

**DIVERSITY AND WEB DESIGN**

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# DIVERSITY AND WEB DESIGN

## **Abstract**

The ability to target consumer segments and achieve a match between the product or promotional instrument and the consumer self-concept is stressed in the marketing literature. The online quality of a website has been said to have a positive impact on intention to use a website and perform a search, with preference for a website linked to perceptions of its credibility. Website preferences can also encourage or discourage consumers' purchasing intentions and the perceived visual attractiveness of a website is said to have a greater impact on e-loyalty and consumer retention than traditional attributes such as product selection and price.

The important impact of preferences necessitates an understanding of the factors in a website that can appeal or not to people. Unfortunately, until as recently as 2004, studies investigating website aesthetics were anchored in the universalist paradigm which assumed that reactions would be universally held rather than differentiated according to demographic variables. A Canadian study in 2005 documented differences in reaction by gender but this study was inadequate in using a single commercial stimulus which had not been selected on any particular basis. Prior to this, research on web aesthetics was rooted in the universalist aesthetic in assuming that a single set of factors would suit all tastes.

The overview describes the work by the author to ascertain the extent to which website productions differ by segmentation variables and the extent to which

preferences can also be segmented. The author's work has isolated the impact of segmentation variables (gender, personality and nationality) on website productions and of gender on website preferences and the overview focuses on gender since the impact of this variable has been explored in relation to productions and preferences.

## Introduction

### **E-commerce: a growth area**

By June 2010, the world Internet user population reached 1.9 billion

(<http://www.allaboutmarketresearch.com/internet.htm>) and commentators are agreed

on the speedy growth of the worldwide web with annual growth estimated in

2004 at 20% (van Iwaarden et al., 2004) and recently, by Dr Odlyzko of the University

of Minnesota, as 50 to 60 % per year

(<http://arstechnica.com/old/content/2008/04/exaflood-not-happening.ars>). This speedy

growth brings immense advantages for business since the internet is thought to offer

many advantages compared to conventional channels. For example, it is estimated to

produce ten times as many units [sold] with one tenth of the advertising budget' (Potter

1994), to facilitate a flexible response, an advantage with shrinking product life cycles

(IITA 1994) and to ease customer retention (Van Iwaarden *et al* 2004). Together,

these factors are said to have 'transform[ed] the way business is conducted' (Grover

and Saeed 2004).

In terms of web usage, critical independent variables are those of location, gender and

age. Where the first of these is concerned, the % of the population using the internet

varies enormously from continent to continent:

Continent	Penetration (% population)	Growth in penetration 2000- 2010 %	Users % of table
Africa	10.9	2357	5.6
Asia	21.5	621	42.0
Europe	58.4	352	24.2
Middle East	29.8	1825	3.2

North America	77.4	146	13.5
Latin America	34.5	1032	10.4
Australia	61.3	179	1.1

**Table 1: Internet usage statistics June 2010, Miniwatts Marketing group**  
(<http://www.internetworldstats.com/stats.htm>)

These show that web visitors increasingly represent a multicultural community and slicing the internet population by the further variable of gender reveals similar proportions of men and women using the web in the US and the UK (Ono and Zavodny, 2003; Jupiter Communications, 2004) but with women being less frequent and less intense users than men, and less frequent purchasers online (Bimber, 2000; Allen, 2001; Van Slyke *et al.*, 2002; Ono and Zavodny, 2003; Rodgers and Harris, 2003; Garbarino and Strahilevitz, 2004; Simon and Peppas, 2005). As far as age is concerned, the following data, collected for internet users in the US, shows great variations in usage by age:

<b>Generations explained</b>			
Generation name	Birth years, ages in 2009	% of total adult population	% of internet-using population
Gen Y Millenials	Born 1977-1990, ages 8-32	26	30
Gen X	Born 1965-1976, ages 33-44	20	23
Younger boomers	Born 1955-1964, ages 45-54	20	22
Older boomers	Born 1946-1954, ages 55-63	13	13
Silent generation	Born 1937-1945, ages 64-72	9	7
G I generation	Born 1936, age 73+	9	4

**Table 2: US internet users by age. Source: Pew Internet and American Life Project, December 2008. N= 2,253 total adults**

If location and age are brought together, great variation in usage across Europe emerges. In Scandinavian countries, for example Denmark, Norway and Sweden, half of 55-74s regularly surf the Web while in the UK, 43% of those in this age group frequently use the Internet, higher than the frequency of top European heavyweights Germany and France, where only 33% and 40% respectively of this age group regularly use the Internet. If gender is brought into the equation, research by the U.K. Online Measurement Company (UKOM) powered by Nielsen reveals that people 50+ were responsible for the majority of the increase in U.K Internet usage over the period 2009-2010. The size of the U.K. Internet audience grew by five percent from 36.9 million people in May 2009 to 38.8 million people in May 2010 and according to UKOM, of these 1.9 million new Internet users, 1.0 million (53 percent) were at least 50 years old. Of this increase in internet usage by the 50+, men over 50 were primarily responsible for this growth, accounting for 722,000 (38 percent) new British Internet users followed by women over 50 who accounted for 284,000 or 15 percent of new users. This increase in usage by the 50+ population in the UK has produced a situation in which one in four Britons using the Internet today are 50 to 64 years of age (Moss *et al*, 2010).

### **Importance of segmentation variables**

We have seen how web usage can be sliced by nationality, gender and age, and personality and socio-economic grouping could be added. Variables have an interactive effect and a complex inter-relationship and researchers, included the present author, have investigated the impact of gender, nationality and age on webdesign productions and preferences. Given space constraints, however, the focus in this overview is on gender. Some background on the gaps in the existing research on web design will be explored before looking at the contribution of the authors' publications (APs) in filling these.

## **Previous research on webdesign**

Until 2004, 'the human-computer interaction literature expressed only passing interest in the aesthetic aspects of the interaction' (Lavie and Tractinsky, 2004) with a 'paucity of research' on this topic (*ibid*) or where gender specifically is concerned, 'a paucity of information on how men and women react to design elements of a website' (Cyr and Bonanni, 2005, p.5). Amongst practitioners, there is a similar awareness of the paucity of research on aesthetics, a point discussed in a study of the behaviour of women in targeted activity by the retail sector (Burmester, 2006).

In general, the emphasis in the work on website aesthetics conducted since 2000 was on 'high task relevant cues' rather than on low-task relevant cues (ie emotional and hedonic) (Eroglu *et al*, 2003 and Wang *et al*, 2010) and also on an understanding of aesthetics rooted in a universalist approach. Researchers were therefore seeking 'one size fits all' solutions rather than solutions segmented according to individual variables. Where a segmented approach was tried, methodological failures arose and the consequence was a failure to measure segmented aesthetic responses. The author corrected this deficiency in her APs, examining particularly the impact of gender of website productions and preferences but initiating also an examination of the role of nationality, age and personality in productions and /or preferences.

Before examining the APs, an overview of this earlier work will be undertaken, whilst also examining the evidence for the importance of design and careful targeting of consumers.

The earlier work on website aesthetics consisted of six main studies, all with methodological failures. The first, by Schenkman and Jonsson (2000) employed thirteen commercial websites to illicit reactions from users. Unfortunately, all these websites display what could, in retrospect, be identified as produced using the male



aesthetic, and consequently their ability to represent an aesthetic range is limited. In the same year, two studies by Miller and Arnold (2000) used in the authors' words an "opportunistic and haphazard" sampling of student home pages and the other used an "opportunistic" sample of web pages with no details of the selection or rating method used provided. These limitations reduced the value of this research.

The next study by Flanigan and Metzger (2003) used just two websites as the stimuli for reactions with these differing only insofar as each has the addition of an image of a male and a female respectively. This study was followed by that of Lavie and Tractinsky (2004) who likewise limited their stimuli to two websites, with no attempt to examine or distinguish the aesthetics contained in them. As a result of the lack of analysis of the stimuli, the responses obtained to the stimuli in the last two experiments would not offer useful pointers to the researcher.

A further piece of research by Cyr and Bonani (2005) used a single commercial as the stimulus again without analysing the design features contained there. There was an attempt to segment reactions by gender (something not done in the previous studies) but the use of a single stimulus reduces the value of this study even though the author found evidence of greater appreciation of the website by the male than the female respondents. A year later, a further study (Zahedi *et al*, 2006) classified websites in relation to their audience ("*masculine*" websites, designed for a male audience with a male focus in design; "*feminine*" websites, designed for a female audience with a female focus in design; "websites with '*masculine androgyny*', designed for a male audience with a female focus in design; and websites with "*female androgyny*", designed for a female audience with a male focus in design) but once again failed to categorise websites according to the type of aesthetics contained there.

It can be seen that the presumption in these studies of a universalist production aesthetic, leading the authors of these studies to ignore an analysis of the features contained in the stimuli websites. There is also, with the exception of the last two studies, a lack of interest in segmenting responses according to the demographic variables (gender, nationality, personality, age) of those responding to the websites

At this point, we might ask what the evidence is regarding the importance of understanding preferences as well as the importance of design. In fact, there is a large literature on both which underlines the importance of making up the shortfalls in these studies on webdesign. These two points will be examined in the next sections.

### **The importance of targeting**

There is an appreciation that a website, like other products, is optimally effective if designed for a targeted customer segment (Gommans *et al*, 2001). This notion is reinforced by the finding that a match is needed between the brand the consumer self-concept (Karande 1997) which links with the view of US internet pioneer, Ken Burke (2002) that the purpose of an e-commerce site is to build a good relationship with the customer so that they choose to buy from you.

These views establish the importance of targeting and linked but separate from this is the importance of creating products or marketing tools that appeal to the targeted customer segment. Indeed, research has shown that products perceived as pleasurable are preferred (Yahomoto and Lambert 1994) and used more frequently than those not perceived as pleasurable (Jordan 1998), a factor leading to enhanced purchasing (Groppel 1993; Donovan *et al* 1994). Moreover, recent research has shown that products with visual appeal not only attract greater attention (Maughan *et al*, 2007) but also enhance perception of the product's usefulness, enjoyment, ease-of-use and satisfaction (van der Heijden, 2003; van Iwaarden *et al*, 2004) as well as

usability (Hassenzahl, 2007). What is more, a product with visual appeal can induce a preparedness to pay a premium (Bloch, 2003) of up to 66% as compared to products without visual appeal (Hassenzahl, 2007).

Where research specifically on web design is concerned, the literature on e-commerce suggests that a positive online experience can have a greater impact on e-loyalty and customer retention (Aaker 1991; De Cherrnatony 1992; Kapferer 1992) than traditional attributes such as product selection and price (Ibeh *et al*, 2005). It should be said, however, that previous information systems research has largely followed a functional approach, focusing more on what one set of researchers (Eroglu *et al*, 2003) have described as high 'task relevant' cues (functional and utilitarian issues) rather than low 'task relevant' cues (emotional / hedonic factors) (Wang *et al*, 2010). Despite this greater emphasis on task relevant cues (*ibid*), research has found factors such as text, imagery and navigation to play a significant role in the Internet user's experience (Zhand and von Dran, 2000) with effectiveness related to technical aspects (e.g. speed of loading), content (Joergensen and Blythe 2003) as well as design and form (Schenkman and Jonsson 2000; Chen and Dhillon, 2002; Lavie and Tractinsky 2004). In fact, the quality of graphics is highlighted as an important design element (Chau *et al*, 2000) and the specific importance of graphics emerges in a later study in which graphics are listed as one of ten factors contributing to user dissatisfaction in the US and Netherlands (van Iwaarden *et al* 2004).

In terms of specifics, the emotions evoked by design can add to perceptions of a site's credibility, a term used as referring to the believability, perceived quality, trustworthiness and level of expertise of the site (Fogg *et al*, 2002). Design and form can also influence user preferences (Chen and Dhillon, 2002; Cyr and Bonnani, 2005)

with, in the words of Chen and Dhillon (2002), the appearance and structure of the website:

“encourag[ing] or discourag[ing] a consumer’s purchasing intentions. In the marketing literature, website features such as layout, appeal, graphics, readability, and ease-of-use have been considered to affect consumers’ clicking frequency” (ibid, 310-311).

Given that ‘clicking frequency’ registers individual and group interest in a site (see for example

<http://www.shanghai.gov.cn/shanghai/node17256/node17980/node17991/node17993/userobject22ai10810.html> accessed on 30 March 2009), Chen and Dillion are

signalling the impact of visual factors on time spent online. A separate study, moreover, found that satisfaction with a website relates to ‘stickiness’ (Holland and Baker, 2001), a quality that refers to the sum of all the web site qualities that induce visitors to remain at the web site.

Other specifics relate to the fact that a website perceived as attractive can have a positive impact on intention to use a website (Van de Heijden, 2003), perform a search (Wang *et al*, 2010) with e-design having a potentially greater impact on e-loyalty and customer retention (Aaker 1991; De Cherrnatony 1992; Kapferer 1992) than traditional attributes such as product selection and price (Ibeh *et al*, 2005). A positive correlation has also been found between positive emotions and intention to purchase (*ibid*), with this last study finding design having a stronger influence on the activation of a search than on intention to purchase. It should be pointed out, however, that the methodology in this last study involved eliciting reactions to a random set of commercial websites and research by the author of the present chapter, described later on, shows how the selection of websites is all-important since those designed using a masculine aesthetic (the case of the majority of commercial websites) have less appeal to women than to men. In this way, the methodology used in the 2010 study (*ibid*) as well as in several of the studies on web aesthetics discussed earlier (Schenkman and Jonsson, 2000;

Lavie and Tractinsky, 2004; Cyr and Bonanni, 2005) could have influenced the results and the study would need to be repeated with a selection of websites that reflects a specific aesthetic range in order to determine the relative impact of design on propensity to search and propensity to purchase.

Why the focus on design in this overview? Quite simply, design is acknowledged to be the “central feature of culture and everyday life in many parts of the world ...replacing nature as the dominant presence in human experience” (Buchanan and Margolin, 1995, xii). It is also described as one of the elements of the marketing mix that shapes a person’s overall reactions to a product (Roy and Wield, 1989).

Moreover, it has been shown that the physical form of a product is an important element in its design (Bloch 1995), creating certain effects in buyers (Kotler 1973-4) and evoking emotions that can play a critical role in communicating with customers (Chen and Dhillon, 2002). Moreover, we say above, how positive reactions to a product of website can influence perceptions of usability, usefulness, ease-of-use and credibility, influencing attention, purchasing intent and willingness to pay a premium price.

The importance of design and e-design in particular, taken together with the absence of robust research on website aesthetics in the literature are the reasons for the focus on diversity and webdesign in this in this overview. This gap could, in the view of the author and the importance of careful targeting of the end-user, best be satisfied using an interactionist approach to understanding preferences. It is true that before the dot.com burst in late 2000, few had pondered whether there was a need for increasing corporate profits by customizing marketing communications for different segments of Internet users (Kim *et al*, 2001). However, with the increasing importance of online sales and the growing number of shoppers purchasing from online stores, it is imperative that marketers develop a better understanding of internet surfers and

shoppers (Donthu and Garcia, 1999). The increasing competition online and the worldwide nature of the market mean that a “standardised treatment of customers is not the ‘golden path’ of internet marketing” (Barnes *et al*, 2006).

