiring experts, then it could be argued that they need at least some knowledge about what skills they are actually hiring, and what exactly they want the hired person to do. The proposed accreditation scheme for usability professionals may be a way to overcome this problem.

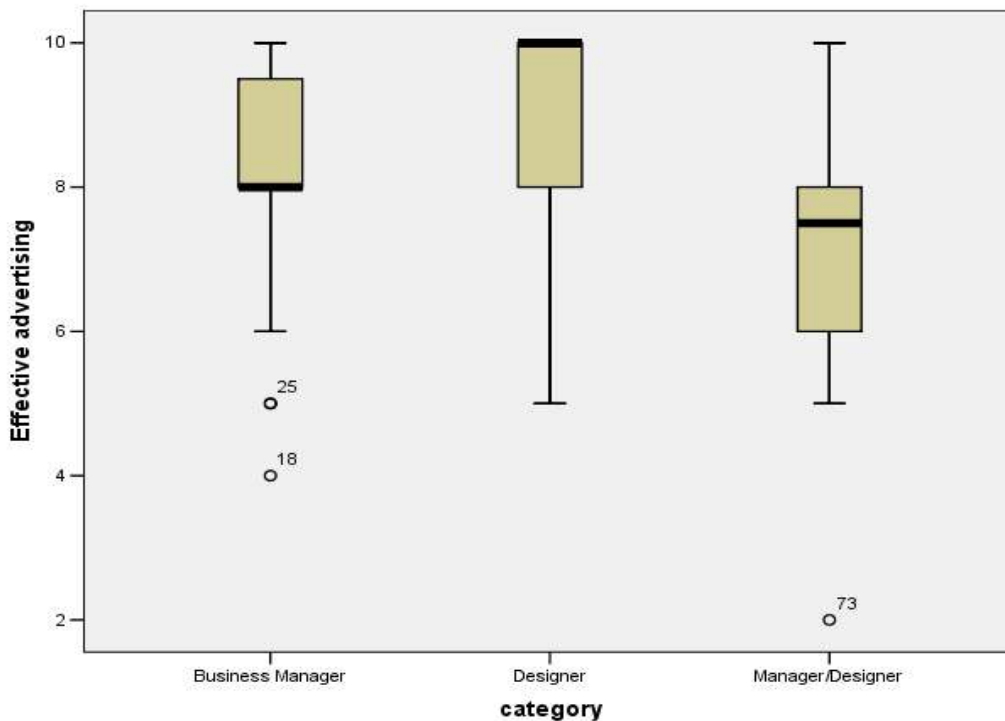
4.3.8 Views on the importance of various factors in the effectiveness of e-commerce websites

The next part of the opinions section listed various factors in e-commerce websites’ effectiveness and asked participants to give each a score out of ten for how important they thought they were. A summary is shown in the table below:

	Business managers			Designers			Designer/managers		
	Mean	Mode	Median	Mean	Mode	Median	Mean	Mode	Median
Effective advertising	8.27	8	8	8.89	10	10	7.23	8	8
Good customer service	9.23	10	10	8.32	10	9	9.00	10	10
Quality of the product sold	8.75	10	9	8.53	10	9	8.23	8	8
Website's ease of use	8.95	10	9	8.74	9	9	8.91	10	9
Website's entertainment value	4.33	5	5	4.47	5	5	4.19	5	5
Website's visual appeal	7.40	8	8	6.79	6	7	6.64	8	7

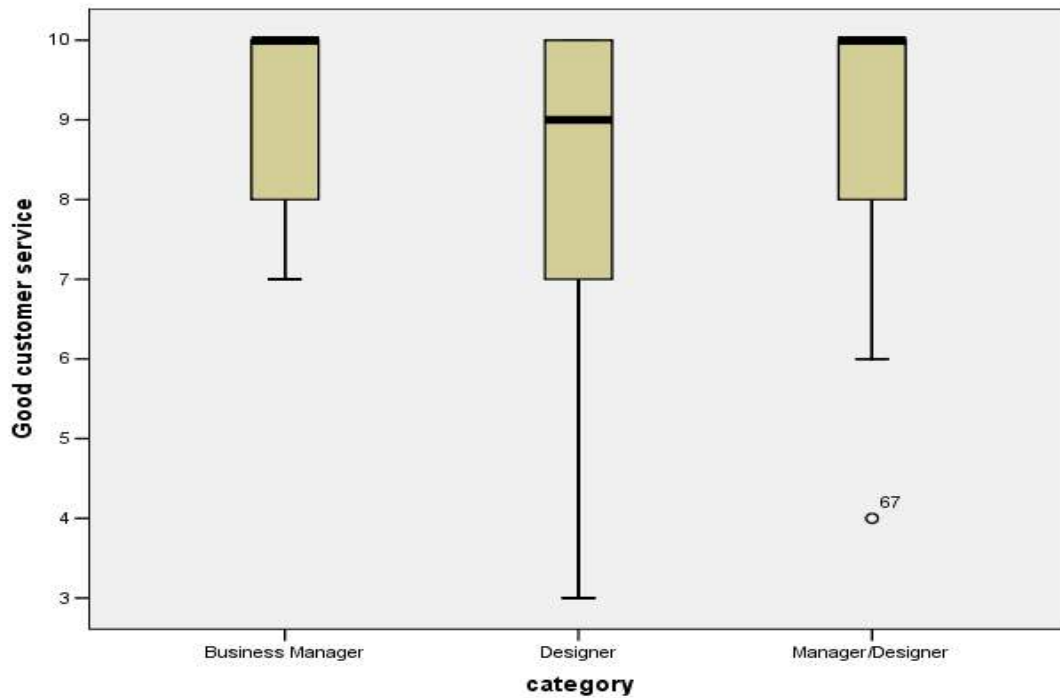
The results were then processed using SPSS to produce “Box plots”. These graphs show the median (the half-way point) and the range of the groups’ opinions. The thick black horizontal line is the group’s median and the coloured rectangles above and below show the inter-quartile range of opinions. For example, the mid-range of managers’ ratings on effective advertising lay at 8/10, within an inter-quartile range of 7 to 9.5. Outliers are shown separately so as not to skew the data (the small index numbers refer to the case number in the database).

4.3.9 Importance of effective advertising



The above graph shows that the groups think differently. The designers are very keen on effective advertising while the designer/managers are less so. Strangely the managers group lies between the other two. It would be interesting to do further research into Internet advertising and managers’ and designers’ views, but at this stage there is insufficient evidence to make any firm conclusions about the above results.

