DOMINANT PATTERN OF VISUAL DESIGN IN ONLINE CLOTHING WEBSITES

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Abstract: Visual web design covers website content and layout. In the context of content, the use of trendy technologies is suggested as a method to deliver a better look and feel of clothing products in the online environment. However, it has been recognized by the study and in the literature that the use of these technologies is less popular and there seems to be a paradigm shift towards instilling positive consumer experience in online shopping via emotional usability engineering. This shift is seen in previous studies that linked consumer's decision making with emotion. Correspondingly, the research investigates the detail design elements and presents the result in the form of dominant pattern of visual design in online clothing websites. 163 online clothing websites were selected based on their visible differences in both content and layout context. Analysis was conducted based on predefined rules and controls. A descriptive model of the dimension of a visual web design is derived and a model of visual technology on online clothing website is presented. This study of detail website design elements is the know-how technique in investigating associations with consumer's emotional responses, towards incorporating emotional appeal into web design, as an alternative for online shopping experience.

1 INTRODUCTION

The web has enabled the global distribution of products and services through powerful access and manipulation. In the practice of web design, a considerable effort is focused on the visual design of a web page. Designers have generally agreed that well-designed user interfaces can improve the performance and appeal of the web which can eventually convert browsers to customers (Marcus and Gould, 2001).

Correspondingly, qualities of usefulness, usability and desirability play a central role in the good design of all digital products and digital environments such as websites (Buchanan 2000). In the literature of e-Commerce website development, qualities of usability and usefulness have received the main attention of researchers which were mainly based on the work pioneered by Nielsen and his associates since mid 1990s. Since then, web designers compete to provide higher functionality and features to simulate the physical shopping environment.

However, with the growth of e-Commerce, there is a growing concern to improve the consumer interface of e-Commerce to improve the persuasive power of e-Commerce websites (Li, 2005; Kim, 2003) by engineering the affective appeal in the website design (Anitawati and Nor Laila, 2006). The element of affect has been shown to have an important decisive role in the product selection. For example, in the physical world, retailing businesses concentrate on store design and layout to portray positive experience to attract consumers. It is unlikely for a potential consumer to go into a dark and messy store, to look for a product no matter how good the quality of the product offered. Similarly for e-Commerce, businesses should stress on how to deliver the best experience at first glance to potential consumer by providing a desirable digital shopping environment.

Evidently, the need for emotional association design has been gradually recognized (Li et al., 2005; Lavie and Tractinsky, 2004; Desmet, 2003; Norman, 2002). In determining the users' experience and affective appeal, emotional usability has been introduced as a quality measure in addition to the traditional functional usability measure. In e-Commerce, the problem of how to deliver positive experience to potential consumer through the website design needs to be address. This may lead to the issue of evoking the consumer's feelings and impressions and the necessary quantifying method.

The research has identified Kansei Engineering as a suitable technique to be considered in integrating subjective and unconscious consumer values in the e-Commerce website design elements. The concept of Kansei Engineering and its implementation in e-Commerce website is seen to enable the measurement of human feeling and judgment in response to website design (Anitawati and Nor Laila, 2006). The method involves the process of identifying detail design elements, measurement of consumer's emotional response, and analysis to find relationship between the design elements and consumer's emotional response.

In this paper, we present our research findings on detail design elements, in the form of dominant patterns of visual design in online clothing stores as a pre-requisite in discovering consumer's emotional response towards visual design of website in order to incorporate the emotional appeal in a web design to enhance user's online shopping experience.

1.2 Web Design, Visual Technology and Consumer Experience

In designing a website, we can find many rules, principles, guidelines and methods specified by different parties. These are derived from the experience of what really works when real users try to perform real task on the web (Garrett, 2003; Nielsen, 2000). Usability guidelines are also widely introduced as rules to ensure website works well (Nielsen, 2000; Krug, 2000).

In the context of online clothing, product visualization techniques or technologies play a major role to deliver better sense of look and feel of clothing to the potential customers (Rita and Anitawati, 2006; Siegrist, 2003; Lee et al. , 2003). Today, more trendy and cutting-edge technologies are introduced in an effort to provide better shopping experience to consumers.

There are many different kind of visual technologies found in the literature of online clothing and on the actual website. Table 1 summarizes each of the identified technologies.

Table 1: Description of visual technologies on online clothing.