So, there is increasing recognition of the need to develop brand values that reflect consumers’ needs (Gordon, 1999). In the field of e-commerce, however, whilst lip service is paid to the view that “a website has to be designed for a targeted customer segment...” (Gommans *et al.*, 2001, p. 51), the emphasis in much of the literature on ‘web atmospherics’ is on finding universal solutions (Palmer, 2002; Joergensen and Blythe, 2003). The universalist approaches seek to identify the factors in the attribute that will have universal appeal and this approach stands in stark contrast to so-called Field theory (Lewin, 1936) or interactionism (Mischel, 1977) which assumes that individuals may view physical and social settings differently, producing differences in ‘life-space’ and consumption behaviour (Gehrt and Yan, 2004). These theories dictate that characteristics of the stimulus object (attributes), characteristics of the individual (demographics, Internet usage), and the situation (situational factors) affect reactions to the stimulus object (format preference). As a consequence, an interactionist approach dictates that instead of seeking solutions or laws that will apply to *all* situations, we should seek out solutions that work in *particular* instances, thereby shaping products around the ‘unique and particular needs’ of the customer are well established (Hammer, 1995).

The precise mechanisms involved in delivering this process to a diversity of online customers has not (prior to work involving the author) been the object of detailed study. So, although as we have seen, there has been an appreciation that “a website has to be designed for a targeted customer segment” (Gommans *et al.*, 2001,p.51), there has been a failure to compare and identify the productions likely to arise and appeal to different market segments. There is a view that ‘the prescriptive literature

within the discipline of marketing generally emphasizes a universal view of marketing practice' (Torres and Murray 2002, p.1) with organisations rarely reconfiguring their operations in line with marketing objectives, a failure attributed to failures in marketing and organisational inertia (Baum, 1996).

We have talked of the overarching importance of matching websites to the users' preference and a key and related question concerns the variables that influence the type of site produced. How does someone's personality imprint on web productions, and analogously how does nationality and gender? These are relatively neglected areas of research which the author has attempted to correct through research of her own or by inviting work on this topic in a Special Issue of a journal (Harris, 2007).

This overview describes the work that fills the gaps identified above, exploring the impact of segmentation variables on web design *productions* and in some cases *preferences*, and exploring the implications of these findings for organisations. Before looking at these in detail, the overview offers a summary concerning the conceptual background to the concept of diversity and also an overview of the methodological approaches adopted.

### **Diversity and Equal Opportunities**

The APs explain that Equal Opportunities (EO) policies were introduced in the 1960s and 1970s to complement anti-discrimination and equal pay legislation (Moss and Daunton, 2006; Moss, 2010) in an attempt to provide equal opportunities and outcomes in the workplace (Kirton and Greene, 2000; Armstrong, 2001). The emphasis in these policies was on a philosophy of sameness (Kirton and Greene, 2000; Gagnon and Cornelius, 2000) rooted in an assumption regarding the fundamental sameness of individuals (Miller, 1996). Assimilation was perceived as a one-way process with minorities required to adopt the norms and practices of the

majority (Nkomo 1992) and this mindset produced an acceptance that white, non-disabled, heterosexual men's experiences and interpretations of organizational life were valid and universally applicable (Alvesson and Billing, 1997). This led to organizational analyses produced 'through a lens which is primarily white and male' (Cianni and Romberger, 1997, 116), producing organizational cultures constructed around a 'white, male norm' (Kirton and Greene, 2000, 288-9).

In the fullness of time, the notion of 'sameness' implied within EO policies was replaced by diversity initiatives which viewed differences as strengths rather than weaknesses (White, 1995). These diversity initiatives attempted to chart the impact of culturally reproduced and socially constructed group membership on individuals (Nkomo, 1992; Kirton and Green, 2001) and included studies focusing on gender and its relation to organisational culture (Acker, 1992; Gherardi 1996; leadership style, Rosener, 1990; Alimo-Metcalfe et al, 2003a) as well as studies evaluating managers' behaviours (Powell et al, 2004).

Despite the advances made, there was a feeling that discussions of group-based diversity were held back by a fear that the discussion of group-based differences would be used, as it arguably had in the past, to reassert inferiority and exclusion (Webb, 1997). This reluctance to map group-based differences had, according to Liff (1996), the effect of maintaining the power of dominant groups and according to Barmes and Ashtiany (2003, 291) the effect of "drastically underestimating the difficulties and obstacles typically encountered by members of disadvantaged groups compared to others". This latter point carries the assumption that mapping group-based differences might in fact highlight the obstacles faced by certain groups. This is one of the motives for the approach adopted in the APs.



Since the focus of this particular is the author's work on gender, a word on approaches to this variable over time is appropriate. There has been a range of views on whether women constitute a sufficiently homogeneous group to warrant being a significant segmentation variable. At one extreme is the view that the study of gender is problematic (Firat 1994) and should have no place in consumer research. A middle position is adopted by the so-called liberal feminists who argue that inferred psychological male/female differences can develop out of women's socially allocated roles (Bristor and Fischer, 1993) while a third position is termed the "women's voice or experience" point of view (*ibid*). The approach adopted in the APs is in line with the second and third of these approaches.

## **Methodology**

This overview describes research which is focused on isolating the impact of segmentation variables on website productions and preferences, and given the limitations of space here, this overview is focused on the author's research on gender, putting to one side her work on age, personality and nationality. As explained above, the earlier related work on webdesign was rooted, like much market research (Torres and Murray, 2002) in the universalist tradition (Palmer, 2002; Blythe, 2003) which assumes a one size fits all solution. So, when studying preference reactions to websites, researchers sourced stimuli (websites) whose aesthetic characteristics were not analysed (Schenkman and Jonsson 2000; Flanigan and Metzger 2003; Lavie and Tractinsky 2004; Cyr and Bonani 2005; Zahedi *et al*, 2006). In the case of the first of these studies (Schenkman and Jonsson 2000), photos of the websites in the article reveal these websites (with the benefit of hindsight from research conducted by the present author in 2006) to be produced using the male production aesthetic. However, Schenkman and Jonsson's research predates this research and so the masculine character of the webdesign would not have been apparent to the authors in 2000 when the research was conducted. Moreover, the subsequent studies listed

above used no more than one or two websites as stimuli, and in no case was there an attempt to categorise the websites according to their aesthetic characteristics. The failure to select websites whose aesthetic features were categorised and known was a clear limitation on the ability to make useful inferences concerning preferences for these websites.

There was just a single study that attempted to categorise the dependent variables (ie the websites) and this was Miller and Arnold's study of 2000. Unlike the studies cited in the paragraph above, this study sought to establish whether the independent variable of gender could affect the type of website produced and determined to discover this through the analysis and comparison of home pages produced by men and women, a web medium that the authors describe subsequently as a medium where 'people tend to ostensibly be ... their true selves' (Miller and Arnold 2003). However, despite this positive feature of the study, the sample of personal websites that the authors gathered was (in the authors' words) 'opportunistic and haphazard' in its selection. This, together with the lack of any systematic rating method, fatally reduces the potential value of this study.

The author determined, given the potential importance of understanding the interactive impact of dependent (website) and independent variables (in this case gender), to conduct studies that would shed light on whether, as Miller and Arnold claimed (2000), 'gender differences do seem to intrude in cyberspace'. The studies by the author sought to determine whether differences appear in web *productions* as well as in *preferences* as between male and female-typical sites.

In embarking on this programme of research, the author was keen to avoid the methodological pitfalls of the earlier studies. She would therefore follow the following steps:

- (i) Review the interviews she had undertaken with designers, design educators

and students on the question of whether male and female design *productions* and *preferences* differ

- (ii) make a valid selection of student web home pages (ie from a valid sample)
- (iii) rate this sample according to rating criteria that was derived from earlier robust research
- (iv) test reactions to a sample of websites that were reliably shown to be typical of male and female productions according to the rating exercise conducted in step (ii).
- (v) extrapolate from these results to analysing the aesthetics of commercial websites in sectors distinguished by a male or female-dominant target demographic, or a demographic that was mixed.
- (vi) relate the findings of (v) regarding the gender aesthetic of commercial websites to information on the demographics of those involved in the design of those sites.
- (vii) Seek information on the gender demographics of the webdesign industry as a whole using qualitative techniques.

More details are provided below of these seven methodological stages.

#### *(i)Interviews*

Before embarking on a major programme of research on male and female design aesthetics, and in order to obtain an advance understanding on this topic from those within the design community, the author conducted forty interviews with professionals and students working in the design area. Respondents were identified through a process of snowballing, a method frequently used for the purpose of selecting an illustrative sample (Coolican, 2004). These interviews with key informants (Crimp and Wright 1995) began an inductive approach which was 'a theory building process, starting with observations of specific instances and seeking to establish generalizations about the phenomenon under investigation' (Hyde, 2000, p.83). Non-obtrusive interviewing measures were used to minimise the participants' awareness of

being involved in the research process (Haslam and McGarty, 1998) and this made the conversation informal and relaxed for the interviewee (Coolican, 1999). The establishment of rapport with the respondents was an essential part of the interview, and the interviewers did this by emphasising the anonymity and confidentiality of responses. Participants were also given the opportunity to withdraw from participation, in line with ethical practice, but no one in fact did so. The authors did not use a recording device for fear that it might inhibit the free expression of views (Coolican, 1999), particularly on sensitive topics (Denscombe, 1998).

The analysis began with the first interview and finished after the last sentence of the write-up of results (Moss, 1999; Moss, 2009). Mariampolski stated that in qualitative research 'data analysis occurs at the same time as data collection' (2001, p.246) making the interviews an 'evolving process rather than one which takes place entirely at the conclusion of data collection' (*ibid*, p.246). The results revealed that 73% of respondents spoke of differences between the designs produced by males and females (Moss 1999; 2009, pp.100-108) with some speaking also of differences in preferences (*ibid*), and these views signalled to the researcher that there might be value in devoting time to mapping gender aesthetics in relation to productions and preferences. An emerging research question in respect of webdesigns relates to whether male and female webdesign productions are systematically different. A second question relates to whether preferences on the part of men and women show evidence of own-sex preferences. The first of these questions was addressed in stages (ii) and (iii) and the second in stage (iv).

#### (ii) *Sampling*

In order to test the first research question namely whether male and female-produced websites differ in systematic ways, a stratified random sample of personal websites produced by students at a UK University was selected with a view to subsequently

being rated against certain characteristics (see iii below). The personal websites were available in an alphabetical list on the University website and a total of sixty (30 by men and 30 by women) were randomly selected by using alternate sites in the alphabetical list. The same procedure was followed for identical sizes of samples at Universities in France and in Poland.

### (iii) *Rating*

In order to provide a systematic picture of the websites produced by men and women, the dependent variable (website productions) were rated on twenty three measures (twenty two in the case of the rating of French and Polish websites since they do not employ a system of abbreviations similar to that used in the English language) all of which were derived from earlier work on gender, design and language. This included earlier work by other researchers on webdesign. Since the measures used were all derived from earlier work (Moss *et al*, 2006), the author was not imposing constructs of her own determination that would have undermined the objectivity of the process.

In terms of the measures used, the earlier work on design and webdesign had isolated elements in the areas of navigation, language and visual content and so rating elements were grouped under these three headings (for the rating criteria, see Appendix A). In terms of factors relating to navigation, the websites were rated on features highlighted in earlier work on gendered preferences (Leong 1997; Oser 2003) and included the number of links on the home page, the number of subjects covered and their consistency, the use of a site map and a contents page. In terms of rating factors relating to language, the features used derived from research illustrating gendered differences in use of language (Tannen 1990), with men allegedly evincing a more competitive style than women. To test some of the findings from linguistics, the use of formal and expert language, self-promotion, welcome message, exposition of own achievements, the amount of self-denigration and avoidance of grammatical

abbreviations (all allegedly male features) were measured in the websites. In terms of visual features, many of the rating factors derived from research exploring the gendering of design (Moss 1995; 1999) with two main sets of rating characteristics used: thematic content, and non-thematic content. On the first, the literature discusses six features (Moss 1995; 1999) that distinguish male from female designs and these were translated into features against which the websites could be rated. These included the style of photos (formal or informal snapshots), gender of images used (tendency to feature own gender), use of inanimate vs. animate themes, self-propelling vs. stationary objects, serious vs. light-hearted themes and the use of Institution's crest vs. own logo. With regard to non-thematic content, a number of features were measured, namely the relative use of straight or rounded lines, regular or irregular typography, a small or large number and range of colours in the typeface or the background. The extent to which design elements looked three-dimensional or two-dimensional and the type of typeface colours used were also objectively measured. As a consequence of following this objective, quantitative approach, it was possible to have a reliable measure of the relative masculinity and femininity of websites and a note of the measures against which sites were selected is shown at Appendix A.

#### (iv) *Preferences*

The previous study demonstrated that there were statistically significant differences between the personal websites produced by men and by women. In order to test the research question whether men and women's preferences varied as between these websites (ie between male and female-typical websites), preference tests were conducted to compare the ratings of men and women to gender-typical websites originated by men and women. The dependent variables (websites) were selected from the earlier experiment in which students' personal websites were rated and compared by gender with those sites deemed to have features typical of their gender

used as stimuli in the preference tests. The test was administered to a convenience sample of 64 Business school students (38 male and 26 female students).

*(v) Implications for commercial websites*

Given the strong evidence in the previous experiment for own-sex preference (ie men and women giving higher ratings to websites produced by people of their own gender), it was considered useful in the next stage of research to ascertain whether commercial websites used a gender aesthetic that matched the gender of the target market. In order to do this, a stratified random sample of websites from three sectors with very different target markets were selected, and they were rated according to the presence or absence of the 23 rating features used in the earlier experiment on website aesthetics (see to analyse a random sample of websites from sectors with different demographics. The three sectors selected were the Angling, Beauty and Higher Education sectors since these have target markets that are largely male, female or with equal proportions of men and women respectively. A gender coefficient was produced for each site and for the sector as a whole and it was possible subsequently to compare the gender demographics of the target market with the gender coefficient of the sector to see whether, for optimal targeting, they mirrored each other.

*(vi) Gender demographics of those involved in the design of sites from these sectors*

In order to establish the gender demographic of those involved in the production of websites in the three sectors examined (see v above), telephone interviews were conducted with personnel in the Angling, Beauty and HE sectors. Sixteen interviews were conducted across the three sectors.

*(vii) Gender demographics of the web design industry in the UK*

The information revealed by the interviews held in stage (vi) showed that the overwhelming responsibility for the production of the websites lay with men rather than

with women. In order to establish a view as to how representative this allocation of responsibilities was in the webdesign industry as a whole, telephone interviews were conducted with companies listed in the New Media Age list of the top ten interactive agencies. Approaches were made to Project and Human Resource Managers in these ten companies and interviews were granted in six of these companies.