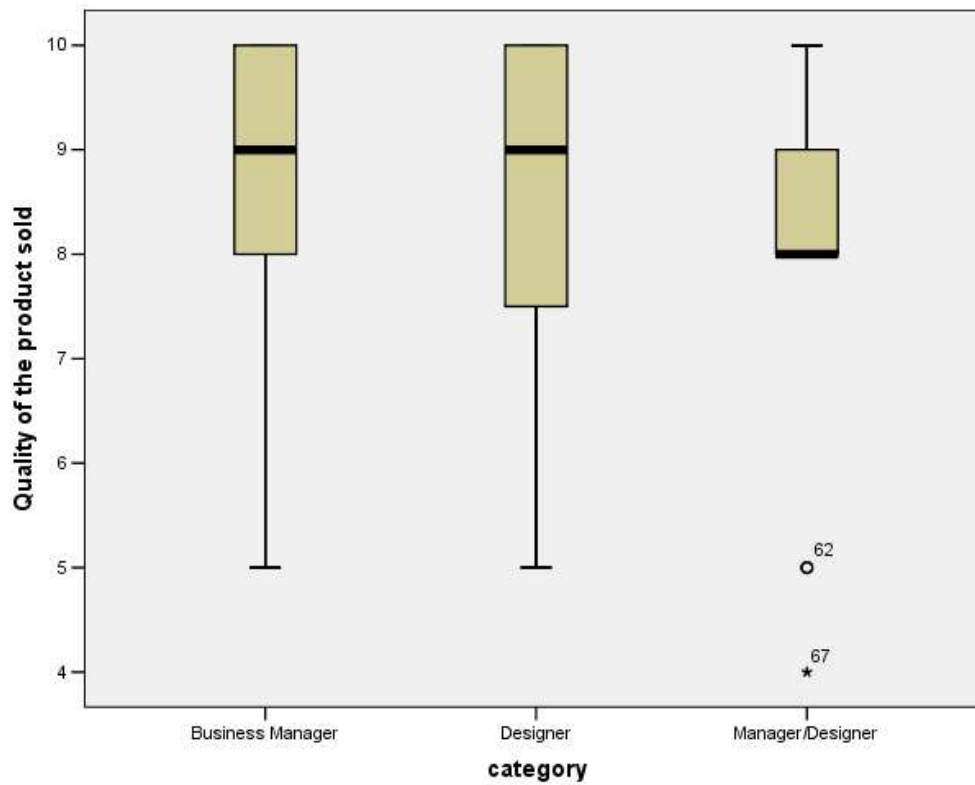
4.3.10 Importance of good customer service



Managers and designer/managers are in broad agreement about the high importance of customer service. Designers rated it lower. It may be that designers are less aware of the need for good customer service or it may be that they rated it lower because it is something they are not personally involved with. Managers may want to consider offering some customer service training to designers in future.

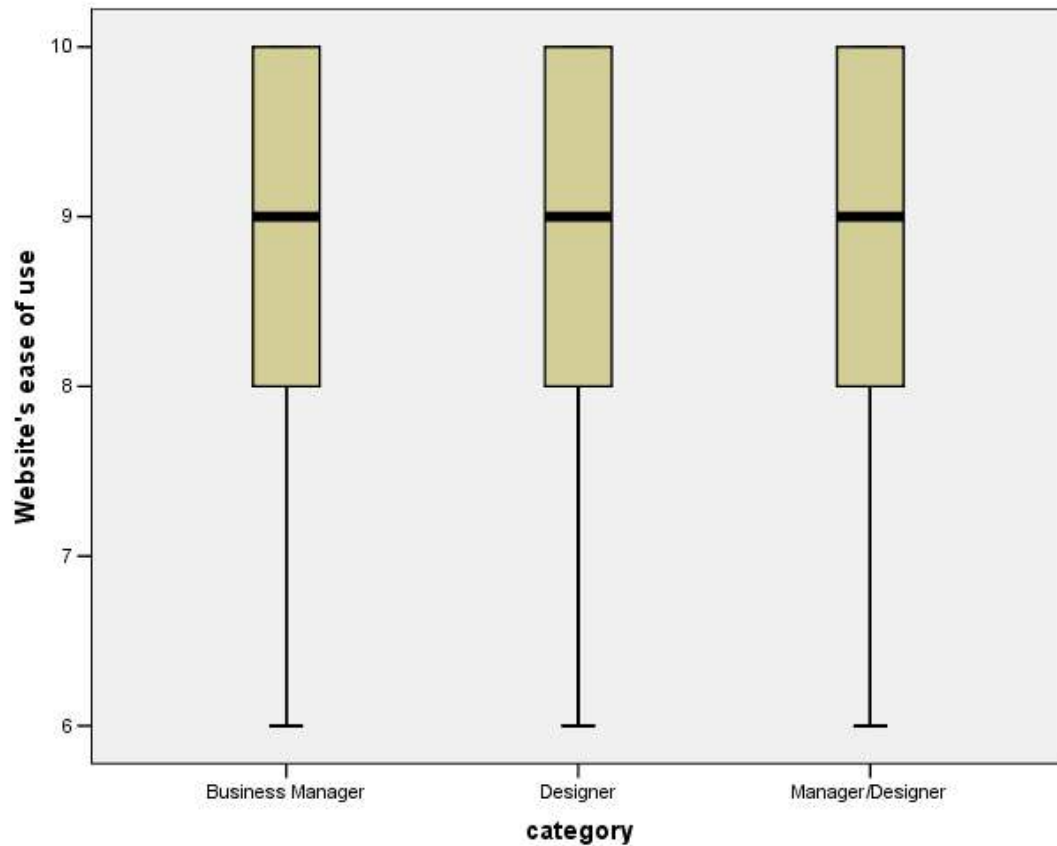
Some designers have already bridged the gap into management issues. Those designers who run their own businesses or do free-lance work may already be aware of the need for customer service. One designer commented: “80% of my work comes from recommendation. The over-riding factor with my clients is support, support, support.”

4.3.11 Importance of product quality



There is broad agreement between the groups about the importance of the quality of product, although the ranges vary.