Technology	Brief Description
Virtual Try On (VTO)	Dressed bodies animated in real time on the online clothing site
Virtual Fitting Room / VTO Show Room	Fitting /dressing room simulated on the online clothing site.
3D Rotation	360 degree or a complete rotation viewing of a product on the online clothing site.
2D Picture	2D pictures of products.
Virtual Mannequin	Virtual mannequin with selectable proportion.
Avatar / Virtual bodies / Human Body Modeling	Virtual body model adjusted to consumer's proportion.
Virtual Mirror	Simulation of a mirror virtually on the online clothing site.
Zoom	Zoom technology on the online clothing site.
Pan	Pan / drag technology on the online clothing site.
Mix & Match	Blouse, skirt, color, texture combination on the online shopping site.
Video Clips	Video clips of clothing, runway on the online clothing site.
Virtual Runway	Virtual runway on the online clothing site.
Virtual Shop Floor / 3D Virtual Store	Layout of the virtual store seen from above, "walk" down the store aisles, "pick up" products from the virtual store shelves, rotate packages and magnify their labels for additional information, and "drop" products into a simulated shopping basket.
3D/VR Cloth Simulation	Simulating garments behavior on virtually animated bodies on the online clothing site.
Online Fitting	Enables clothing fitting / resizing according to body proportion, on the online clothing site.
3D Superimpose	A technology that allows customer to upload their picture, and selected clothing will be superimposed on the picture.

Current rules and guidelines in web design have mainly address functional usability and ignore the aspect of enhancing user experience. We will find that questions such as, does providing web pages that look gorgeous can enhance positive experience without considering delays in download time, or does including detail text description will attract visitors, remain unanswered.

2 METHODOLOGY

2.1 Research Framework

The context of web design includes the content, layout, technologies, delivery, and objective (Figure 1). This research focus on the visual design contexts:

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content and layout. While content deals with everything you see on the surface of a web page, such as text, images, illustrations, and other elements on a web page, layout is the placement of text, images, buttons, and other elements on a web page.

The study was done focusing on visual design in online clothing websites. Online clothing was selected due to its sky rocketing interest among clothing consumers (Smith, 2006; Rodriguez, 2004), and the visual design of online clothing is considerably diversified.
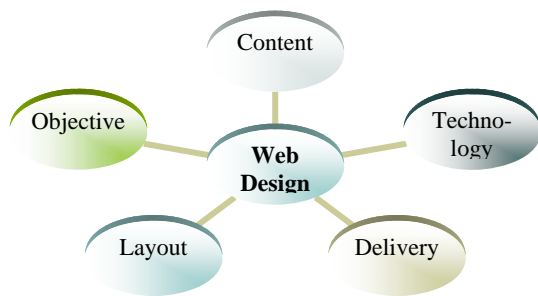

Figure 1: Context of web design.

2.2 Data Collection

163 existing e-Clothing websites were selected based on their visible differences in both content and layout context. They were then analyzed following predefined rules on colors, design elements, layouts, page orientations, and typography. A set of control was also followed during the data collection.

3 RESULTS AND DISCUSSIONS

Data were then statistically analyzed according to each central tendency. Elements are considered dominant whenever it is higher than the central tendency, in this case, the mean. Here we illustrate our findings by showing the plot of the Pareto Chart (Figure 2) of page background colors. Similarly, we plot the Pareto Chart for each attribute of the web page designs, and shown in table 2, 3, and 4 are the summary of all results.

From the study, we classify the visual design of web sites into four different dimensions. The classification is done looking into the web site content, typography, product visualization technique, uniformity, color, layout and alignment. The description and classification of dimensions is

presented in Table 5. A descriptive model of the dimension of web design is presented in Figure 3. It shows that typical, challenging and dominant dimension can overlap, but recessive stands alone.

Our findings have also shown that most clothing websites did not employ visual technologies extensively. This invokes the issue of balancing the factors of website appeal and performance. Although the sophisticated visual technologies available can enormously enhance the context of appeal in visual design, performance factors may overrule the need and thus leads to new paradigms in web design. These findings motivate us to look at alternative ways to provide positive online shopping experience.
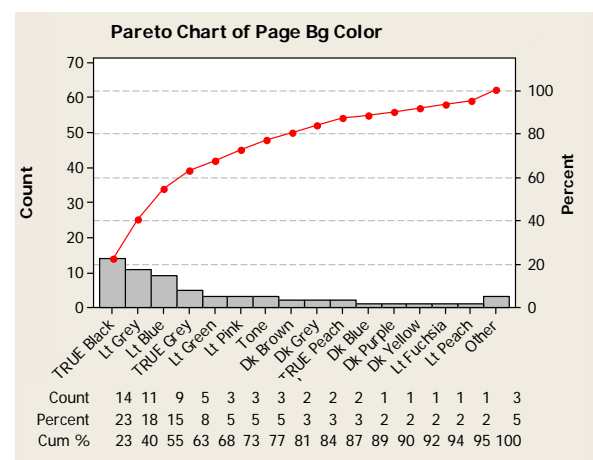

Figure 2: Pareto chart of background color.