By way of summary, across the quantitative and qualitative work, a variety of sampling methods were used which are summarised in Table 3 below:

<b>Research activity</b>	<b>Sampling method used</b>	<b>Subjects in the sample</b>
Interviews to gain the views of those working with design on a day-to-day basis on whether there are differences between the design productions and preferences of men and women	Snowballing	Design professionals and students;  40 people in the sample
Analysis of websites produced in the UK, France and Poland	Stratified random sample of websites from three Higher Education institutions, one in each of the target countries. These were rated against the criteria in Appendix A.	The sample consisted of sixty personal websites produced by students (equal numbers of men and women) in each of the three countries,
Analysis of commercial websites	Stratified random samples from each of three sectors with websites randomly selected from each. The selection of the three sectors was determined by the target market, with each sector having a different demographic. One has a predominantly male demographic (Angling industry);	The samples consisted of websites originated by webdesigners from outside these sectors working with key decision-makers within these industries.



	one a predominantly female one (the Beauty industry) and the third one equal proportions of men and women (Higher Education).	
Telephone interviews with personnel in the Angling, Beauty and HE sectors, seeking information on the allocation of responsibilities for webdesign and the gender of those involved	Stratified random sample with websites randomly selected from business for each of the three sectors.	The websites (30 from each sector) were originated by those working within the industry.
Telephone interviews with companies listed in the New Media Age list of the top ten interactive agencies	Stratified sample	Project and Human Resource Managers in six of the ten companies that were amenable to being interviewed.
Preference tests comparing the ratings of men and women to websites originated by men and women	The dependent variables (websites) were selected from the earlier experiment in which students' personal websites were rated and compared by gender. Those sites deemed to have features typical of their gender were used as stimuli in the preference tests administered to as convenience sample of 64 Business school students (38 male and 26 female students).	The dependent variables (websites) were originated by students and a convenience sample of students was used for the independent variables serving as observers.

**Table 3: research methods used and the nature of the samples used**

In terms of general issues spanning more than a single stage, these cover the following issues:

- a) use of students for the research at stages (ii) and (iv)
- b) use of stratified samples
- c) levels of significance
- d) use of inductive and deductive research methods

We will look briefly at each of these issues in turn.

#### (a) Use of students at stages (ii) and (iv)

Stratified random samples of student websites / students were used in order to establish tendencies in terms of webdesign *productions* (180 personal websites in the UK, France and Poland) and *preferences* (64 students offered their reactions to a sample of gender-typical websites). The samples were based in student productions or reactions and there has been much discussion on the use of the effect on experiments of using students. Coolican (2004, 35) quotes research showing the 75 per cent of British and American psychological research studies are conducted on students and that the usage is at least 50 per cent in the UK.

The justification for using students to originate the websites that were analysed for their features and used as prompts for the preference tests, had its origin in the fact that they were creating personal websites and these were reported to be a medium where 'people tend to ostensibly be ... their true selves' (Miller and Arnold 2003). The Universities from which the student websites were taken were not institutions where Design was taught so increasing the chances that the personal websites produced were emanations of the person rather than reflections of the design training that they had received.

#### (b) Use of stratified samples

The use of a stratified sample is appropriate where a homogeneous sector of the population is being selected for study as is the case when studying different diversity strands. As a consequence, stratified samples were used in stages (ii), (iv), (v), (vi) (vii).

(c) Levels of significance

Another important issue concerns the level at which results would be deemed to be statistically significant with the level of  $p < 0.05$  taken as the yardstick by which differences or relationships are counted as significant or not and the level at which results qualify for publication. As a consequence, results at the  $p < 0.1$  level will not be taken as significant while those at the  $p < 0.01$  level will be taken as highly significant and the level that results should reach according to Hugh ‘if we are about to challenge a well-established theory or research finding by publishing results which contradict it (Coolican 2004, 249–250). In his words, this level of significance ‘gives researchers greater confidence in rejecting the null hypothesis’ (ibid. 250).

(d) Use of inductive and deductive research methods

The use of inductive research methods was combined with that of deductive methods. The rationale behind the use of these methods is shown in Table 4 below:

<b>Type of method</b>	<b>Description of method</b>	<b>Where the method was employed in the research</b>
Inductive	The inductive approach does not require a hypothesis but instead data is collected and a theory is developed as a result of the data analysis (Saunders <i>et al</i> , 2009).	Interviews with those involved in design to establish whether there are differences between male and female design productions / preferences (Moss 1999).  Telephone interviews with (i) interactive agencies (ii) organisations in the sectors of Angling, Higher Education and Beauty in order to establish data on

		the professional backgrounds of webdesigners (Moss <i>et al</i> , 2008b)  Interviews with those involved in selection interviews of high-level staff (Moss and Daunton, 2006e)
Deductive	The deductive approach requires a theory and a hypothesis or hypotheses to be developed prior to the research being carried out so that it can be tested (Saunders <i>et al</i> , 2009).	Analysis of websites produced by students in the UK (Moss <i>et al</i> , 2006a), France (Gunn and Moss 2006b) and Poland (Moss <i>et al</i> 2006d)  Preference tests to establish men and women's preferences as between male and female-produced websites (Moss and Gunn , 2008a)
Quantitative	Collection of numerical data which is analysed using mathematically-based methods	See the publications referred to in the 'deductive' section (above)
Qualitative	Non-numerical data, used to gain insight into people's attitudes, behaviours, value systems, concerns, motivations, aspirations, culture or lifestyles. Also used to inform business decisions and research and understand the 'why'.	See the publications referred to in the 'inductive' section (above)

**Table 4: research methods used in this research with instances of their use**

### **Diversity and web design**

This overview presents the author's work in the area of diversity and web design which fills the gap identified earlier in terms of the optimisation of websites for diverse audiences. Optimising websites involves an appreciation of *performance* elements (for example, product design and management tasks such as leadership) and/or *preference* elements (for example, recruitment of designers; selection of designs; selection of logos etc). These *Performance* and *Preference* (Moss 2007; Moss 2009) elements will be examined in turn in the next sections.

## **Performance elements**

According to an Institute of Employment Studies report on measures of organisational performance, *Performance* elements can include management as well as innovation elements, with the latter including new product development (NPD) (Page *et al*, 2006; Moss 2007). Both these management and innovation elements will be investigated in the following sections.

## **Management**

Management and leadership are overlapping and related activities (Mintzberg, 1973; Whetton and Cameron, 2005) and there is a clear link to innovation with studies finding good leadership to be critical to NPD (Brown and Eisenhardt, 1998). The research highlights two factors as being critical to greater innovation and the ability to develop products acceptable to the target market (Barczak and Wilemon, 1992), these being (i) the development of a vision (Song and Noh, 2006) and (ii) the use of a participatory style, twin elements of part of the so-called Transformational style of leadership. The literature widely report Transformational leadership as being favoured by women (Rosener, 1990; Nkomo, 1992; Kirton and Greene, 2000; Alimo-Metcalfe and Alban-Metcalfe, 2003) with men more likely to exercise the Transactional style of leadership, a style not credited with the same beneficent results on innovation.

The observation that men and women manage differently has been widely asserted (White, 1995; Moore, 2000; Vinnicombe and Singh, 2002; Bird and Brush, 2002) and is significant given the tendency (as we shall see later when looking at *preferences*) for people to ascribe higher ratings to those whose leadership style mirrors their own.

The current gender balance in management worldwide is male-dominated and if the majority of managers follow the trends indicated in the leadership research, they are likely to exercise and appoint leaders who exercise Transactional Leadership. This is a command and control style of leadership which may impede the participatory style

associated with innovation and the development of products acceptable to the target market (Barczak and Wilemon, 1992). The impact of personality on leadership has also been studied and a meta-analysis of the link between personality and leadership, found a correlation between extraversion, conscientiousness and leadership (Judge *et al*, 2002). Extrapolating from this, it would appear that extraversion is a characteristic that would help advance this process.

It is worth noting that a further variable, nationality, can also be expected to have an impact on the participatory nature of management. Hofstede famously distinguished the elements that, in his view, distinguished management in different countries (Hofstede, 2001) and a review of his work and of the critiques of it is found in an article by the author comparing French and UK websites (Gunn and Moss, 2006). There is not space in this short overview to examine the evidence in detail and in fact, these constraints force a focus in this overview on a single segmentation variable (gender) rather than on the multiplicity of segmentation variables that are relevant (eg gender, nationality, age, personality). It is important nevertheless to flag up the vital link between teamwork and product development (Song and Noh 2006) and the impact of nationality on teamwork with one of the APs demonstrating for the first time the positive impact of a collectivist culture and the negative impact of an individualistic society on teamwork (Moss *et al*, 2007c).

### **Brand management**

One further aspect of management that will have a bearing on NPD is brand management. Branding has been characterised as the process of creating value through the provision of a compelling offer and customer experience (Aaker, 1991; De Chernatony, 1992; Kapferer, 1992) and research shows the extent to which brand values reflect the values of brand managers (De Chernatony *et al*, 2004). Some argue that it is employees who have most knowledge and experience of the brand

(Collins and Porras, 1998; Driscoll and Hoffman, 1999) and although some consider entrusting employees with brand development to be optimal (De Chernatony *et al*, 2004), this view takes no account of the extent to which segmentation variables (eg gender, nationality, personality) affect employees' *productions* and *preferences*. If it is the case that brand values reflect the values of brand managers, then differences between the demographics of brand managers and the target market could produce a mismatch in terms of the relevance of the brand to the end-user. Similarly, optimising the brand for a diverse target market would necessitate a diverse management base.

### **Aesthetic productions**

The APs show the impact of segmentation variables on design *productions* including web design. In a sense, this impact is not surprising since, taking into account the relatedness of art and design (Moss, 2009), a body of research demonstrates the links between art and its creators. In fact, Tunnelle declared the artist to be someone who sees things not as they are but as he is (Hammer, 1980) and the relationship between art and a number of variables (gender and personality) have been the focus of extensive study, notably in the fields of art therapy and psychology. The original contribution reported here involved extending this discussion into the field of design.

### **Aesthetic background: the influence of gender on visual productions**

It was explained above that there is room in this short overview to focus on just one segmentation variable, gender, even though other segmentation variables (age, personality and nationality) have a critical role to play and have been the subject of research by the author whether in relation to nationality (Moss and Vinten, 2001; Moss *et al*, 2006d; Gunn and Moss, 2006), personality (Moss 2007a), or age (Mullen *et al* 2009; Moss *et al*, 2010; Moss in press). Just as there is literature arguing for the connection between graphic expression and personality, so also is there also literature arguing the case for a connection with gender. Although some argue against

a specific "feminine sensibility" (Harris and Nochlin 1976), some agree with Erikson in speaking of a "profound difference in the sense of space in the two sexes" (1970, 100).

As the author has discussed at length in one of the APs (Moss 2009), discussing such gender differences today is problematic both because there is a lack of agreement on its relevance and meaning (Caterall and Maclaran 2002). In terms of the latter, interpretations can range from the post-modern view that gender is an unproductive dichotomy (Firat 1994), to the evolutionary psychological perspective that plays down the influence of sociocultural factors (Jackson, 2001), emphasising instead the role of innate factors (Lupotow, Garovich and Lupetow 1995). According to recent commentators, this second approach is gaining ground in several disciplines and should not be overlooked even if this approach restricts the possibilities of social and cultural change (Caterall and Maclaran 2002). The position adopted in the APs is that gender (*pace* Firat) is a useful dichotomy and any underlying differences can be the result of sociocultural as well as innate factors.

In exploring the extent to which design may be influenced by gender, it is necessary to stand outside the patriarchal system in which "Art by women is judged according to norms and expert constraints that are not their own" (Heide, 1991), acknowledging the strength of a wide range of realities (White, 1995). This approach is philosophically consistent with a Diversity approach.

The earliest literature, summarised in the APs, compared the use of both formal (shapes and colours) and thematic features in the drawings and paintings of children and students (summarised in Moss, 2008c and 2009). Where subject matter is concerned, numerous differences were noted including the tendency amongst males and females to draw same-sex figures. Where form is concerned, researchers have consistently observed a male tendency to use straight lines, and females rounded



ones (Table 5 below). Other non-thematic differences relate to colour, perspective, function and the vertical / horizontal nature of structures:

<b>Graphic characteristic</b>	<b>Sex with which graphic trait is associated</b>	<b>Researchers giving this interpretation</b>
Straight line	Male	Alschuler and Hattwick (1958), Franck and Rosen (1949) Majewski (1978), McNiff (1982), Moss (1995; 1996; 2001)
Rounded line	Female	Waehner (1946), Hammer (1980), Alschuler and Hattwick (1958), Franck and Rosen (1949), Majewski (1978), Moss (1995; 1996; 2001)
Structures built up	Structure is built down low	Franck and Rosen (1949); Erikson (1970)
Angles	Blunt lines	Franck and Rosen (1949)
Realistic	Less realistic	Kerschensteiner (1905); Ballard (1912); Lippard (1976)
Sharp perspective	Loose perspective	McCarty (1924); Kerschensteiner (1905); Ballard (1912)
Concern with function	Concern with aesthetics	Neubauer (1932); Lark-Horovitz (1967)

Colour	Pinks and pastels, warmer use of colours	Alschuler and Hattwick (1958), Lippard (1976), Minamoto (1985), Iijima <i>et al</i> (2001)
Three dimensionality	Males	Iijima <i>et al</i> *, 2001

**Table 5: The sex with which various graphic features are associated**

Where thematic differences are concerned, the literature has also isolated subjects that are favoured by males and females (Moss 2009):

<b>Use of thematic material in drawings and paintings by males</b>	<b>Use of thematic material in drawings and paintings by males</b>
<b>Vehicles and self-propelling objects (ships, cars, aeroplanes, trucks, flying saucers, spaceships, rockets)</b> Ballard*, Lark-Horovitz, Gesell, McCarty, Franck and Rosen*, Majewski*, Iijima <i>et al</i> *	<b>Static objects (plants, flowers, still lives, furniture, landscape)</b> Ivanoff, Ballard*, Iijima <i>et al</i> *
<b>Printed word</b> Hurlock*	<b>Not printed word</b> Hurlock*
<b>Standard typography</b> Hurlock*	<b>Decorated/ non-standard typography</b> Hurlock*
<b>Males</b> Hurlock*, Majewski*	<b>Females</b> Gesell, Hurlock*, Lark-Horovitz*, Majewski*, Iijima <i>et al</i> *

<b>Not females</b> Lark-Horovitz	<b>Not males</b> Lark-Horovitz
<b>Human form : caricature</b> Hurlock*	<b>No caricature</b> Hurlock*
<b>Human form : profile</b> Franck and Rosen*	<b>Human form: frontal</b> Franck and Rosen*
	<b>Human face: smiling</b> Majewski*
<b>Skyscrapers and towers</b> Franck and Rosen*, Erikson	<b>Houses, windows and rooms</b> Gesell, Franck and Rosen*. Hargreaves*
<b>Technology and machines</b> McCarty, Lark-Horovitz, Hargreaves*	
<b>Violent themes</b> McNiff	<b>Themes related to life</b> McNiff
	<b>Animate imagery (flowers, butterflies, sun)</b> Iijima <i>et al</i> *, 2001

**Table 6: subject matter used by males and females (asterisked items are statistically robust studies)**

This overview discusses the manifestations and implications of differences but does not seek to determine underlying factors, arguably a combination of sociocultural and innate factors (Lupotow, Garovich and Lupetow 1995; Moss, 2009).