4.3.12 Importance of website's ease of use



There is complete agreement on the question of the website's ease of use. This is really good news for the industry – there appears to be no gap here. Yet one designer lamented:

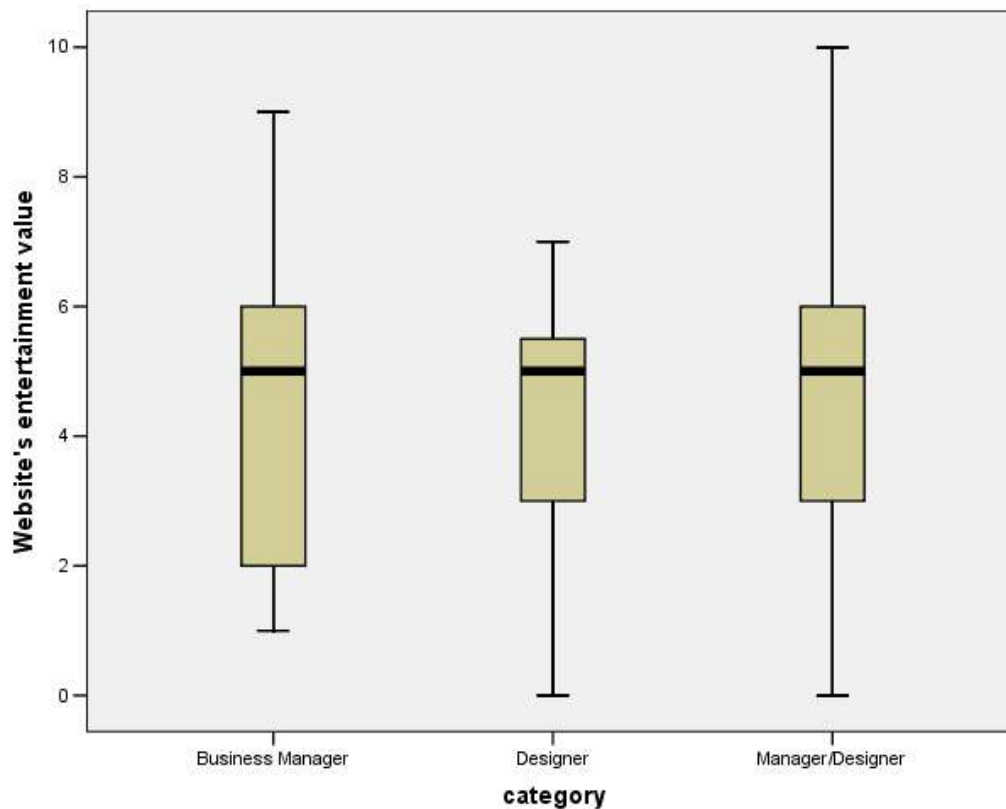
“I am not formally trained in usability but am a huge fan and find that when we have implemented findings from tests, the results are always positive.

“Many people asking for opinions on their sites are extremely resistant to any usability problems I would highlight, even when easily fixed. They just don't see that making a site as easy to use as possible is important.

“Perhaps they would listen if I charged them £1,250 for the assessment. It's the sort of money easily earned back on some shockers I have seen.”

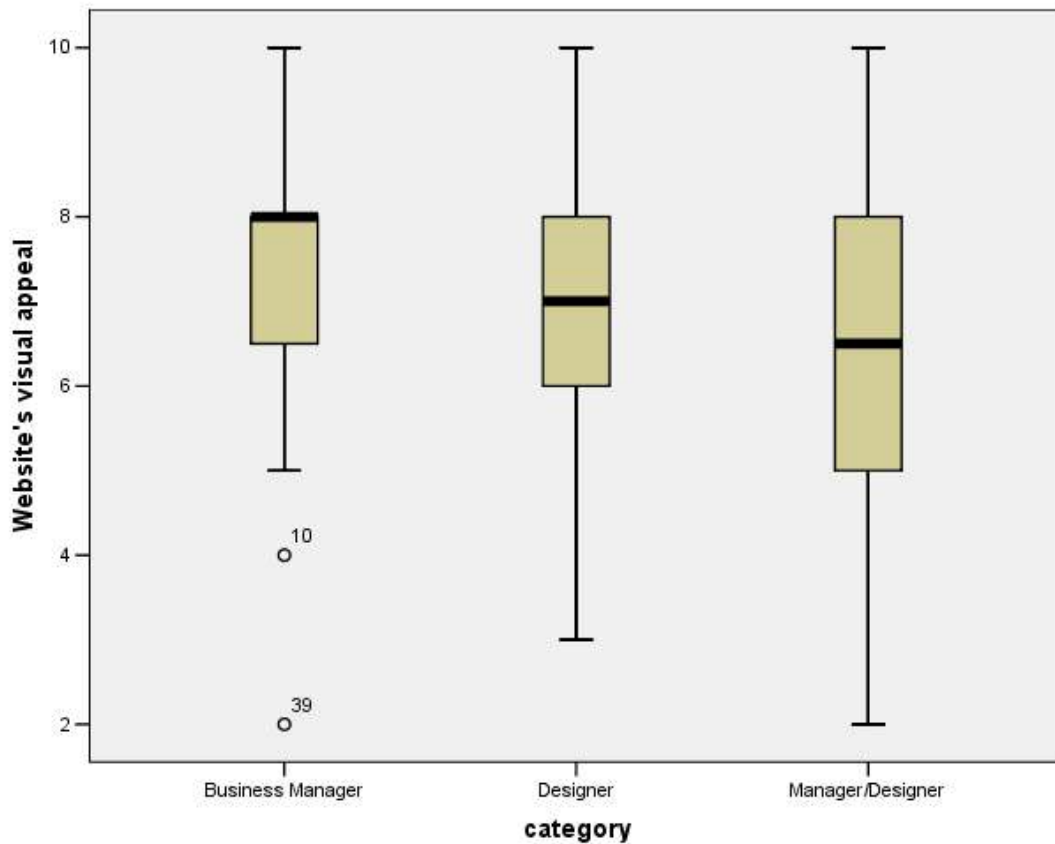
Designers care passionately about what they do, and these days most are well aware of usability issues. The difficulty is to get managers/clients to understand its importance. Whilst the data here show that managers do appear to be interested in usability issues, it is likely that those managers who cause the most problems are those least likely to complete a questionnaire on the subject. It was not possible to find hard evidence to prove this from the existing data – perhaps another study in the future specifically for designers would provide it – but there was a considerable amount of anecdotal evidence from designers to say that managers interfere with the website even though they do not understand the issues involved.

4.3.13 Importance of entertainment value



Again, there is general agreement about the website's entertainment value. Only the range of opinions differs.

4.3.14 Importance of visual appeal



Strangely, on the importance of the website's visual appeal, the biggest difference is between managers and designer/managers. The designers' opinions are roughly half-way between the two. Again, it would require a larger sample before any firm conclusions could be drawn from this.