### **Aesthetic background: web design productions and gender**

As discussed earlier, there has been a paucity of research investigating the way websites can be optimised for segmented markets. In order to overcome these weaknesses, the author conducted fresh studies (Moss and Gunn, 2005; Moss *et al*, 2006a; Moss *et al*, 2006b; 2008b). In one of the APs (Moss *et al*, 2006a), the aim was to identify the range of features used by men and women in websites that they had originated and this was achieved by rating the personal websites of thirty male and thirty female students in a UK Higher Education Institution (HEI) against 23 criteria (see Appendix A). As we saw earlier, the study focused on personal websites as a medium where “people tend to ostensibly be .... their true selves” (Miller and Arnold, 2003), manifesting the “virtually real self” even if this consisted, in the act of communication, of multiple identities (*ibid*). The fact that the rating criteria could be objectively rated, and that they emerged either from complex rating exercises (Moss 1995) or from earlier research, thereby minimised the risk of personal bias (Schroeder and Borgerson 1998). Having rated the students’ websites at the UK HEI, the same was repeated with equal numbers at a French and Polish HEI. The results across the three samples were then pooled and analysed by gender.

The three main criteria used derived from research on design or Web site aesthetics:

- (i) criteria concerning navigation issues
- (ii) criteria concerning language, its register and the amount of self-promotion
- (iii) criteria relating to visual elements

Where navigation was concerned, the rating features derived from earlier work on gendered preferences (Leong 1997; Oser 2003) and included five elements: the number of links on the home page, the number of subjects covered, the use of a site map and contents page and the consistency in the pages. Regarding language, the features derived from earlier research on gendered language (Tannen 1996) with six

elements included: the use of a welcome page, formal and expert language, reference to ones own achievements, avoidance of self-denigration and grammatical abbreviations (all allegedly male features).

Regarding visual features, many of the many of those used derived from research on the gendering of art and design (Moss 1995; 1999). The thematic elements included five elements: the formality of photos, the gender of images, the use of inanimate /animate themes, self-propelling/ stationary objects, and institution's crest. Where non-thematic elements are concerned, seven features were rated: use of straight/ rounded lines, the use of regular or irregular typography, the number and range of colours in the typeface / background, the extent to which design elements appear either three-dimensional / two dimensional, the presence or absence in the layout of a horizontal line and finally the type of typeface colours used. Overall, a total of 23 elements were rated, all amenable to objective rating and all researcher-neutral in having been derived from earlier research.

A comparison of the male and female-produced sites produced by students at the UK HEI revealed statistically significant differences on 13 (56%) of these 23 elements (Moss *et al*, 2006a). These were spread across the three areas of navigation, language and visual content. The elements on which there were significant differences related to the number of separate subject areas covered (with men favouring more subjects than women), the character of the language (men favoured formal and expert language, self-promotion and infrequent abbreviations), the thematic features of the images used (men favoured use of own logo, images of men and formal images, and women images of women and informal images), non-thematic visual elements (men favouring the use of straight lines, and a conventional layout) and the character of the typography (men favoured formal typography and a smaller or

greater number of typeface colours). In terms of navigation, men were more likely to include a site map.

As can be seen, most of the differences occurred in the areas of visual elements and language, with one difference occurring in the area of navigation. The most significant differences (at the  $p < 0.001$  level) related to four elements namely: (i) the use of colours (the use of a variety of text colours was more common amongst the women's websites) (ii) shape (use of a horizontal layout was more common amongst the men's websites) (iii) images (men used more formal images) and (iv) language (use of self-denigration and informal language were more common amongst the women while the use of expert language was more common amongst the men). At the lower but still statistically significant level of  $p < 0.01$ , differences centred on the use of abbreviations while at the level of  $p < 0.05$ , differences centred on the use of a male figure, crest, formal typography and straight as against rounded lines (the men's websites were all more likely to contain these features than the women's websites). This strong evidence of difference is suggestive of a plurality of *production* aesthetics on the part of men and women.

In a second phase of research, the male and female-produced student websites from the UK and French samples were pooled with French and Polish personal student websites (30 male and 30 female-produced in each country) (Moss *et al*, 2006d). Across the three samples, statistically significant differences emerged on thirteen features (see Table 7 below). If these results are compared with the results from the UK alone, there are two new areas of difference (the relative use of animate / inanimate imagery and formal/ informality of pictures) and two elements not registering differences where they did in the UK only sample (abbreviations and use of own logo).

Variable Tested	Significant
Does it have a site map?	$\chi^2 = 13.891$ , df = 1; p < 0.001
Denigration of self or task at hand	$\chi^2 = 22.550$ ; df = 1; p < 0.001
The use of expert language	$\chi^2 = 22.848$ ; df = 1; p < 0.001
Reference to own achievements	$\chi^2 = 6.792$ ; df = 1; P < 0.05
Are shapes on page rounded or straight?	$\chi^2 = 26.814$ ; df = 3; p < 0.001
Is there a conventional layout employing horizontal lines across the page?	$\chi^2 = 18.336$ ; df = 3; p < 0.001
The range of colours used in the typeface	$\chi^2 = 24.027$ ; df = 3; p < 0.001
Are the images inanimate or animate?	$\chi^2 = 19.163$ ; df = 3; p < 0.001
What gender are the images used?	$\chi^2 = 36.473$ ; df = 3; p < 0.001
What tone do the words used display?	$\chi^2 = 24.886$ ; df = 3; p < 0.001
What style are the pictures that are used?	$\chi^2 = 18.857$ ; df = 3; p < 0.001
What is the style of typeface?	$\chi^2 = 9.423$ ; df = 1; p < 0.05
What colour of typeface predominates?	$\chi^2 = 12.323$ ; df = 2; p < 0.05

**Table 7: Factors showing significant differences between the male and female-produced websites in the UK, France and Poland (Moss *et al*, 2006d)**

### **Preference elements**

We have examined performance issues and a separate but a related issue (Moss, 2007b) concerns preferences for visual productions and for management style. Each will be examined in turn.

### **Visual productions**

To what extent will people's preferences follow the productions associated with them? A disparate body of earlier research on children's drawings and paintings, compared with a separate body of earlier work (again highly dispersed) on visual preferences and personality, allowed the author to hypothesise that visual preferences correlated with a mirroring between the personality of the producer and the beholder, a literature summarised in the APs (Moss, 2008c; Moss, 2009; Moss 2010). In the section that follows, we look at the studies that generated this hypothesis and then examine

empirical work by the author with graphic and web design to test for the presence of the mirroring effect in relation to *gender*.

### **Gender and preferences for graphic design**

In order to test the extent to which there was a mirroring effect of gender, subjects (30 male and 35 females) were asked to express preferences as between four Christmas cards, two designed by men and two by women. The study was written by the author and co-authored by Andrew Colman, Professor of Psychology at Leicester University (Moss and Colman, 2001) and revealed a significant tendency for respondents to prefer cards designed by people of their own gender (see Table 8), confirming a highly significant tendency towards same-sex preferences (*ibid*).

	<b>Respondents' preferences</b>	
	<b>Female respondents</b>	<b>Male respondents</b>
<b>Female designer</b>	<b>24</b>	<b>7</b>
<b>Male designer</b>	<b>11</b>	<b>23</b>

**Table 8: male and females preferences as between male and female-produced Christmas cards**

The following section examines whether a similar mirroring was found in men and women's ratings of male and female-designed websites.

### **Gender and preferences for web design**

A study by Flanagan and Metzger (2003) into the impact of gender on evaluations of site credibility was based on the evaluation of two websites differing only in terms of the use of images of men and women and with no other information supplied on the



origins of the websites. Despite these methodological drawbacks, the study had the merit of distinguishing website *production* and *preference* aesthetics.

A second study of reactions (Cyr and Bonanni, 2005), comparing the *preferences* of 76 Canadian students for a single Sony website, found that women systematically reported lower preference values than men. The study also found that: (i) more men than women reported the site to be better organised (ii) more men than women had favourable impressions of the way product information was presented (iii) more men than women were satisfied with the navigation design (iv) significantly more women than men questioned the value of animations (v) women were more attracted by the colours on the site and men by the interactive and 'flashy' aspects of the site.

While this study is welcome in having investigated web design preferences, it has serious methodological weaknesses insofar as it uses only a single stimulus website and moreover makes no attempt to categorise it in terms of its place on a visual aesthetic continuum. A third study (Zahedi *et al*, 2006), advocated that web sites be produced "in line with the audience's culture" but although web sites were grouped into four types, no empirical evidence was offered in support of this categorisation.

Given the methodological shortcomings of these studies, the author initiated a new study, one of the APs (Moss, 2008a, 2009 and 2010). Students (38 male and 26 females) were asked to rate six of the male and female student websites that evidenced significant gender differences across the elements of navigation, language and visual features. The results showed a statistically highly significant tendency by men and particularly women to ascribe higher ratings to sites exemplifying the production aesthetic typical of their own gender (and produced by people of their own gender) than of the other gender. These results (*ibid*) exemplify the tendency for preferences to mirror productions and they support the case for developing websites

with elements of the male and/or female aesthetic rather than websites displaying male androgyny or female androgyny (Zahedi, Van Pelt and Srite, 2006).

### **Commercial websites**

We have seen how men and women’s web site preferences match their own production aesthetic and so it is interesting to explore whether these preferences are mirrored in commercial websites. To do this, the presence / absence of the thirteen factors found that distinguished sites produced in the formative study of the male and female web *production* aesthetic (Moss *et al*, 2006a) was measured in a sample of websites drawn from three sectors. The three sectors consisted of the Angling and Beauty industries (Moss *et al*, 2006b), industries with a predominantly male and female market respectively as well as Higher Education (Moss and Gunn, 2005), a sector attracting equal proportions of male and female customers (see Table 9).

	<b>1995/96</b>	<b>1996/97</b>	<b>1998/99</b>	<b>1999/00</b>	<b>2000/01</b>	<b>2001/02</b>	<b>2002/03</b>
Female	50%	53%	52%	53%	53%	53%	53%
Male	50%	47%	48%	47%	47%	47%	47%

**Table 9: UK HEIs, full-time undergraduate students by gender 1995 – 2003 (source HESA online statistics)**

In the case of Angling, a sector with a predominantly male market, an optimally designed website would (based on the findings of our preference tests) contain a high proportion of features from the male *production* aesthetic. Given their minority status as customers, one could reasonably expect women visiting the site to adapt to the male aesthetic displayed there. On the other hand, in the case of websites targeting a predominantly female market (the case of the Beauty industry), one might expect optimally designed websites to contain features from the female *production* aesthetic.

In the case of Higher Education, a sector with a balanced gender demographic, one might expect an optimally designed website to contain a mixture of features from the male and female *production* aesthetic.

In order to measure the aesthetics used in the websites of these three sectors, a randomly selected sample of thirty websites was analysed from each sector. These sites were rated against the factors that distinguished the male from the female *production* aesthetic, thereby eliciting the extent to which these industry sites employed a male or female design production aesthetic. In a further stage, the resulting “gender production coefficient” was compared with men and women’s preferences (Moss and Gunn, 2005) in order to establish the probability of an aesthetic match.

The results showed that a likely match between website aesthetic and preference aesthetic of the target market existed only in the case of websites from the Angling industry since these display a predominantly male production aesthetic (with an overall male gender coefficient of 0.66) in a market consisting largely of men (Moss *et al*, 2006b). Such a good match between *production* and *preference* aesthetics was not found in the websites created for the non male-dominated Beauty and HE sectors (Moss and Gunn, 2005; Moss *et al*, 2006b) since these evinced a predominantly male design aesthetic, with male gender coefficients of 0.68 and 0.72 respectively. Since the markets of these industries are made up greatly or largely of women, the predominantly male *production* aesthetic employed in these industry websites is not likely to match the *preferences* of the target market.

In order to discover the gender of those involved in the design of the web sites in these three industries, telephone interviews were conducted with personnel in the three industries concerned (Moss *et al*, 2008b). The interviews revealed that the majority of

those involved in the design of the websites in the three sectors were men (see Table 10), a finding consistent with statistics concerning the high proportion of men in the Information Technology (IT) sector (Baroudi and Igbaria 1994; Igbaria and Parasuraman 1997; Facts about men and women 2002).

<b>Gender of person(s) who undertook the design of the company's website</b>	<b>Angling websites % (No)</b>	<b>Beauty salon websites % (No)</b>	<b>HE websites % (No)</b>
One or more men	77 (34)	78 (37)	74 (38)
One or more women	8 (3)	18 (9)	7 (5)
A man <i>and</i> a woman	7 (3)	4 (2)	19 (11)
<b>Interview responses</b>	73 (44)	73 (44)	84 (54)

**Table 10: The design history of the HE, Angling and Beauty Salon websites with data deriving from telephone interviews**

The telephone interviews also offered insights into the division of labour as between web designers and business personnel, showing that exclusive reliance was placed on the Angling and HE sectors on the design and creative input of male web designers. In the Beauty sector, however, 73% of the sample surveyed (16 respondents) provided a range of creative inputs to the website designs even where a designer had been employed to produce the website. This additional input was provided exclusively by women working in those businesses even though interviews revealed that fewer than one quarter of the Beauty salon businesses had an *extensive* input into the design of the website, with just over half providing *little* input. It can be inferred, from these results, that the majority of those working on web design in all three of these industries were men.

One might reasonably ask how representative this picture for the web design industry as a whole. Existing research on the demographics and *modus operandi* of this relatively new industry was limited to a study examining the use of websites in small businesses (Thelwall, 2000) and a further piece of research in which it is claimed that

Internet design is male dominated (Simon and Peppas, 2005). One way of verifying the reliability of the data obtained from the study of these three industries is to ascertain the skills base of those working in Web design (eg IT or graphics), mapping the demographics of these skill areas.

A first step involved telephone interviews with companies listed in the New Media Age's list of the top ten interactive agencies (<http://www.nmatop100.co.uk/Top100/default.aspx>). Discussions with Project and HR managers in six of the ten companies prepared to participate in the study revealed that the background of web designers lay in computing/IT, graphic design or another area with the majority of web designers coming from the first two areas (in equal proportions) and a considerably smaller number from the third. Four of the six companies referred to the existence of two principle departments (i) "Design" and (ii) a "Technical" department, the latter staffed largely by people with a Computer Science background and the former by "creative people" (the words of one respondent), typically those with graphic design qualifications from Art and Design Schools. The two remaining companies had an "Information Architecture" department staffed by usability experts familiar with "user centred design" and a high proportion of these had a Human Computer Interaction (HCI) background based in the IT or in graphic design (Moss *et al*, 2008b).

These interviews revealed an IT and Graphics background to most web designers and a study of the gender demographics of these two industries in turn provide pointers as to the gender of those in the web design industry. Although there is a view that the paradigms taught in Graphic Design derive from modernism and have a patriarchal origin there is little published material on the gender demographics of Graphic design. In terms of unpublished material, membership data from the professional body representing designers in the UK, the Chartered Society of Designers (CSD) provides

a gender breakdown by specialism and grade of membership and in 2006 figures for graphic design reveal that women constitute 56% of Graduate members, 21% of Members and 12% of Fellows. If a correlation is assumed between membership grade and job seniority, then the figures suggest that the majority of middle and senior ranks of graphic designers are male, with a majority of women in junior positions. A tentative conclusion might be that men and women are equal numerically at entry levels in graphic design, a feeder for web design, but horizontally segregated thereafter (Moss *et al*, 2008b; Moss, 2009; 2010).