4.4 Additional analysis

4.4.1 Managers only

Having analysed the differences between the groups, the data were next examined to see if there were any differences of opinion within the managers group. Managers' data were allocated into sub-groups according to how much experience they had in web design, (even as a hobby): (1) yes, a lot; (2) yes, a little, (3) no. Their responses to the opinions statements were tabulated according to these sub-groups.

Everyone agreed that visual appeal was necessary for a successful e-commerce site. However, there was a difference of emphasis in that those with more experience of web design agreed more strongly.

The next marked difference showed by the data was that those with no experience in web design disagreed most with the statement: “Designers are paid to design and they should be allowed to get on with it”. This may corroborate the anecdotal evidence that managers want to influence their websites without having the necessary skills or training to make a valuable contribution. To analyse this further the data was examined to see if there was any correlation between having design experience (or not) and the amount of influence the manager had in the appearance and function of the website.

As expected, the data showed that those with more experience made more initial input into the creation of the site. However, when it came to requesting changes to the appearance and functionality of the site, the data showed clear evidence that those with no experience of web design requested changes just as frequently as those with a lot of experience.

When asked how they resolved differences between them and their designer, as one might expect, those managers with most design experience tended to become more involved. There were no experienced managers who had never had differences with their designer. This suggests that these managers are more hands-on. They are also more assertive – a number of them insisted on things being done their way. Those with no experience compromised or left it to the designer.

Next the data were examined to see if those with any training specifically in usability thought differently to those who had no training. Again, the data were tabulated into three sub-groups, but there were no marked differences between them - with only one exception. The statement: “These days customers expect to be entertained while they are buying”, revealed different thinking. Most managers with usability training were neutral or agreed with the statement. Most with no training disagreed. It is possible that those with usability training are more aware of current thinking in the industry.

However, the sample was too small to enable firm conclusions to be drawn from this finding.

4.4.2 Managers and manager/designers

To widen the sample the managers/designers' data was added to that of the managers and the same exercise done again.

There was a clear finding that those managers with experience of web design agreed more strongly that an e-commerce website has to be visually appealing to be successful. All respondents agreed with or were neutral about the statement. Those with more experience tended to agree more strongly.

Most of the data produced similar results to that of the managers-only group. However, one additional clear finding emerged. Those with no training in usability agreed more strongly that business managers had a key role to play in ensuring that the e-commerce website is easy to use.

4.4.3 Pure play or not

The next analyses were to ascertain whether there were differences of opinion between those who were managers and designer/managers of pure play businesses and those whose businesses were not. Several minor differences were found.

Managers of pure play businesses tended to agree more strongly that web design decisions were too important to be left to designers.

Pure play managers all strongly agreed or agreed with the statement: "Customers no longer want glitter, they want content and service and they want it fast". The others mostly agreed; they were more lukewarm about the issue, and held a wider spread of views.

Pure play managers also agreed more strongly that usability should be taught on university business courses. This was an expected result - with their entire revenue derived from online activities, website usability issues are crucial to them.

4.4.4 Entire sample

Further analysis was done on the entire sample to see if there were any differences of opinion between those with design training and those without. Whilst there was no major difference, there was a difference of emphasis – those who had some web design training tended to favour the idea that a website should be visually appealing more than those without training.

The exercise was repeated to look at whether training in usability made any difference.

People with most training in usability were most strongly in favour of it being taught on business courses, otherwise there were no significant differences depending on the extent of training. What differences there were could be accounted for by professional jealousy on the part of the designers. Some of the previous findings of this report explain why designers often do want their manager to be involved with the website.

4.5 Limitations of this study

The low rate of response seriously hampered any attempt to draw firm conclusions. The poor response was likely to have been caused by managers being tired of receiving a proliferation of questionnaires from students. It may be better to conduct primary research by some other means in future. Flowtheory.com's website statistics showed that the advertising had aroused considerable interest. There had been almost 500 unique visitors, including some from people in other countries. The questionnaire was quick and easy to complete online, and so it is difficult to say what more could have been done to improve the response rate.

Not knowing who all the respondents were was also a potential problem. In the initial sample, it was known who all of the 330 managers contacted were. However, once the sample was widened to the general public, the responses could have been made by anyone. The nature and quality of responses and additional comments suggested that the participants had taken the exercise seriously and had provided useful data. Only one response was rejected, because the participant replied that they did not sell anything online and therefore the questionnaire was “irrelevant” and “ridiculous”. This participant’s data was deleted from the database to avoid the possibility of these “no response” entries from skewing the valid data.

Each group was lumped together as though the participants were homogenous. However, some designers may have been doing cutting-edge work for agencies and thus have been aware that the latest thinking is that providing a good user experience is necessary. Others may have lagged behind and still believed that usability was the top issue. How up to date the person was would have affected their answers and thus the data.

It was also possible that there may have been some confusion among the respondents as to which questionnaire to complete. It was intended that someone who was primarily a designer but who was incidentally a manager too, by nature of being freelance or running their own design business, would complete the questionnaire for designers. However, detailed analysis of the data suggested that some in this category may have thought of themselves as being manager/designers and have completed the questionnaire accordingly. The questionnaires were clearly labelled so this just serves as yet another example of how people do not read things on the Internet – they simply scan for information.

Those managers who responded showed a tendency to be aware of the issues. This tendency is not a reflection of what is happening empirically. It may be reasonable to assume that those who responded have an interest in the findings and perhaps addressing the issues and implementing solutions. The managers who are likely to cause problems for designers presumably did not have any interest in participating in this research.

5. Conclusions

It is difficult to draw any firm conclusions because the sample was not as large as hoped for. However, the data do at least show some pointers.

Most managers agreed that usability was important. However, few appeared to be in the Nielsen camp where usability is everything. Managers appeared to think that visual appeal was also important and, to a lesser extent, also some entertainment value.

Most managers expected to assume at least some responsibility for ensuring the usability of their e-commerce websites, whether by compromise or as a member of a team. They identified that because of the diverse skill set required in creating a successful e-commerce site, no one person can be expected to be an expert in all the related disciplines.

The research showed a large gap between what is actually happening and what is contained in the academic literature. This is partly because of the time lag between a rapidly evolving industry and the timescale of academic research. Additionally, by its very nature, much of the academic writing ignored the practicalities of website design. The most useful sources of information were the industry experts and those actually working in the industry. The literature showed little evidence that business managers were concerned with usability. Yet the findings showed that the managers who completed the survey were indeed very concerned about it.

Current thinking suggests that websites need to be usable and to provide something more. Nielsen and his followers are 1990s dinosaurs and are being increasingly criticised by other industry leaders. Usability on its own is no longer enough.

However, there is a strong move towards standardisation and industry regulation, particularly towards compliance with best practice standards. Notably, W3C is leading the field in this type of work.

The literature also showed there is some evidence that what customers want may be different to what experts believe they want. It is essential to involve the customer as

early as possible in the design process. Listening to customer feedback is crucial if the site is to succeed.

The creation of a successful website requires knowledge of the technology, an understanding of psychology, marketing, knowledge management, content management, interactive design, human computer interaction (HCI), and a multitude of other specialisations. No one person can be expected to be an expert in all of these disciplines. Teamwork is required to overcome this and to ensure the website benefits from as many different areas of expertise as possible.

A manager's opinion:

“There are two aspects to creating a good site:

1) the functionality

2) the visual appeal

“The issue is that the two are interlinked. Hence neither the business end nor the design end can comprehensively achieve these two objectives on their own. In most cases, as I have found, it is difficult to achieve this even if the two parties try to solve it together. The need of the hour is a functionality translator, i.e. someone who can understand and then translate the functionality to be achieved into something that the designers can understand. In my experience, there is no such qualification as a ‘functionality translator’. The post is more of a function of experience - the closest I can think off the top of my head is something akin to a client servicing manager in an advertising agency.”

Teamwork is essential and business managers should be part of that team. To be an effective member of the team they must understand usability issues, otherwise their opinions are not useful. The research showed that some business managers do have some awareness of the issues, particularly in the case of pure plays.

A manager's opinion:

“Also, this Web marketing effort needs to be implemented in the website code during the design phase, and continually changing to

be able to get those search arguments that we want our website to be found by.”

This suggests an understanding of some of the complexities involved in Internet marketing. It is not enough to build a website; there are many other tasks involved to make the website successful.

The research showed that there was a difference of perceptions and that the designers resent input from managers who want to influence the site when they do not understand the issues involved. The solution to this problem is to educate the managers – this is what most designers are asking for too.

5.1 Recommendations for future research

It would be useful to ascertain whether there is any correlation between the managers’ involvement in the appearance and functions of the website and the commercial success of the venture. However, it is unlikely that business managers would give researchers access to the type of confidential information required to complete such a study.

This research explored usability in general. A similar study focusing specifically on accessibility is also recommended. Also, this report focused on e-commerce websites. Usability research into other types of websites is recommended, for example: Intranets, content based sites, gambling, lotteries, and B2B sites.

A manager’s comment:

“Re the question about factors contributing to success, for a business to business website I would add ‘Information Content’ and rank highly.”

Additionally, as one manager commented, the criteria may be different to create a successful website selling services rather than products. Further research is recommended in this area.

Optimal design criteria also depends on the target audience. A manager's opinion:

“An additional aspect is how others in the business view the web site and the amount of internal marketing required to get to them promote it and understand its purpose. Many ‘non-IT’ managers see it as an electronic brochure, whilst the non-marketing ones see it as either a more expensive or cheaper alternative, not an additional tool. Web site design also has to relate to the market place. Three clicks to order or interesting features to browse depends on the target audience.”

As broadband becomes more common in the UK, there is likely to be a change in the way websites are designed. This has implications for usability. Research into broadband and usability would be useful. Similarly usability for sites designed with Macromedia Flash should be studied. This is a vast area encompassing Fitts's Law (objects that are smaller or further away take longer to point to) and other theories.

One manager suggested that strong branding was necessary to provide differentiation between websites. Further research in this area would be useful.

It was beyond the scope of this report to look at the micro areas of usability in any depth. Expanded research on this would be beneficial, particularly if the research was in the public domain. Some micro aspects, on their own, could be the focus of an entire study. Website navigation, for example, is a case in point. One manager commented that a designer had told him:

"Websites used to be designed along the lines of a tree, with a root directory and branches in exactly the same way as a HDD is organised. This can make it difficult to find your way around the site and back to the home page. Now, and especially for ecommerce sites, the leaning is very much towards a circular site that both enables fast access to information and fast return to the home page. Navigation should be possible from any page to any page and from any page directly back to the root, like working around the spokes and rim of a wheel. The site should be organised to lead the customer by the hand from the start page to placing an order via a series of clear steps: Start Here; go here next; here next; here next; complete order. Only then will your site change from an information resource to making actual sales."

Navigation is only one of a multitude of micro factors which would merit further research.

If business managers need a basic understanding of usability issues, it is also possible that they should have at least an awareness of other website-related issues, such as search engine marketing for e-commerce sites . It has also been suggested that increased usability can be a benefit of search engine optimisation. (UA-WG 2004b)

Continued research on the same subject but with a larger sample is recommended. It is proposed to keep FlowTheory.com functioning as a data gathering tool for a further six months. It is also planned to add a discussion forum where managers and designers can add their opinions and further discuss the issues. The original findings will be reviewed in the light of what is hoped will be a larger sample.

References

- 1-HIT 2005. Loading Time Checker. [online] 1-hit.com. Available from: <http://www.1-hit.com/all-in-one/tool.loading-time-checker.htm> [Accessed 9 April 2005]
- BARNET, L., 2004. *Web Usability moves up the Corporate Priority List*. [online] Usability News. Available from: <http://www.usabilitynews.com/news/article2071.asp> [Accessed 8 April 2005]
- BERNERS-LEE, T., 2005. *Web Accessibility Initiative Home Page*. [online] World Wide Web Consortium. Available from: <http://www.w3.org/WAI/> [Accessed 5 April 2005]
- BEVAN, N., 2003. Accreditation of Usability Professionals. In: ed. L. Erlbaum, *Human-Computer Interaction: Theory and Practice (Part 1), Volume 1 of the Proceedings of HCI International*. 2003. [online] Hook: Serco Group plc. pp. 429-433. Available from: http://www.usability.serco.com/papers/Usability_accreditation.pdf [Accessed 8 April 2005]
- BRAJNIK, G., 2000. *Automatic web usability evaluation: what needs to be done*. [online] Udine: Universita di Udine. Available from: <http://www.dimi.uniud.it/~giorgio/papers/hfweb00.html> [Accessed 8 April 2005]
- BRAJNIK, G., 2005, Giorgio Brajnik's Website. [online] Available from: <http://www.dimi.uniud.it/~giorgio/index.html> [Accessed 8 April 2005]
- BROWN, B., SELLEN, A., 2001. Exploring Users' Experiences of the Web. *First Monday*. [online] 6(9). Available from: http://firstmonday.org/issues/issue6_9/brown/index.html [Accessed 4 April 2005]
- BURTON-TAYLOR, S., 2004. *Effective web sites – the responsibility of the whole organisation not just the web team*. [online] The Web Usability Partnership.