As for IT, women in the 1990s accounted for 19% - 22% of personnel with men dominating at all levels across the three fields of information systems, information technology and computer science (Robertson *et al* 2001). The picture varies by geography, time and IT specialism and in the US, the proportion of women among US computer professionals fell in the 1990s from 35.4% to 29.1%; in the UK, in 1994, women made up 30% of computer scientists, 32% of systems analysts, 35% of computer programmers, 10% of ISS directors, 18% of project leaders and 14% of applications development managers (Baroudi and Igbaria 1994/5).

The trend for female participation in IT is downwards. The 1980s saw an influx of women into IT, with a fourfold increase between 1980 and 1986 in the number of women awarded bachelor's degrees in computer science, and a three fold increase in the number of women awarded master's degrees (Igbaria *et al* 1997). Recent years have seen a sharp decline in the number of women pursuing degrees in computer-related fields, together with a reduction in the numbers of women taking advanced-degree programmes (*ibid*). In 2002, the following % of male and female employees were reported for the IT profession (Facts about men and women 2002), demonstrating the horizontal and vertical segregation discussed by Robertson *et al* (2001):

Occupation	% Males	% Females
Software professionals	84	16
ICT Managers	83	17
IT operations, technicians	71	29

**Table 11: % of men and women in the IT profession, Facts about women and men in Great Britain 2002, Equal Opportunities Commission**

Research has identified one of the effects of the vertical and horizontal male-domination of the IT profession to be the creation of a “masculine computer culture” producing a “masculine discourse” and a prioritisation of technical issues (Robertson *et al*, 2001) both of which deter women from entering the field (ibid). The authors suggest that it is only by including a ‘broader set of skills and discursive practices’ will allow a more diverse group of people to be attracted into the profession and the masculine culture impacted.

So, an examination of the demographics of both the graphics and IT sectors, sectors feeding the web design sector, reveals horizontal and vertical segregation by gender. Given the evidence for own-sex preference, one might expect this male dominance to place a premium on male-typical web *productions* and *preferences*.

### **Management**

What about management’s preferences for styles of management? Gender differences appear to relate not just to the way that men and women enact leadership (that is, their management *performance* styles) but also to their evaluations of

leadership styles (ie their management *preferences*). One study for example (Luthar 1996), asked men and women to evaluate the leadership skills of other men and women and found that men ascribed higher values to men's skills than women's and vice versa for women. Moreover, one of the APs (Moss and Daunton, 2006f) showed the extent to which a sample of male recruiters unconsciously substituted Transactional leadership criteria for the Transformational criteria in the Job Specification. Although the sample was small, this behaviour matched Luthar's conclusions as to men's higher rating of Transactional over Transformational leadership.

Preference elements extend to appraisals of professional competence and there is a large body of research demonstrating the strength of the 'similarity-attraction' paradigm (Byrne 1971; Byrne and Newman 1992) and its influence on the recruitment selection and attrition cycle (Schneider 1987; Stockdale and Crosby 2004). In fact, Schneider's model shows organizations becoming increasingly homogenous, not only because individuals are attracted to join and remain with organizations in which they perceive that they 'fit in' but since organizational members are likely to feel comfortable with applicants who are similar.

Since the type of design and marketing staff employed will be a function of the type of staff recruited, a process influenced by the 'similarity-attraction' paradigm, so also will the recruitment process influence the kind of products and advertising produced. As a consequence, if an organization has a senior management consisting predominantly of men, they will tend to appoint other men and these men, if assuming the role of designers or brand managers, are likely to produce designs and brands that are at the masculine end of the production aesthetic continuum. In this situation, achieving congruity with a predominantly female customer base may present challenges and may deprive the organization of the benefits of congruity (Brock 1965; Crozier and



Greenhalgh 1992; Hammer 1995; Karande *et al* 1997; De Chernatoney *et al* 2004).

These benefits include enhanced customer pleasure and purchasing (Groppel 1993; Donovan *et al* 1994; Yahomoto and Lambert 1994), benefits too important for organizations to ignore (Moss *et al*, 2008b and Moss, 2009).

The link between the outside processes of competition and the internal processes of creating and sustaining change is described as the 'inside-out' and 'outside-in' perspective (Baden-Fuller, 1995) and links with the view that 'customer service and products can be more effectively provided if an organisation's workforce mirrors its customers' (Loden and Rosener, 1991). However, there is a recognition that some recruitment is so-called *status quo* recruitment, involving recruitment 'from the same social strata and age groups' (Boxall and Purcell (2003: 141), and that 'highly masculinised' organisations are often 'hostile to transformational approaches' (Marshall 2008). Against this, the benefits of a less homogeneous managerial workforce in an increasingly competitive environment are stressed by Kramar (1998) and Marshall who stress that 'innovative firms ..... attempt to recruit talented people who can help them develop a stream of new products and processes. They therefore use all possible channels to generate a heterogenous group of applicants' (Marshall, 2008).

Where web designer recruitment is concerned, the APs shed light, for the first time, on the subtle interplay between *productions* and *preferences* (Moss, 2007b; 2008a; 2008b), showing how complex is the process of employing web designers to design for a market whose preferences may not mirror those of senior management or the web designers that they recruit.

Previous literature had alluded, in general terms, to the difficulty of merging different cognitive styles, attitudes and values (Ancona and Caldwell, 1992) but the

complexities in operationalising the mirroring principle across a number of design disciplines, including web design, have only recently been exposed (Moss, 2009; Moss and Gunn, 2007b; Moss and Gunn, 2008a and 2008b). Factors that render this process problematic include a mismatch between the demographics of the organisation and those of the customer base, resulting in a mismatch between the *preferences* of an organisation's internal and external stakeholders (Loden and Rosener, 1991; Karpin report, 1995). Such a mismatch is likely to be common in the male-dominated web design industry (Moss, 2009; Moss, 2007b; Moss and Gunn, 2008a and 2008b), and to a lesser extent in the graphic design industry, since their workforces are male-dominated (Moss *et al*, 2006b; 2007b; Moss and Gunn, 2008a and 2008b) but with a customer base consisting of both genders.

Research in the APs has discussed the possible role of training in alleviating this mismatch, for example training web designers in the preferences of the target market but the efficacy of training as a means of influencing and transforming *productions* and *preferences* remains uncharted except where efforts at leadership training are concerned (Moss *et al*, 2006c). One could imagine that such training might encounter difficulties, for example overcoming the impact of socialised or biologically determined differences on design *productions* and *preferences* (Moss, 2010) but this is nonetheless an important area for future research.

## **Conclusions**

The mirroring principle holds that the efficacy of messages can be maximized if they contain features that mirror the preferences of the target market (Hammer, 1980; Janz, and Prasarnphanich, 2003). Where *productions* are concerned, designs and products can reflect aspects of their creators, whether gender, nationality or personality and management can be sensitive to these factors too. Where *preferences* are concerned, we have seen how these tend to parallel and mirror *production* tendencies. In this

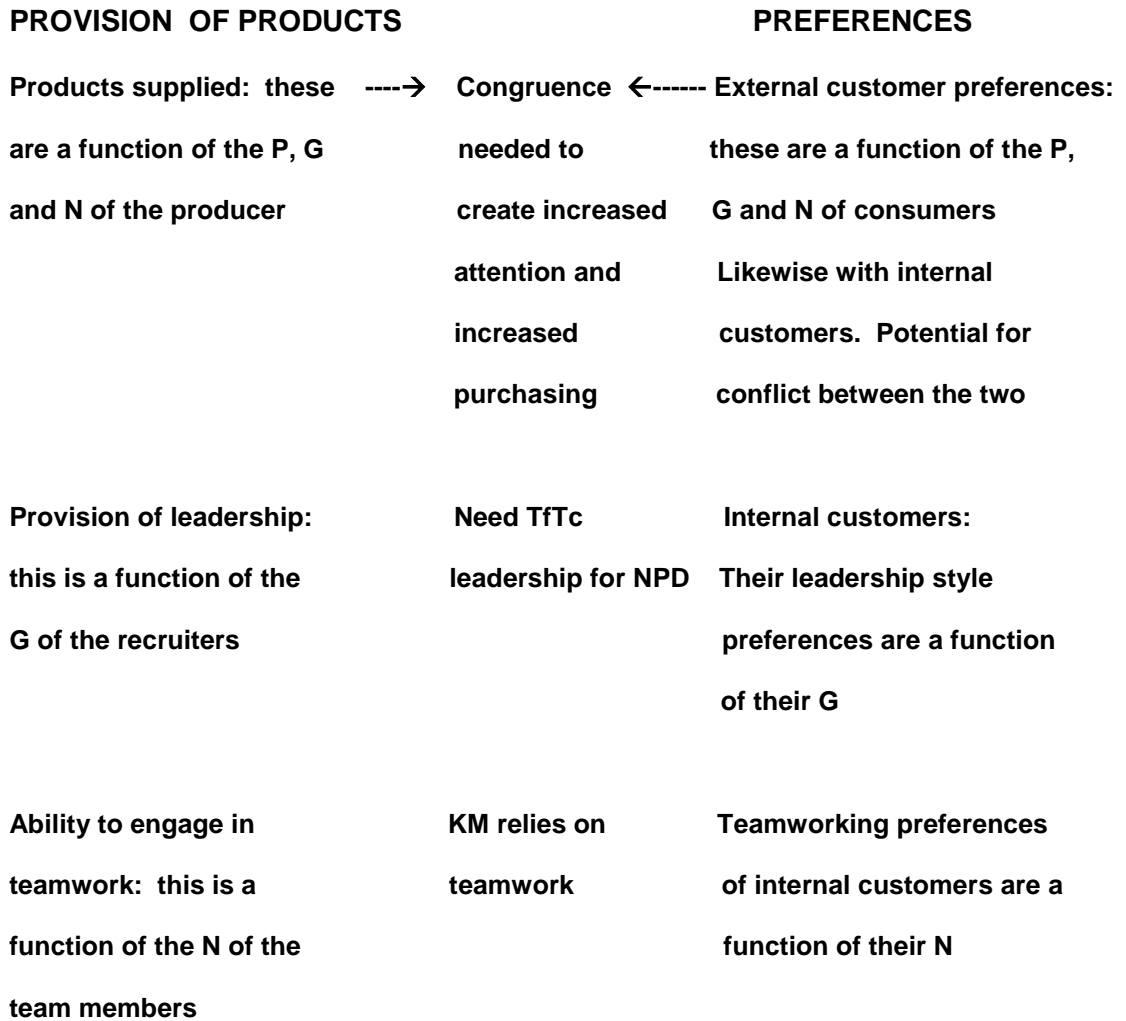
way, segmentation variables appear to act on *preferences* in an analogous way to *performances*.

The parallels between the psychology of *performance* and the psychology of *preference* suggest that congruence can best be achieved by ensuring that those personnel creating products match the demographics of those consuming products. In other words, creatives should have personal characteristics (personality, gender and nationality) of those in the target market. Unfortunately, selecting staff whose values are not congruent with those of the recruiters can meet with obstacles (Moss and Daunton, 2006), leading organisations to recruit people like themselves (Lewis, 2006). Although some notions of how leaders with non-congruent styles could be recruited have been charted including training and reinforcement of leadership values (Moss *et al*, 2006c), the processes needed to encourage the recruitment of designers with non-congruent styles have yet to be charted. A model is presented in Figure 1 that sets out the issues for achieving congruence between products and markets in the Web design industry (Figure 1), an aspiration that would ensure that internal *productions* and external customer *preferences* are matched.

The complexity of the model shows the obstacles to congruence showing the extent to which it needs to take account of leadership style, recruitment processes, and the influence of gender, nationality and personality inside and outside the organisation. Future areas for research relate to refining this model across a number of segmentation variables and detailing ways in which the obstacles highlighted by this model can be overcome. In this way, it may be possible to educate designers away from their initial *productions* and *preferences* through a campaign of educating organisational internal stakeholders in alternative values (Moss, 2009) but these processes need to be thoroughly researched and evaluated.

**Figure 1**

**Congruence needed between products and preferences**



P = personality; N = nationality; G = gender; KM = knowledge management;  
 TtTc = transformational leadership plus contingent reward; NPD = new product development

Word count

The overview document (excluding appendices and references):

Total word count = 13,523 words

**DATE ENTRY / RATING CRITERIA**

**In applying the following rating criteria, judgements need to be made about the site as a whole**

1. Gender Male = 1 Female = 2

2. Navigation issues

A. Number of pages

In calculating this figure, include:

(i) the Home page

(ii) the number of links on the Home Page

(iii) the number of further links within those sites *where those sites are originated by the respondent himself / herself and refer to a new site*

(1) = 15 + (2) = 9 – 14 (3) = 6 - 8 (4) = 2 – 5 (5) 1

B. Site map (home page only)

This is defined as links shown with icons (as opposed to simply underlined text ie hyperlinks) or links that remain in view when different parts of the site are navigated

No = 0 Yes = 1

C. Contents page

This is defined as underlined text, ie hyperlinks, arranged in a methodical way

No = 0 Yes = 1

D. Consistency

As you move from the Home page to another page, how consistent are they in layout and appearance? Discount pages not produced by the author

Total (1) High (2) Medium (3)

Low (4) Not relevant (0)

E. Content

How varied is the subject matter? Group topics which form part of a single discipline together (so, if there are different sites for Wittgenstein and Russell this would be counted as 1 subject only)

No of separate subjects covered

(1) = 15+ (2) = 9 – 14 (3) = 6 - 8 (4) = 2 – 5 (5) 1

### 3. Language/ Register

Test: is there an explicit reference to 'welcome'

Welcome to the site

No welcome = 0

A welcome = 1

#### Denigration

Tests: is there denigration of self or task at hand? Does the person play down their achievements?

No denigration of self or task at hand = 0

Denigration of self or task at hand = 1

#### Expert/ technical language

2 tests: (i) to what extent can the language be understood by a non-expert  
(ii) are there abbreviations that are not explained / expanded

Not using expert/ technical language for the majority of authored pages = 0

Using expert language for the majority of the authored pages = 1

#### Not referring to own achievements

Test: exclude hobbies

Not referring to own achievements = 0

Referring to own achievements = 1

### 4. Visuals

(i) Looking at any images or non photographic visuals:

Overwhelmingly 3D (1)

Mixture of 3D and 2D (2)

Overwhelmingly 2D (3)  
Not relevant (0) - this would be the case with photos

(ii) Including any photo of the site owner, how many photos are there?

Photos    No photos = 0    Just one photo = 1    2 or more photos = 2

(iii) Quality of shapes on home page

Are there straight lines across the page? (lines can be thick or thin). An image is not classified as a line (eg image of a palm tree with leaves going across page would not constitute a line). If there is no line, but only an image, 0 is appropriate.