Available from: <http://www.webusability.co.uk/downloads/Effective-web-sites.pdf>
[Accessed 8 April 2005]

BYRNE, P., 2003. *Why Accessibility is important for business*. [Online] ScotConnect. Available from: <http://www.scotconnect.com/show.php?contentid=81> [Accessed 5 April 2005]

CECIL, R., 2000. *Composition and Usability*. [online] Digital Web Magazine. Available from: http://digital-web.com/articles/composition_and_usability/ [Accessed 10 April 2005]

CHEN, K., TARN, M. J., HAN, B. T., 2004. Internet dependency: Its impact on online behavioral patterns in E-commerce. *Human Systems Management*. [online] Issue 23. Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

CHOI, D., KIM, J., 2004. Why People Continue to Play Online Games: In Search of Critical Design Factors to Increase Customer Loyalty to Online Contents. *Cyberpsychology & Behavior*. [online] 7(1). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

CHOU, T-J., TING, C., 2003. The Role of Flow Experience in Cyber-Game Addiction. *Cyberpsychology & Behavior*. [online] 6(6). Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

CLONINGER, C., 2000, Usability experts are from Mars, graphic designers are from Venus. *A List Apart*. [online] Issue 74. Available from: <http://www.alistapart.com/articles/marsvenus/> [Accessed 9 April 2005]

CRM TODAY, 2003. *Web Study Shows Companies Can Increase Sales with Better Online Customer Service*. [online] Contact Solutions Ltd. Available from: <http://www.crm2day.com/news/crm/EpuEuAIVVluDOKLTph.php> [Accessed 5 April 2005]

CSIKSZENTMIHALYI, M., 1990. *Flow: The Psychology Of Optimal Experience*. New York: Harper Perennial.

CSS ZEN GARDEN, undated. *The beauty of CSS design*. [online] Vancouver: Dave Shea. Available from: <http://www.csszengarden.com/> [Accessed 5 April 2005]

DISABILITY RIGHTS COMMISSION, 2003. *First DRC Formal Investigation to focus on web access*. [online] Stratford upon Avon: Disability Rights Commission. Available from: <http://www.drc-gb.org/newsroom/newsdetails.asp?id=393§ion=1> [Accessed 5 April 2005]

DODD, J., 2005. The way you make me feel. *.net magazine*. Bath: Future Publishing. February 2005, p142.

DYNAMIC LOGIC, 2002. Web Page Clutter and Online Advertising Effectiveness. [online] Available from: <http://www.dynamiclogic.com/na/pressroom/coverage/?id=118> [Accessed 10 April 2005]

DYNAMIC LOGIC, 2004a. *Research Shows That Two Over-content Ads Per Hour May Be "Appropriate"*. [online] New York: DynamicLogic Inc. Available from: http://www.dynamiclogic.com/na/research/btc/beyond_the_click_mar2004_part1.html [Accessed 5 April 2005]

DYNAMIC LOGIC, 2004b. *Consumer Perceptions of Various Advertising Mediums (sic)*. [online] New York: DynamicLogic Inc. Available from: http://www.dynamiclogic.com/na/research/btc/beyond_the_click_mar2004_part2.html [Accessed 5 April 2005]

EVANS, M., FINCK, N., 2002. *Dr Jakob Nielsen, an Interview*. [online] Digital Web Magazine. Available from: http://digital-web.com/articles/jakob_nielsen/ [Accessed 5 April 2005]

FLANDERS, V. 2004. Daily Sucker. [online] Vincent Flanders. Previously available from: <http://www.webpagesthatsuck.com/dailysucker/> [accessed 16 Dec 2004]

NB: The 16 December 2004 page is no longer available.

- FLOWTHEORY, 2005. *FlowTheory.com Home Page*. [online] Kay McMahon. Available from: <http://www.flowtheory.com> [Accessed 10 April 2005]
- FRUHLINGER, A., 2001. Making it Flow: Achieving the Optimal User experience. *Intercom*. [online] 48(10). Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]
- GOFF, C., 2004. Where, why, who? *New Media Age Supplement*. [online] 23 September 2004. Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]
- GUSTAFSON, A., 2004. Let Them Eat Cake. *A List Apart*. [online] Issue 177. Available from: <http://www.alistapart.com/articles/eatcake/> [Accessed 5 April 2005]
- HANNAH, S., undated. *Strategic Goals for Website Design: a guide for organizations planning to design their Internet presence*. [online] University of Minnesota-Crookston: Northern Great Plains Inc. Available from: http://www.ngplains.org/documents/Strategic_Goals_Publication.pdf [Accessed 8 April 2005]
- HARWOOD, S., 2004. Ad effectiveness hinges on user mindset. *New Media Age*. [online] 2 December 2004. Available from: <http://www.ebscohost.com> [Accessed 10 April 2005]
- HOWELL, N., 2004. Measuring Up. *New Media Age Usability Supplement*. [online] 23 September 2004. Available from: <http://www.ebscohost.com> [Accessed 8 April 2005]
- INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO), 2002. *International Organization for Standardization – E-Business*. [online] Geneva: ISO. Available from: <http://www.iso.org/iso/en/comms-markets/ebusiness/businessindex.html> [Accessed 8 April 2005]
- INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO), 2004. *Standardization in the field of Electronic Business (including E-Commerce)*. [online]

Geneva: ISO. Available from: <http://www.itu.int/ITU-T/e-business/mou/> [Accessed 8 April 2005]

KNOWLES, T., 2005. The type set. *.net magazine*. Bath: Future Publishing. February 2005, p111.

KORZAAN, M., 2003. Going With The Flow: Predicting Online Purchase Intentions. *Journal of Computer Information Systems*. [online] 43(4). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

KOTHARI, C., R., 2002. *Research Methodology: Methods & Techniques*. New Delhi: Wishwa Prakashan.

KOUFARIS, M., 2002. Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*. [online] 13(2). Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

KWON, O.,B., KIM, C-R., LEE, E., J., 2002. Impact of website information design factors on consumer ratings of web-based auction sites. *Behaviour & Information Technology*. [online] 21(6). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

LASZLO SYSTEMS, 2005. Increasing Conversion Rates with a Rich User Experience. [online] San Mateo: Laszlo Syestems. Available from: http://www.laszlosystems.com/success/experience_matters/conversionrates.php [Accessed 5 April 2005]

LEE, M., TURBAN, E., 2001. A Trust Model for Consumer Internet Shopping. *International Journal of Electronic Commerce*. [online] 6(1). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

LUKEW.COM, 2005. Functioning Form – User Experience Diagrams. [online] LukeW.com. Available from: <http://www.lukew.com/ff/entry.asp?156> [Accessed 9 April 2005]

MARR, A., J. (a.k.a. Dr Mezmer), undated. *In the Zone: A Biobehavioral Theory of the Flow Experience*. [online] A. J. Marr. Available from:

<http://www.homestead.com/flowstate/files/mydryart2.html> [Accessed 4 April 2005]

MARR, A., J., 2001. Why behaviorism, to survive and triumph, must abandon its very name. An open letter. *Behavior and Social Issues*. [online] Issue 11. Available from:

http://www.bfsr.org/BSI_11_1/11_1Marr.pdf [Accessed 5 April 2005]

MARR, L., 2001. *Simple Online Transactions: A Usability Evaluation*. [online] The Usability Company. Available from:

http://www.theusabilitycompany.com/resources/research_pdfs/online_transactions.pdf

[Accessed 8 April 2005]

MAURO, C., 2002. Professional usability testing and its return on investment as it applies to user interface design for web-based products and services. [online] Mauro New Media. Available from:

<http://taskz.com/pdf/MNMwhitepaper.pdf> [Accessed

5 April 2005]

MAYHEW, D., undated. *Usability Testing: You Get What You Pay For*. [online]

Mauro New Media. Available from:

http://taskz.com/ucd_usability_testing_indepth.php [Accessed 8 April 2005]

MCLELLAN, H. 2000. Experience Design. *Cyberpsychology & Behavior*. [online] 3

(1). Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

MOLICH, R., EDEM, M., KAASGAARD, K., KARYUKIN., B., 2004. Comparative usability evaluation. *Behaviour & Information Technology*. [online] 23(1) Available

from: <http://www.ebscohost.com> [Accessed 8 April 2005]

MOSS, T., 2004a. *Web usability: the basics*. [online] Usability and Accessibility

Working Group (UA-WG). Available from: <http://www.ua->

[wg.org/articles2/basics.html](http://www.ua-wg.org/articles2/basics.html) [Accessed 5 April 2005]

MOSS, T., 2004b. *Ten Ways to Speed up the Download Time of Your Web Pages*. [online] UA-WG. Available from: <http://www.ua-wg.org/articles2/download-speed.html> [Accessed 5 April 2005]

MOSS, T., 2004c. *Writing Effective Link Text*. [online] UA-WG. Available from: <http://www.ua-wg.org/articles2/effective-links.html> [Accessed 5 April 2005]

MOSS, T., 2004d. *The Secret Benefit of Search Engine Optimisation: Increased Usability*. [online] UA-WG. Available from: <http://www.ua-wg.org/articles2/seo-usability.html> [Accessed 5 April 2005]

MOSS, T., 2004e. *Ten Quick Tests to Check Your Website for Accessibility*. [online] UA-WG. Available from: <http://www.ua-wg.org/articles/tests.html> [Accessed 5 April 2005]

MOUNCEY, P., A., 2003. *Review: 'Profit or Pain from your user experience'*. [online] Norfolk: Hewson Group Consulting. Available from: http://www.hewson.co.uk/profit_or_pain/peter_mouncey_review.htm [Accessed 5 April 2005]

NIELSEN J., 2002. *Interview: Then and Now*. [online] Digital Web Magazine. Available from: http://digital-web.com/articles/jakob_nielsen/ [Accessed 5 April 2005]

NIELSEN J., 2004a. *Top Ten Mistakes In Web Design*. [online] Jakob Nielsen. Available from: <http://www.useit.com/alertbox/9605.html> [Accessed 5 April 2005]

NIELSEN J., 2004b. *Most hated advertising techniques*. [online] Jakob Nielsen. Available from: <http://www.useit.com/alertbox/20041206.html> [Accessed 5 April 2005]

NIELSEN J., 2004c. *Design Guidelines For Visualizing Links*. [online] Jakob Nielsen. Available from: <http://www.useit.com/alertbox/20040510.html> [Accessed 5 April 2005]

NIELSEN J., 2004d. *The Need For Web Design Standards*. [online] Jakob Nielsen. Available from: <http://www.useit.com/alertbox/20040913.html> [Accessed 8 April 2005]

NIELSEN J., 2004e. *Acting on user research*. [online] Jakob Nielsen. Available from: <http://www.useit.com/alertbox/20041108.html> [Accessed 9 April 2005]

NIELSEN J., 2005. *Jakob Nielsen's Website*. [online] Jakob Nielsen. Available from: <http://www.useit.com> [Accessed 21 October 2004]

NOVAK, T., HOFFMAN, D., DUHACHEK, A., 2003. The Influence of Goal-Directed and Experiential Activities on Online Flow Experiences. *Journal of Consumer Psychology*. [online] 13(1&2). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

[NB: At time of accessing EBSCO erroneously listed this article as “The Influence of **Global**-Directed and Experiential Activities on Online Flow Experiences”]

NUTLEY, M., 2004. Time is right for sites to build in accessibility. *New Media Age*. [online] 6 May 2004. Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

NUTLEY, M., 2005. Keeping it simple for users without them switching off. *New Media Age*. [online] 20 January 2005. Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

OPINION LAB, 2004. *Website User Feedback Best Practices: An Audit of the User Feedback Practices of the 50 Most Trafficked Websites*. [online] Opinion Lab Inc. Available from: http://www.opinionlab.com/pdf/2004_Audit_Feedback_Practices.pdf [Accessed 9 April 2005]

OUTING, S., RUEL, L., 2004a. *Observations on Advertising*. [online] St. Petersburg, Florida: Poynter Institute. Available from: <http://www.poynterextra.org/eyetrack2004/advertising.htm> [Accessed 5 April 2005]