There are straight lines (1)  
Mixture of straight and non-straight lines (2)  
Rounded or not straight lines predominate (3)  
Not relevant = 0

(iv) Single colour for typefaces

Count up the number of different coloured typefaces used throughout the site, including black (you will want to make the mouse hover above the text to see if that produces a new colour which would then be added it to the count of colours used)

One colour (1)    2 – 3 colours (2)  
4 - 6 colours (3)    7 + (4) = 4

(v) Single colour in  
Background and /or  
Frame

Look at the background colours used on the web pages of the site, and / or the Surround ((you will want to make the mouse hover above the screen spaces to see if that produces a new colour which would then be added it to the count of colours used)

Note whether there is:

Black or white colour in background or frame (1)

Single non black and white colour in either the background or frame (2)

Non black and white colours in both the background and frame (3)

Two or more non black and while colours in the background or frame (4)



Lightness/ darkness  
Of site

At a first impression, is the home page:  
Dark = 0  
Light / bright = 1  
Difficult to say = 2

5. Themes / mood

- (i) Themes of images Look at site and images (these can include photos). If there is an image which includes people, only consider the people in Image 4 below:  
Decide if the images are:

IMAGE 1

Static (1) / self-propelling (2) objects  
Eg a plant is static and a boat, even if stationary, is self-propelling Both (3) Not applicable (9)

IMAGE 2

Inanimate (1) / animate (2) Both (3)  
Not applicable (9)  
Please note that 'animate' can be used to describe pictures of people or nature (water, animals, plants etc)

IMAGE 3

Whether use is made of Institutions's crest (1) / own logo (2) Not applicable (0)

IMAGE 4

Whether there is an image of a male (1) Female (2)  
Both (3) Not applicable (0)

- (ii) Seriousness/ humour

Consider the tone and register of the language:  
Formal words (1) Lighthearted words (2)  
Both (3)

Consider the tone and register of the pictures. The picture can be a photo or an image:  
Excluding the author's opening photo of self:  
Formal pictures (1) Informal /snapshot pictures (2)  
Both (3) Not applicable (9)

- (iii) Layout

Consider just the home page and whether the layout is

symmetrical :  
Symmetrical = 1  
Not symmetrical = 0

Consider the home page and whether it looks organised:  
Organised layout (1) Less organised layout (2)  
Both (3) SHALL WE LEAVE OUT THIS CATEGORY? IT SEEMS RATHER UNSPECIFIC

Is the typography regular (ie even in spacing, height, And in linear sequencing on the page (ie it follows a straight line)

Consider the whole site and the character of the typography:  
Formal / regular typography (1)  
Informal / irregular typography (2)

Looking at the whole site (and remembering to count in colours that appear when the cursor hovers above the text), look at the text colours: do they consist of:

Mainly black or blue typography (1)

Some white, yellow, pink or mauve typography (2)

Mainly white, yellow, pink or mauve typography (3)

Looking at the layout of the home page, does it follow convention in having lines horizontally and vertically, and text arranged within this?

Conventional layout (1) Unconventional layout (2)

Position of lines (lines are defined as horizontal lines that can consist of a narrow band or a thick band):

No lines = 0

Complete lines from the left side of the page to the right = 1  
Incomplete lines from either the left or the right to somewhere  
on the page = 2  
Incomplete lines that start in the page and finish on the right =3  
Lines in the middle of the page that do not end on either side of  
the page = 4  
Mixture of any 2 of the above = 5  
Mixture of any 3 of the above = 6  
All 4 = 7

Shape of icons (exclude hypertext)

No links = 0  
Straight-sided links = 1  
Rounded shaped links = 2  
Irregular shaped links = 3  
Mixture = 4

(iv)

Movement

Are the objects / graphics moving or stationary?

Moving = 1      Static = 2

(v)

Sound

Is a sound file included?

0 = No      1 = yes

## OVERVIEW OF THE SEVEN PUBLICATIONS SUBMITTED FOR THE DEGREE OF PHD BY PUBLICATIONS

### A. Peer-reviewed journal articles

Details of the author's publications submitted with this PhD by publication are provided below. An indication is provided of the ranking of the journal together with citations of these journal articles. In referring to the status of journals, reference could be made to the rankings of the following institutions and their abbreviations:

ABS09 - Association of Business Schools Academic Journal Quality guide (published by Bristol Business School); WIE01 – Wien Journal Rating; VHB03 – Association of Professors of Business in German speaking countries; BJM04 – British Journal of Management 2001 Business and Mngmt RAE rankings; ABDC08 – Australian Business Deans Council Journal rankings

**1. Moss, G, Gunn, R and Heller, J (2006),** Some men like it black, some women like it pink: consumer implications of differences in male and female website design, *Journal of Consumer behaviour*, 5 (4), 328-341

**Contribution of the article to the overview:** this article established the fact that the male and female webdesign production aesthetics are statistically distinct on just over half of the visual and linguistic features analysed. This is the first article to carry out a systematic analysis and comparison of male and female-produced websites.

Prior to conducting this study, the author had conducted a similar study in respect of graphic and product design (Moss 1995) and after conducting the webdesign study, she went on to complete studies comparing the gender aesthetic used in different industries (Moss, Gunn and Kubacki 2006b; Gunn, Moss, Sanders and Gasper, 2007).

**Relative contributions** of co-authors: Dr Rod Gunn estimated that Moss's contribution amounted to 66% of the work and Jonathan Heller described his contribution as 'very minor', contributing mainly access to the sample of Oxford websites which formed the database and amounting to between 1-5% of the work (see e-mails from co-authors in Appendix B).

**Journal ranking:** according to the ABDC08 this is a 'well regarded' journal in the field that publishes research of a good standard in terms of originality, significance and rigour ....papers are fully refereed according to good standards and practices'; according to the ABS09 this is a 'well regarded journal'; according to the VHB03, this is a 'B' ranked journal on a ranking of A+ - E, with A+ as the highest grade.

Citations of this article: the article has been widely cited both in books, journal articles and weblogs. In terms of a summary of these citations, these are as follows:

(i) **Citations in journals:**

This article is cited in the following journal articles:

**citations of 'Some men like it black....' (cont):**

Beetles, A and Lloyd, H (2005), Marketing, Gender and Feminism: A Synthesis and Research Agenda, The Marketing Review, Volume 5, Number 3, Autumn 2005, 205-231

Cooper, C and Burns, A, (2007), Kohonen self-organising feature maps as a means to benchmark college and university websites, Journal of Science Education and Technology, 16 (3)

Ha, Y and Lennon, S (2010), Online visual merchandising (VMD) cues and consumer pleasure and arousal: Purchasing versus browsing situation, Psychology and Marketing, 27(2), 141-165

Kim, YM (2010), Gender role and the use of university library website resources: a social cognitive theory perspective, Journal of Information Science, 36 (5), 603-617

Lorenzo, C and Gomez, M A (2007), Website design and e-consumer: effects and responses, International Journal of Internet Marketing and Advertising, 4 (1), 114 – 141

Pelet, J-E, Effets de la couleur des sites web marchands sur la mémorisation et sur l'intention d'achat, Systèmes d'Information et Management. Paris: Mar 2010. Vol. 15, Iss. 1; p. 97 (36 pages)

Saad, G (2008), Advertised waist-to-hip ratios of online female escorts: An evolutionary perspective. International Journal of e-Collaboration. 2008. Vol. 4, Iss. 3; 40-50

Srivastava, S, Teo, T and Subramanian, A (2009), Rational versus Institutional Perspectives in Organizational Web Sites, Communications of the Association for Information Systems, 24 see <http://aisel.aisnet.org/cais/vol24/iss1/36>

Stilma, M (2008), The influence of the designer's gender, International Design conference, Dubrovnik – Croatia, May 19-22

Stilma, M and Vos, O (2009), Gender based product design research: Is there an indicating difference in product design made by male and female design graduates, Design Principles and Practices: an international journal, 3, ISSN 1833-1874 (see [http://g09.cgpublisher.com/proposals/12/index\\_html#author-0](http://g09.cgpublisher.com/proposals/12/index_html#author-0))

Tucciarone, M (2009), Speaking the Same Language: Information College Seekers Look for on a College Web Site. College and University. Washington: Spring, Vol. 84, Iss. 4; p. 22 (10 pages)

Xue, L and Yen, C C (2007), Towards female preferences in design – a pilot study, International Journal of Design, 1 (3), 11 – 27

(ii) **Citations in books / book chapters:**

The research is cited over two pages in Alan Charlesworth's book (2006) Key concepts in e-commerce (2007), Palgrave Macmillan

it is also cited in: Boiano, S, Borda, A, Bowen, J, Faulkner, X, Gaia, G and McDaid, S (2007), Gender issues in HCI Design for web access, 116 – 153, in Advances in universal web design and evaluation: research, trends and opportunities, Ideas Group Publishing, Hershey

**citations of 'Some men like it black....' (cont):**

Also in Miller, M and Buchanan, H (2007), *The soccer mum myth*, The Wizard Press, Austin (p.207-8).

(iii) **Citations in Masters and PhD dissertations**

Kelleher, C (2006), *Motivating programming: using storytelling to make computer programming attractive to more middle school girls*, Carnegie Mellon PhD

Marshall, K (2009), *Online product presentation and perceived trustworthiness: the moderating role of gender*, Oregon State University, MSc dissertation (see <http://ir.library.oregonstate.edu/jspui/handle/1957/12848>)

Phongsatha, S (2008), *The effects of perceived web page aesthetic quality on reading comprehension performance*, Dissertation, University of Kansas, <http://proquest.umi.com/pqdlink?did=1514970851&Fmt=2&clientId=28853&RQT=309&VName=PQD>

(iv) **Citations in the press/ radio**

This paper received widespread media attention with coverage of her work in 80 US newspapers (including the *Washington Post*, *New York Times* (see 8 August [http://www.usatoday.com/tech/news/2005-08-10-gender-internet\\_x.htm](http://www.usatoday.com/tech/news/2005-08-10-gender-internet_x.htm)), *Wall Street Journal*, the *BBC*, *Times* (see 16 August [http://www.timesonline.co.uk/tol/life\\_and\\_style/education/student/news/article555246.ece](http://www.timesonline.co.uk/tol/life_and_style/education/student/news/article555246.ece)), *The Telegraph*, *Times High Education* (see <file:///F:/oxford%20websites/PressTHE.htm>), the *Western Mail* (see (i) 4 August 2005 [http://www.walesonline.co.uk/business-in-wales/business-news/tm\\_objectid=15816025&method=full&siteid=50082-name\\_page.html](http://www.walesonline.co.uk/business-in-wales/business-news/tm_objectid=15816025&method=full&siteid=50082-name_page.html); (ii) Andrew Dagnell (8 December 2008) 'Forget high street hassles – today we'll spend £320m on Christmas shopping without leaving the house'.

The author was interviewed by Radio 4 for Woman's Hour in connection with the research (13 March 2006 - see [http://www.bbc.co.uk/radio4/womanshour/01/2006\\_11\\_mon.shtml](http://www.bbc.co.uk/radio4/womanshour/01/2006_11_mon.shtml))

(v) **Citations in the professional press**

The following two articles were written about this research:

- Howell, D (2006), *What sex is your site?*, *The Director*, February, p.35
- Mitchell, K (2006/7), *Design psychology*, *Enterprise: the national business magazine for Wales*, p.72

(vi) **Citations on websites**

A large number of websites, including e-technology websites, reported details of this research. Examples included:

- BBC website (see <http://news.bbc.co.uk/1/hi/wales/4740173.stm>), PC Pro (see <file:///F:/oxford%20websites/PressGenderWeb.htm>)
- Access My Library (see [file:///F:/oxford%20websites/E-retailers%27%20sites%20may%20nPressnot%20appeal%20to%20women\\_%20\(11-AUG-05\)%20UPI%20Hi-Tech.htm](file:///F:/oxford%20websites/E-retailers%27%20sites%20may%20nPressnot%20appeal%20to%20women_%20(11-AUG-05)%20UPI%20Hi-Tech.htm))
- Airbag Industries (<http://www.airbagindustries.com/archives/airbag/ken.php>)

**citations of 'Some men like it black....' (cont):**

- E-marketing Insights 44, article by Dr D Chaffey (see <http://www.davechaffey.com/E-marketing-Insights/Customer-experience-management/E-marketing-Insights-44-Improving-customer-retention-online>)
- High Rankings Forum (<http://www.highrankings.com/forum/index.php?showtopic=30297>), Web Designer, article by Dave Howell (see file:///F:/oxford websites/PressWeb Designer - Feature - Colour Matters.htm)
- ErgoWeb (see file:///F:/oxford%20websites/PressWeb%20Sites%20%E2%80%93%20One%20Sex%20Does%20Not%20Fit%20All.htm). www.IOL.co.za (see <file:///F:/oxford%20websites/PressWeb%20study%20shows%20site%27s%20appearance%20oes%20count.htm>)
- I.t.wales, January 2006 (see <http://itwales.com/799626.htm>)
- IT World (see [http://www.itworld.com/nls\\_ecommercesex050831](http://www.itworld.com/nls_ecommercesex050831))
- The Marvellous Media Company, 10 December 2008 (see <http://www.marvellousmedia.com/news/18917916/web-design-should-consider-target-audience/>)
- MCPC, May 2009 (see <http://www.mcpc2009.com/program/outlines/122/>)
- Nomensa humanising technology (see <http://www.nomensa.com/news/industry-news/2005/8/new-report-could-revolutionise-web-design.html>)
- PC Pro (see <http://www.pcpro.co.uk/news/76018/gender-gap-extends-to-the-web.html>)
- Visual Studio, 'Les pages Web ont-elles un sexe?' (see <http://branchez-vous.com/actu/05-08/09-273906.html>)
- Work-Live (see <http://www.work-live.com/news/industry/website-design-is-biased-to-men.html>)

(vii) **Citations on weblogs**

A great deal of publicity appeared, worldwide, in response to news of this research. One of the responses was widespread blogging on the topic and the 77 separate comments collected on weblogs were interesting enough to be the subject of a conference paper (Moss and Gunn, 2006 c). Examples can be found at the following links:

- file:///F:/oxford websites/PressSites for men and women.htm
- Molly.com (August 2005) see <http://www.molly.com/2005/08/09/girls-prefer-circles-gender-bias-and-web-design/>
- Marcom blog (see <http://www.marcomblog.com/2005/08/15/surprise-surprise-men-and-women-view-web-sites-differently/>)

**2. Moss, G and Gunn, R (2009), Gender differences in website production and preference aesthetics: preliminary implications for ICT in education and beyond, Behaviour and Information Technology, 28 (5), 447 – 460**

**Contribution of the article to the overview:** this article established the fact that the male and female webdesign preference aesthetics are statistically distinct. Female respondents were found to prefer female-produced websites on all measures, whereas male respondents preferred the male-produced websites overall, and for their layout and typography colours but had no particular preference as between the male and female-produced websites where shapes were concerned. With regards to pictures, they preferred the female-produced websites.

This is the first article to carry out a systematic analysis and comparison of male and female preferences as between male and female-produced websites. Prior to this, Moss, writing singly and with Professor Andrew Colman of Leicester University, presented results of preference tests in the area of graphic and product design that were as statistically significant as those in the *Behaviour and Information Technology* article (Moss, 1995; Moss and Colman 2001). Given the consistency of all graphic expression, the existence of similar results across two design disciplines reinforces the strength of these results.

**Relative contributions** of authors: Dr Rod Gunn estimated that Moss's contribution amounted to 68% of the work on this article (see e-mail from co-author in Appendix B).

**Journal ranking:** according to the ABDC08 this is an A rank journal (a 'highly regarded journal'); according to the ABS09 a 'well regarded' journal; according to WIE01- on a 5-point scale from a top of A\*- D – it is a B grade journal; according to the BJM04, this is a 5 rank journal on a descending scale of 7- 1 with 7 as the highest level.

**Citations in radio/ press:**

(i) on 18 August 2009, the Telegraph published an article 'Men prefer websites designed by men' discussing this research (see <http://www.telegraph.co.uk/technology/news/6049070/Men-prefer-websites-designed-by-men.html>).

(ii) on 23 August 2009, the author was interviewed on the BBC Wales Programme 'Science Café' discussing this article.

**3. Moss, G, Gunn, R and Kubacki, K (2008), Gender and web design: the implications of the mirroring principle for the services branding model, Journal of Marketing Communications, 14 (1), 37–57**

**Contribution of the article to the overview:** the marketing literature makes much of the mirroring principle but ignores the practicalities of implementing this where webdesign is concerned. This article concludes, from the results of articles (2) and (3) above, that the mirroring principle can best be achieved by using a production aesthetic that typifies the production aesthetic of its target market. The notion, advanced in other literature, of androgynous sites in which people are presented with a production aesthetic not typical of their gender is not borne out by the results shown in articles (1) and (2).



The findings presented in articles (1) and (2) show that preferences are a mirror image of production aesthetics, and article (3) shows how this finding necessitates a modification to the brand services management model. The article proposes a model for organisations that would help ensure that consumer preferences mirror those of key actors within the organisation. It suggests that there may be obstacles in applying this model at present given the (i) male domination of many organisations and (ii) given the domination of the web design industry at senior levels by men.

As a result of this, it is suggested that change in this industry, and the introduction of this new model, can only be introduced through an evolutionary rather than revolutionary path. Such an evolutionary path might include training and education in the spectrum of aesthetic choice available.

Similar conclusions were reached in an article by Moss writing with the same two co-authors (Moss *et al*, 2006) and singly (Moss 2008c).

**Relative contributions** of authors: Dr Rod Gunn estimated the relative contribution of the first author to be 73% of the work and Krzysztof Kubacki put her input at 70% of the work (see e-mails from co-authors in Appendix B).

**Journal ranking:** according to the ABSO9 AND ABDC08 this is a 'well regarded' journal in the field that publishes research of a good standard in terms of originality, significance and rigour ....papers are fully refereed according to good standards and practices'; according to the BJM04 this is a rank 4 journal on a descending scale of 7-1 with 7 as the highest level.

**4. Moss, G, and Daunton, L (2006), The discriminatory impact of deviations from selection criteria in Higher Education selection, Career Development International, 11 (6), 504-521**

**Contribution of the article to the overview:** article (3) had described the pervasiveness of a male culture in the IT industry and the obstacle that this might present to the favouring of a female perspective. This article on leadership provides a parallel example by showing the obstacles, in a male-dominated organisation, to the selection of leaders displaying leadership skills closely associated with women.

These obstacles show (i) the strength of the homogeneity principle within organisations and (ii) the extent to which this can block the transformation of the dominant organisational culture even where the Job Specification and Job Description prescribes the new style.

This is relevant to the thesis of the overview insofar as achievement of the mirroring principle in relation to webdesign will necessitate a shift in organisational perspectives. A separate article (Moss 2007b) enlarges on the difficulties involved in achieving a shift in the perspective of those actors involved in the recruitment of designers. This latter article argues that without this shift, the achievement of the mirroring principle will be in jeopardy. These problems are further enlarged in the final chapter of the book (publication 5 below). Furthermore, one conference paper (Moss *et al*, 2006) and one research paper accepted for a CIPD research conference (Moss *et al* 2006c) showed that only concerted attempts at overcoming these problems, for example systematically introducing new criteria at recruitment, promotion and within management training, could help overcome these problems in a second organisation. This is despite the importance of the leadership style concerned which is credited with creating enhanced organizational productivity and lower levels of stress (Bass, 1998; Alimo-Metcalf, 2003; Moss *et al*, 2006c).

**Relative contribution** of authors: Lyn Daunton estimated Moss's contribution to be 65% of the total input (see e-mail from co-author in Appendix B).

**Journal ranking:** on a 5-point scale from a top of A\*, the WIE01 give this as a B grade journal; according to the BJM04 this is a rank 4 journal on a descending scale of 7-1 with 7 as the highest level.

**Citations of this article:**

(i) In newspapers: a feature article reported on this research in the Western Mail's business pages (see [http://icwales.icnetwork.co.uk/0300business/0100news/tm\\_headline=men-still-beat-women-to-top-jobs%26method=full%26objectid=18078728%26siteid=50082-name\\_page.html](http://icwales.icnetwork.co.uk/0300business/0100news/tm_headline=men-still-beat-women-to-top-jobs%26method=full%26objectid=18078728%26siteid=50082-name_page.html))

(ii) In the HR press:

- CiteHR.com has a post by Professor Lakshman in which he quotes a feature article by the author in People Management describing the research (31 August, 2006) . See <http://www.citehr.com/14493-leadership-combination.html>

- a feature article appeared in the online journal of the American Training association ASTD, 2006, Vol 2 (1) (see <http://www.astd.org/astd/newsletters/lxb> . Here is the link directly to the article through [http://www.astd.org/NR/rdonlyres/0967CE87-5AF6-4E58-B7FC-B0A41A81076C/11318/LXB\\_January07B.pdf](http://www.astd.org/NR/rdonlyres/0967CE87-5AF6-4E58-B7FC-B0A41A81076C/11318/LXB_January07B.pdf))

- a feature article appeared in the Canadian HR Press. The reference is: Klie, Shannon (2006), Emphasizing soft skills helps women climb ranks, Canadian HR Reporter, 4 December, p.7

**5. Moss, G (2007b), The psychology of performance and preference: advantages, disadvantages, drivers and obstacles to the achievement of congruence, *Journal of Brand Management*, 14, 4, 343- 358**

**Contribution of the article to the overview:** this article sets out the distinction between 'performance' and 'preference' elements used in this overview, and also discussed the organisational obstacles to the achievement of design diversity.

**Relative contribution of the author:** this is a single-author publication so Moss has contributed 100% of the work here.

**Circumstances:** the author who is on the editorial board of the *Journal of Brand Management*, was asked to edit a special issue on the topic of 'The impact of personality and gender on branding decisions'. She invited Professor David Farnham to co-edit the issue with her and this article is one of the articles that appeared in the special issue.

**Journal ranking:**

- the Journal of Brand Management scored an intermediate ranking in both the British Journal of Management 2001 ranking and in the University of Queensland Journal Rating 2007;  
- according to the Australian Business Deans Council Journal Rankings List April 2008, it is a 'well regarded journal in the field' and 'publishes research of a good standard in terms of originality, significance and rigour ....papers are fully refereed according to good standards and practices';  
- this journal is included in the Erasmus Research Institute of Management Journals Listing (ERIM), the purpose of which, according to the *Journal Quality List*, 31<sup>st</sup> edition, 31 May 2008, edited by Dr Anne-Wil Harzing, is 'to contribute to the quality of the scientific output of ERIM and to the academic reputation of the institute'.

**Citations of this article:**

(i) Hui-Chu Chen and Green, R (2008), The marketing mix and branding: a review of consumer marketing, Global Conference on Business and Finance Proceedings, 3 (2), 108 – 118 (see <http://www.theibfr.com/archive/ISSN-1941-9589-V3-N2-2008.pdf#page=123>)

(ii) Law, E and Hornbaek, K (2008), Measures of usability and user experience (UX): correlation and confusion, *At the conference 'Towards a UX manifesto'*, 3rd September 2007, Lancaster, UK (see <http://141.115.28.2/cost294/upload/506.pdf#page=49>).

Effie Law, the person running the conference and citing the author's work, subsequently invited the author to present a paper at this conference which she did with Senior Lecturer in Marketing, Dr Gabor Horvath.

**B. Book chapters**

**6. Moss, G (2010), *Variety is the spice of life: how design diversity can enhance profitability*, In (Ed). Moss, G, *Profiting from diversity*, Palgrave Macmillan**

**Contribution of the article to the overview:** the article contains an overview of the impact of personality and gender on design and web design in particular. It is modelled on the author's article from the Journal of Brand Management, also published by Palgrave Macmillan.

**Circumstances:** the author was invited by the publisher to edit a book Profiting from Diversity. She divided the book into two parts with the first focusing on the organisational benefits derived from a diverse organisation and the second part focusing on the obstacles to achieving this diversity. This chapter is taken from the first half of the book.

The book has contributions from academics from the UK and France including Professor David Farnham (Portsmouth), Dr Marion Hersh (Glasgow), Dr Krzysztof Kubachi, Dr Jim Blythe (Plymouth), Dr Gabor Horvath (Glamorgan), Heather Skinner (Glamorgan), Dr Rod Gunn (Glamorgan), Caryn Cook (University of Wales, Newport), Alison Preece (University of Wales, Newport), Alan David (University of Westminster) and Dr Florence de Ferran, University of La Rochelle. The book achieved substantial publicity for another chapter, co-authored by the author, on men and women's leadership on Latvia. The author was interviewed on Woman's Hour and there was a full-page feature article in the *Independent* newspaper: both can be found on the book's website at <http://www.palgrave.com/products/title.aspx?PID=281244>

On the strength of the success of this book, Palgrave Macmillan have commissioned a follow-up title, Profiting from Diversity, focusing this time on the way in which diversity can be introduced into organisations. This book, edited by Gloria Moss and with chapters also by her, will contain contributions from the UK, France, and the US. The UK contributors include Dr Lorraine Watkins-Mathys, Head of School at Bucks New University, Hilary Mullen, Bucks New University, Mandy Sarankin, psychotherapist. Yvette Thomas, Equalities and Diversity Manager, Buckinghamshire County Council and Dr Ian Dodds, Diversity consultant. In France, Dr Isabelle Maque, University of La Rochelle; in the US Tom Jordan, Chief Creative Office, Hoffman York and Holly Buchanan, 'Marketing to Women' organisation.

Gloria Moss, herself and others, is due to be published at the end of 2011.

### C. Book

#### 7. Moss, G (2009), Gender, Design and Marketing, Gower, Surrey

**Contribution of the book to the overview:** this single-author book investigates the impact of gender over several design disciplines, including web design, and shows the extent to which the results ascribed in this overview to web design, whether in respect of the production or preference aesthetic, are common to many design disciplines. A large proportion of the findings regarding the production aesthetic are common also to findings from studies on drawings and paintings. In terms of possible underlying causes for these differences, the book suggests that an interplay of social and biological factors may be responsible with the two acting interactively. The bibliography provides a complete list of the author's publications on this topic.

The book includes a foreword by the Chief Executive of the Chartered Society of Designers (CSD), the professional body representing Designers in the UK and overseas and, according to the CSD website, 'the world's largest chartered body of professional designers ...unique in representing designers in all disciplines'. In the foreword, he endorses the content, writing that 'the research presented in this book is extremely welcome and relevant to our own thinking and I believe to the design sector and its 3 key stakeholder, design providers, design users and design education'.

It is to be hoped that the research on web design and other design disciplines will be perceived to be useful by other people working in the field. This is applied research and the emphasis is intentionally on the way that gender impacts on design as well as the way organisational factors can impede or progress movement towards optimum design solutions.

**Circumstances:** the author was approached by the publisher to write this and two other titles. All three are concerned with Design Diversity with the first title focused on gender, the second on personality and the third on nationality.

**Relative contribution** of the author: this is a single-author publication so Moss has contributed 100% of the work here.

**Reviews:** there have been seven reviews of the book, five appearing on the Amazon website (see <http://www.amazon.co.uk/Gender-Design-Marketing-Drives-Perception/dp/0566087863> , one on the 'Marketing to Women' website and two appearing on weblogs [http://www.gowerpublishing.com/default.aspx?page=1751&calcTitle=1&pageSubject=704&title\\_id=8831&edition\\_id=10211](http://www.gowerpublishing.com/default.aspx?page=1751&calcTitle=1&pageSubject=704&title_id=8831&edition_id=10211)). These reviews can be found in full at Appendix C (pp.65-69).

The author also received an e-mail from a senior Researcher at Market Research company Ipsos in Paris, writing in an e-mail of 18 August 2009 that the book is 'today one of the best books dealing with gender marketing. It is thorough, detailed, concrete, and based on a great amount of research'.

**Press / radio:** a feature on the content of the book was included in a BBC Wales science programme, 'Science Café' on 23 August 2009 (see <http://www.bbc.co.uk/wales/radiowales/sites/sciencecafe/updates/20090823.shtml>). Gloria Moss was commissioned to write an article on Diversity on International Women's day (8 March 2011) for the Mail on Sunday Women's Forum: <http://www.fmwf.com/media-type/news/2011/03/int-womens-day-blog/>

**Reviews of 'Moss, G (2009), Gender, Design and Marketing' (pp.52-56)**

Reviews have appeared on:

(1) The 'Marketing to Women' website (1 review)

(2) Amazon website (5 reviews)

(3) Weblogs (2 reviews)

These reviews are reproduced below.

**1. 'Marketing to Women' website - see**

<http://marketingtowomenonline.typepad.com/blog/2009/06/new-book-focuses-on-gender-design-and-marketing.html>

**Holly Buchanan (we design consultant and author of the 'Soccer myth mom')**

'Have you ever tried to have an objective discussion about design? Do you find the conversation involves terms like "good design" "bad design" professional design" "unprofessional design" "I like version 2" "I prefer version C."

**Is it possible to take a subjective discussion of design and make it objective?**

**Do our personal preferences sway our choice of what constitutes a "good design?"**

**And do men and women have different design preferences?**

The answer to all of the above, apparently, is "yes."

You can learn all about it in a new book by Gloria Moss - [Gender, Design and Marketing: How Gender Drives our Perception of Design and Marketing](#).

[Tom Jordan](#) was recently lamenting the lack of research into marketing to women. Tom, meet Gloria. Gloria, meet Tom.

[Gender, Design and Marketing](#) is based on research, research, and even more research. it's actually the only complaint some may have about the book - there's so much research it can be a little academic sounding, but the information is so worth the read. (Gloria Moss is a Senior Lecturer at Bucks New University and Visiting Professor at the Ecole Supérieure de Gestion (ESG), Paris.)

And I understand and applaud Gloria Moss' thoroughness. She's putting forth some game changing information that's going to ruffle some feathers.

But it's information we desperately need. In my research and study of marketing to women online, design has been the area that's been most difficult. I've seen definite elements that

seem to be more persuasive for women, but had trouble finding research studies to back up my findings. The best was [a study done by the University of Glamorgan](#). Not coincidentally, Gloria Moss was a part of that study. What fascinated me about that research was that **men preferred websites designed by men and women preferred websites designed by women.**

Wow - that got my attention. Especially since, at the time, the vast majority of websites were being designed by men.

Since then, Gloria Moss has scoured the landscape to find credible research on how gender affects design preferences. She looks at gender preferences in drawing, painting, graphics and my personal favorite, web design. She explores evolutionary, biological and social factors that play into these gender design preferences.

She often had to do her own research to find the answers to her questions.