- OUTING, S., RUEL, L., 2004b. *What we saw through their eyes*. [online] St. Petersburg, Florida: Poynter Institute. Available from: <http://www.poynterextra.org/eyetrack2004/index.htm> [Accessed 5 April 2005]
- PECK, J., CHILDERS, T., 2003. Individual Differences in Haptic Information Processing: The “Need for Touch” Scale”. *Journal of Consumer Research*. [online] 30(3). Available from: <http://www.ebscohost.com> [Accessed 10 April 2005]
- PENENBERG, A., L., 2004. Ads that annoy also succeed. [online] Wired News. Available from: http://www.wired.com/news/business/0,1367,64807-2,00.html?tw=wn_story_page_n [Accessed 5 April 2005]
- PERFETTI, C., LANDESMAN, L., 2001. Eight Is Not Enough. *User Interface Engineering*. [online] Bradford, Massachusetts: User Interface Engineering. Available from: http://www.ue.com/articles/eight_is_not_enough/ [Accessed 8 April 2005]
- PRACTICAL ACCOUNTANT, 2002. New Technology Savvy Needed. *Practical Accountant*. [online] 35(4). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]
- RAINER, P., 2004. Is Accessibility the last great Alchemy? [online] British HCI Group. Available from: <http://www.usabilitynews.com/news/article2089.asp> [Accessed 9 April 2005]
- REID SMITH, E., 2000. *E-Loyalty: How to keep customers coming back to your website*. New York: Harper Collins.
- RGU (Robert Gordon University) NEWS, 2004. Education on the Web December 2004. [online] Aberdeen: RGU. Available from: <http://campus.rgu.com/campus/home/NewsDec2004.cfm?CFID=337769&CFTOKEN=49828995#five> [Accessed 9 April 2005]

ROY, M. C., DEWIT O, AUBERT, B. A., 2001. The impact of interface usability on trust in Web retailers. *Internet Research: Electronic Networking Applications and Policy*. [online] 11(5). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

SCHROEDER, W., PERFETTI, C., SPOOL, J. M., 2002. Enhancing User Interaction in Pet Market. *User Interface Engineering*. [online] Bradford, Massachusetts: User Interface Engineering. Available from: <http://www.uie.com/publications/whitepapers/EnhancingInteraction.pdf> [Accessed 5 April 2005]

SING. C., K., 2004. The Measurement, Analysis, and Application of the Perceived Usability of Electronic Stores. *Singapore Management Review*. [online] 26(2) Available from: <http://www.ebscohost.com> [Accessed 8 April 2005]

SMITH, T., 2005. UX Curriculum Diagram. [online] OtherWorks.com. Available from: <http://dev11.otherworks.com/theotherblog/images/UXCurriculum.gif> [Accessed 9 April 2005]

STARLING A, 2001. *E-commerce and Usability*. [online] Web Developer's Virtual Library. (WDVL) Available from: <http://www.wdvl.com/Authoring/Design/Basics/ecom1.html> [Accessed 5 April 2005]

TECHTARGET, 2001. *pure-play – a Whatis definition*. [online] Tech Target. Available from: http://searchsecurity.techtarget.com/gDefinition/0,294236,sid19_gci509390,00.html [Accessed 12 April 2005]

TESCO, 2005. Tesco Home Page. [online] Available from: <http://www.tesco.com/> [Accessed 29 March 2005]

THE USABILITY COMPANY, 2005. *Standards* [online] The Usability Company (TUC). Available from: <http://www.theusabilitycompany.com/approach/standards.html> [Accessed 8 April 2005]

TIEDTKE, T., MÄRTIN, C., GERTH, N., 2002. *AWUSA – A Tool for Automated Website Usability Analysis*. [online] Augsburg: Augsburg University of Applied Sciences. Available from:

<http://wwwcs.upb.de/cs/ag-szwillus/lehre/ss02/seminar/semband/MarcoWeissenborn/WebUsabilityTools/AWUS1605.pdf> [Accessed 8 April 2005]

TURBAN, E., GEHRKE, D., 2000. Determinants of e-commerce Website. *Human Systems Management*. [online] 19(2). Available from: <http://www.ebscohost.com> [Accessed 4 April 2005]

UA-WG (USABILITY AND ACCESSIBILITY WORKING GROUP), 2004a. Accessibility Accreditation Scheme. [online] London: UA-WG. Available from: <http://www.ua-wg.org/aas/> [Accessed 9 April 2005]

UA-WG (USABILITY AND ACCESSIBILITY WORKING GROUP), 2004b. The Secret Benefit of Search Engine Optimisation: Increased Usability. [online] London: UA-WG. Available from: <http://www.ua-wg.org/articles2/seo-usability.html> [Accessed 10 April 2005]

USBORNE, N., 2004, Helping Your Visitors: a State of Mind. *A List Apart*. [online] Issue 171. Available from: <http://www.alistapart.com/articles/helpingvisitors/> [Accessed 9 April 2005]

USABLENET, 2005. Website testing systems. [online] UsableNet Inc. Available from: <http://www.usablenet.com/> [Accessed 10 April 2005]

WALKER, D., 2004a. *How To Rebuff Stupidity: Remember Boo.com!* [online] David Walker. Available from: <http://www.shorewalker.com/section7/boo.html> [Accessed 4 April 2005]

WALKER, D., 2004b. *Accept responsibility to make your online project work*. [online] David Walker. Available from: http://www.shorewalker.com/section3/accept_responsibility.html [Accessed 4 April 2005]

- WALKER, D., 2004c. *Don't make me think: Classics Illustrated does website usability*. [online] David Walker. Available from: http://www.shorewalker.com/section4/think_review.html [Accessed 4 April 2005]
- WATCHFIRE, 2005. *Bobby Test*. [online] Watchfire Corporation. Available from: <http://bobby.watchfire.com/bobby/html/en/index.jsp> [Accessed 5 April 2005]
- WEBAIM, 2005. Wave Test [online] Webaim.org. Available from: <http://www.wave.webaim.org/index.jsp> [Accessed 8 April 2005]
- WIENERS, B., 2002. Making Headlines in 10,000- Point Type. *Wired News*. [online] 10(12). Available from: <http://wired-vig.wired.com/wired/archive/10.12/headlines.html> [Accessed 8 April 2005]
- WILSON, J., 2005. *Making your website work for you, not against you*. [online] San Francisco: Workz.com. Available from: http://www.workz.com/cgi-bin/gt_tpl_page.html?template=3&content=2748&nav1=1& [Accessed 10 April 2005]
- WINN, W., BECK, K., 2002. The Persuasive Power of Design Elements on an E-Commerce Web Site. *Technical Communication Online*. [online] 49(1) Available from: <http://www.techcomm-online.org/issues/v49n1/full/0497.html> [Accessed 5 April 2005]
- WOOD, T., 2004. Talking To Users. *New Media Age Supplement*. [online] 23 September 2004. Available from: <http://www.ebscohost.com> [Accessed 5 April 2005]

Appendix: Smith's UX Curriculum