### **This book will change the way you look at design**

The results are a **wake-up call** for everyone involved in advertising and design. I'm not talking just a little alarm clock going off. I'm talking a gigantic gong reverberating around the globe.

As Gloria Moss says in her introduction, her research "delineates the male and female design aesthetic and shows how partial each gender is to the aesthetic associated with its own gender."

### **What are the differences between men's and women's design preferences?**

In my own work and research, I've seen specific design elements that seem to increase conversion for women. Yet I never had the research to confirm and/or explain those findings. Now, I do. I also learned a few *new* things.

I can't give away everything. You really need to buy and read the book, but **here are a few juicy tidbits:**

- We are drawn to images of people of our own gender.
- Men are more likely than women to create design with a technical look.
- Women prefer rounded shapes to linear ones, and detailed surfaces to plain ones.
- Citing a study by Franck and Rosen - "whereas male subjects drew faces in profile, female subjects drew them in full frontal position."
- Women prefer the use of more colour, especially brighter colors.
- Men prefer subject matter that depicts "comparative advertising appeals." Women prefer subject matter that depicts "harmonious relationships."

That's just a small sample of the fascinating findings.

### **Why understanding female design is so important**

Research points to the fact that women are less accepting of male design aesthetics than men are of female design aesthetics.

"Although both men and women assign higher scores to own-sex designs compared to opposite-sex designs, men interestingly ascribed higher scores to female-designed products than the women do to male-designed products and this is further evidence of the fact that, given a choice, men have a greater tolerance of the female design aesthetic than women do of the equivalent male aesthetic."

In other words, all that male design out there in advertising is *especially ineffective* for women.

I can't say enough about [Gender, Design and Marketing](#). If you are in advertising and you are targeting female customers, this is a must read. **Warning - this book is currently selling on Amazon for \$114.95.** That is the actual price. The UK publisher says that they publish "business and professional books" for which this is a normal price. Even though Amazon says it is not released, the UK publisher assures me it has been released.

That said, the book is worth twice that price.

Posted at 09:27 PM in [Differences Between Men and Women](#), [marketing to women book reviews](#) |

Another review by Holly Buchanan can be found at <http://www.reachingwomendaily.com/2009/06/12/do-men-and-women-have-different-design-preferences/>

**2. Amazon website** - see [http://www.amazon.com/Gender-Design-Marketing-Gloria-Moss/product-reviews/0566087863/ref=cm\\_cr\\_dp\\_all\\_helpful?ie=UTF8&showViewpoints=1&sortBy=bySubmissionDateDescending](http://www.amazon.com/Gender-Design-Marketing-Gloria-Moss/product-reviews/0566087863/ref=cm_cr_dp_all_helpful?ie=UTF8&showViewpoints=1&sortBy=bySubmissionDateDescending)

★★★★★ **Worth the price**, June 25, 2009

[Thomas Jordan "Chief Creative Officer, Hoffman York Advertising"](#) (Chicago, Illinois)

Finally...proof. Proof that men and women react differently to shapes, colors and messaging. Proof that there are clearly different methods and techniques to reach each gender. This book should be mandatory reading for any advertiser or designer who wants to improve their chances of selling their products or services to a male, or female, audience. Great read.

★★★★★ **Essential research on how men and women view design**, November 9, 2009

By [H. Buchanan "Author of The Soccer Mom Myth"](#) (New York)

Gloria Moss is one of the only researchers I know who has really studied how men and women view design. And guess what? Different genders have different design preferences. Fonts, colors, images - Moss looks at the design elements that add up to whether your advertising/marketing/design material is persuasive to men or to women. As a marketing to women specialist, I found this book a must read for anyone who wants to do a better job of selling to women.

'...I understand and applaud Gloria Moss' thoroughness. She's putting forth some game changing information that's going to ruffle some feathers. But it's information we desperately need...This book will change the way you look at design. The results are a wake up call for everyone involved in advertising and design. I'm not talking just a little alarm clock. I'm talking a gigantic gong reverberating around the globe...I can't say enough about Gender, Design and Marketing...the book is worth twice its price.'

★★★★★ **Critical Reading for Product Design Marketing Professionals**, May 24, 2010

By [Ian Dodds](#) of Ian Dodds Consulting (a diversity consultancy in London). Dr Ian Dodds is ex Head of Human Resources at ICI.

I bought this book because my business has worked extensively with clients on unconscious bias in the workplace. I believe the same issues need addressing in the marketplace and I wanted to learn more from an expert who had researched the field thoroughly. Women have a decisive say in a high proportion of purchase decisions and there are relatively few markets where the same can be said for men asserts Gloria Moss in this excellent and ground breaking book `Gender Design and Marketing - How Gender Drives our Perception of Design and



Marketing'. She describes this as "a stark reality which many organisations may not yet grasp".

Of course, many of the decisions about product and service design, advertising and marketing to both genders are made by men. In this connection, Gloria Moss's research, described in this book, shows that in design and advertising men have a preference for images which include moving objects, technical objects, the printed word and male caricatures. Whereas, women have a tendency to prefer static objects, plant life, smiling faces and female caricatures. More specifically, the book examines a considerable body of research which demonstrates that, in terms of design of products, advertisements or web sites, men and women differ in the following ways:

Shapes - a greater tendency for women than men to prefer round shapes.

Colours - a tendency for women to prefer colourfulness

Typography - a tendency for women to prefer less conventional and less regular typography than men.

Caricatures - a tendency for each gender to prefer to see representations of people of their own gender.

Originality - a tendency for men to prefer more conventionality than women.

Hence, targeting male and female customers using designs for products and promotions which are preferable to each gender is critical, particularly in markets where the purchasing is dominated by a particular gender.

Gloria Moss acknowledges that achieving "good congruence between product and customer preferences may not be a simple process". This is because it is influenced by the innate preferences of senior management and of others across the workforce. Recently there has been an explosion in training on unconscious bias, i.e. innate preferences, in the workplace to address the underrepresentation of women and minority ethnics in senior management and to drive a high performance culture that engages everyone equally, whatever their diversity. Of course, this requires the transformation of organisational cultures from white male meritocracies to ones that are meritocratic to all. Such a transformation cannot be achieved by a one-off training fix. It needs a strategic change management intervention, which is the way my business approaches it with its clients.

However, I strongly believe that it is just as important for organisations to address the impact of unconscious bias on the customer/client/service user interface to meet gender, and other affinity group, preferences in order to leverage sales or service performance. Addressing this new imperative needs not only Gloria Moss's unrivalled knowledge of this field but also expert specialisms in change management since addressing and changing hidden assumptions is so difficult.

★★★★★ **Dr V. TarnNovskaya**, October 24, 2009 (Marketing academic at Tarnovskaya University of Lund, Sweden – see <http://se.linkedin.com/pub/veronika-tarnovskaya/a/305/581>)

The book provides a comprehensive collection of primary and secondary research in gender aspects in design and marketing. It uses rich data from different disciplines: psychology, neuroscience, communications, etc. The book provides a convincing proof that gender differences are both biologically and sociologically rooted and, therefore, cannot be downplayed. It also presents a refreshing alternative to the overwhelmingly popular social constructionist perspective. Having used the book in the Master course of Strategic Marketing Management I can clearly see its value in providing the stimulus for lively discussions and overall interest in gender issues. I strongly recommend the book for master programs and courses in marketing.

★★★★★ R P Scales, May 26, 2010 (Business subject librarian at Bucks New University)

In today's market-place it is generally regarded as a good thing to take differences of gender, age, ethnicity and belief into account - and there it seems to stop. A great deal seems to have been written about marketing across the wider range of target groups, and much of it is hazy and non-specific, or inadequately researched.

This is where Gloria Moss steps in with her thoughtful and challenging book *Gender, design and marketing*. She argues that marketers, designers and industrialists pay great attention to the visual and emotional impact of goods and services and the language in which they are described - but they take too much for granted. What may be dazzling or hard-hitting to the CEO of a large company, for example, may actually have very little impact on a largely female market. Ultimately this will be the difference between success and failure in business. Organisations' preferences are too often dictated by workforce demographics and the perceptions of senior management, resulting in strong gender-related bias. Either through faulty perception or through laziness practitioners can fall into the trap of thinking that one size fits all. The business world has to recognise its limitations and confront them if it is to succeed. Gloria Moss's book draws directly on her own primary research in marketing, and she analyses and draws lessons from a wide range of disciplines which are not usually taken into account by marketers and managers. These include aesthetics, demographics, social psychology, communications, neuroscience, sociology, and art and design. In this book she demonstrates that men and women react differently to colours, forms and messaging and that different methods and techniques should be employed to reach out to them. One size does not fit all, and even a well-planned, successful marketing formula will need constant revision to match stylistic and demographic changes.

One or two remarks about the book: if you're sitting in a court house jury lounge (as I was), or pacing to and fro in the corridor outside a maternity delivery-room, waiting to be called at any moment - don't attempt to read this book! It is a detailed, dense read and demands your undivided attention. *Gender, design and marketing* is also quite unsuitable if you're doing a bit of last-minute exam revision, or if you're trying to stuff a hastily-written college assignment with plausible quotations. It's not that sort of book! But I would recommend it wholeheartedly to anyone reading marketing at advanced undergraduate level, or postgraduate level, who needs a better understanding of the issues - or to marketing practitioners whose ideas are growing stale. This is the book that will give them the jolt they need. It's a book to immerse oneself in; a book that will convince the reader through the layered, systematic presentation of carefully-researched fact.

### **3. Blogs**

*Barbara Apple Sullivan, Managing Partner of Sullivan (US):*

'An insightful new book from Gloria Moss, *Gender, Design and Marketing: How Gender Drives our Perception of Design and Marketing* probes the unique decision-making style of women and draws some provocative conclusions about the impact of design.' (see [http://www.sullivannyc.com/thepoint/09\\_2009/index.html](http://www.sullivannyc.com/thepoint/09_2009/index.html))

*Sabine Clappaert, Director, Muse Communication (US):*

In the book, Gloria explores gender preferences in drawing, painting, graphics and web design. It's a book I'll certainly be buying, and one I'll advise all my clients (from R&D teams to marketing) to buy too! I'm off to order it right now.' (see <http://www.musecommunication.com/>)

## APPENDIX D

### STATEMENTS BY CO-AUTHORS CONCERNING THEIR CONTRIBUTION TO PAPERS RELATIVE TO THAT OF THE PHD CANDIDATE

1. Moss, G and Gunn, R, (2006), Some men like it black, some women like it pink: consumer implications of differences in male and female website design, Journal of Consumer behaviour, 5 (4), 328-341
2. Moss, G and Gunn, R (2008), Gender differences in website production and preference aesthetics: preliminary implications for ICT in education and beyond, Behaviour and Information Technology, DOI: 10.1080/0144929080
3. Moss, G, Gunn, R and Kubacki, K (2008), Gender and web design: the implications of the mirroring principle for the services branding model, Journal of Marketing Communications, 14 (1), 37–57

### CONTRIBUTION OF DR ROD GUNN TO PUBLICATIONS 1, 2 and 3

#### E-mail from Dr Rod Gunn (22.10.2008):

Gloria

You contacted me recently to ask me to indicate the level of contribution that I felt was made by you on those papers of ours for which you were the first author. I have attached a document which hopefully does justice to your hard work, ability and effort.

Regards

Rod

Work tel: 01443482398

Home tel: 02920843457

The following document was attached to this note:

Please find below a list of papers that Gloria Moss and I produced together. I understand that you wish to have some indication of the percentage contribution that is felt that the first author made to each paper. I have listed the papers below and placed

alongside each of these papers the percentage contribution that Gloria contributed. I hope that this is what you require. If not please do not hesitate to contact me.

(1) Moss, G, Gunn, R and Kubacki, K (2006), Angling for Beauty: commercial implications of an interactive aesthetic for web design, International Journal of Consumer Studies, 31, 248-257

**Relative contribution of first author: 68%**

(2) Moss, G, Gunn, R and Kubacki, K (2008), Gender and web design: the implications of the mirroring principle for the services branding model, Journal of Marketing Communications, 14 (1), 37-57

**Relative contribution of first author: 73%**

(3) Moss, G, Gunn, R, and Heller, J (2006), Some men like it black, some women like it pink: consumer implications of differences in male and female website design, Journal of Consumer behaviour, 5 (4), 328-341

**Relative contribution of first author: 66%**

(4) Moss, G and Gunn, R (in press), Gender differences in website production and preference aesthetics: preliminary implications for ICT in education and beyond, Behaviour and Information Technology

**Relative contribution of first author: 68%**

### **CONTRIBUTION OF JONATHAN HELLER TO PUBLICATION 1**

#### **E-mail from Jonathan Heller (22.11.2008)**

Dear Gloria,

You asked me what my own contribution had in my view been to your article that you wrote with Rod Gunn and myself, referred to below:

**Moss, G, Gunn, R, and Heller, J (2006)**, Some men like it black, some women like it pink: consumer implications of differences in male and

female website design, Journal of Consumer Behaviour, 5 (4), 328-341.

In my view my own contribution to this article was very minor: perhaps between 1% and 5%. There is no doubt in my mind that you yourself produced the major creative contribution to this article.

With kindest regards,

Jonathan A. G. Heller  
Managing Associate

Heller & Associates Limited | 6 St. Mary at Hill | London EC3R 8EE | Tel.:+44 20 7929 3339 |  
Fax: +44 20 7929 3338

### **CONTRIBUTION OF KRZYSZTOF KUBACKI TO PUBLICATION 3:**

#### **E-mail from Krzysztof Kubacki (24.10.2008)**

Dear Gloria,

I'm writing to confirm your contribution to the papers we co-authored and which are indicated below. I believe that in the first paper your contribution should be estimated at 68%, while in the second one it should be 70%.

(1) Moss, G, Gunn, R and Kubacki, K (2006), Angling for Beauty: commercial implications of an interactive aesthetic for web design, International Journal of Consumer Studies, 31, 248-257.

(2) Moss, G, Gunn, R and Kubacki, K (2008), Gender and web design: the implications of the mirroring principle for the services branding model, Journal of Marketing Communications, 14 (1), 37-57.

Please do not hesitate to contact me in the future if you need any further information. I would like to wish you all the best with your application.

Kind regards,  
Krzysztof

--

Krzysztof Kubacki  
Lecturer in Marketing  
School of Economic and Management Studies  
Keele University  
Staffordshire, ST5 5BG  
Tel: (01782) 733099  
E-mail: k.kubacki@mngt.keele.ac.uk

**4. Moss, G, and Daunton, L (2006), The discriminatory impact of deviations from selection criteria in Higher Education selection, Career Development International, 11 (6), 504-521**

**CONTRIBUTION OF LYN DAUNTON TO PUBLICATION 4:**

**E-mail from Lyn Daunton (3.11.2008)**

'In terms of our relative contributions to the article below in Career Development International, I believe that your contribution should be estimated at 65%'.  
'

Moss, G, and Daunton, L (2006), The discriminatory impact of deviations from selection criteria in Higher Education selection, Career Development International, 11 (6), 504-521

I hope this is Ok. Best wishes Lyn

Lyn Daunton  
Divisional Head of OB and HRM  
Glamorgan Business School  
[ldaunton@glam.ac.uk](mailto:ldaunton@glam.ac.uk)  
01443 483426

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