Table 2: Dominant pattern in product visualization technique in online clothing web design.

Element	Attribute/Value
Picture Size	Mix, S (<¼ Width/height)
Product Display	Filmstrip, Catalog
Visual Technique	2D picture, Flash
Product Try On	YES
No. of people/mannequin in 1 representation	1
Visual Focus	Mix, Half Top, Full Body
Body Representation	Model
Picture Arrangement	Horizontal & Vertical, Horizontal
Modeling Style	Natural, Modeling

Table 3: Other dominant pattern in online clothing web design.

Element	Attribute/Value
Logo	YES
Logo Location	Top-Left
Marquee	NO
Animation	NO
Bg Music	NO

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Table 4: Dominant pattern in online clothing web design.

ELEMENT ATTRIBUTE	Page Body	Header	Header Menu	Main	Top Menu	Right Menu	Left Menu	Footer
Existence	*N/A*	YES	YES	*N/A*	YES	NO	YES	YES
Advertisement	*N/A*	NO	NO	NO	NO	NO	NO	NO
Menu Style	*N/A*	*N/A*	Text	*N/A*	Text	Text, Picture	Text, U/Text	Text, U/Text
Bg Color	White, Black, LtGray, LtBlue	White, LtBlue, Black	White, LtBlue, Mix, LtGray	White, LtBlue	White, LtBlue, LtGray, Mix, Black, Gray	Lt Gray, White	White, LtGray, LtBlue, Black, Pink	White, LtGray, LtBlue, Black
Bg Picture	NO	NO	*N/A*	NO	*N/A*	*N/A*	*N/A*	*N/A*
Bg Texture	NO	NO	*N/A*	NO	*N/A*	*N/A*	*N/A*	*N/A*
Font Color	*N/A*	*N/A*	Gray, White, Black, LtGray, Blue	Mix, White, Black	White, Black, LtGray, Gray, Mix, DkBlue	Mix, White, Black	Black, White, Lt Gray, DkBlue, Gray, Blue	White, LtGray, Black, Gray, Blue, DkBlue
Font Size	*N/A*	Mix, S	S	Mix, S	S	S	S	S
Font Family	*N/A*	*N/A*	Sans-Serif	Sans-Serif, Mix	Sans-Serif	Sans-Serif, Cursive	Sans-Serif	Sans-Serif
Font Style	*N/A*	*N/A*	Normal	Normal	Normal	Normal	Normal	Normal
Font Weight	*N/A*	*N/A*	Bold	Bold, Mix	Bold	Normal, Bold	Normal, Bold	Normal, Bold
Menu Location	*N/A*	*N/A*	Not Specific	*N/A*	Center, Left	Top	Top	Center
Shape	Sharp	Not specific	*N/A*	Sharp	*N/A*	*N/A*	*N/A*	*N/A*
Text Alignment	*N/A*	*N/A*	*N/A*	Left, Centered, Mix	*N/A*	*N/A*	*N/A*	*N/A*
Page Style	Table	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Orientation	H_F_C, HS	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Dominant Item	Product	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Page Dominant Color	White, Colorful, Black, LtBlue, Blue	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Screen Size	2, 1 pages	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*
Page Border	NO	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*

N/A: Not Applicable, Lt = Light, Dk = Dark, S = Small, U/Text = Underlined Text

Table 5: Dimension of web design.

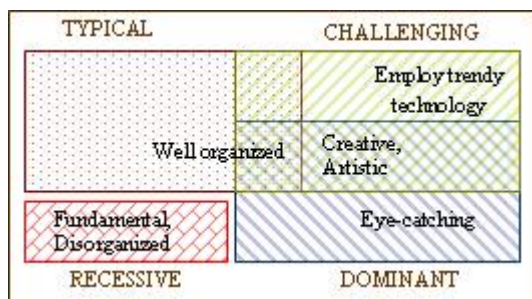| Dimension	Description
Recessive	A web design that is somehow less influential / significant.
Typical	A web design that is common / average in practice.
Dominant	A web design that is influential / in control over others.
Challenging	A web design that is ambitious and unusual, and make full use of technologies and resources.

Figure 3: Descriptive model of dimension of web design.

The pattern of use of the visual technology is presented as a model of visual technologies on online clothing website and is illustrated in Figure 4.
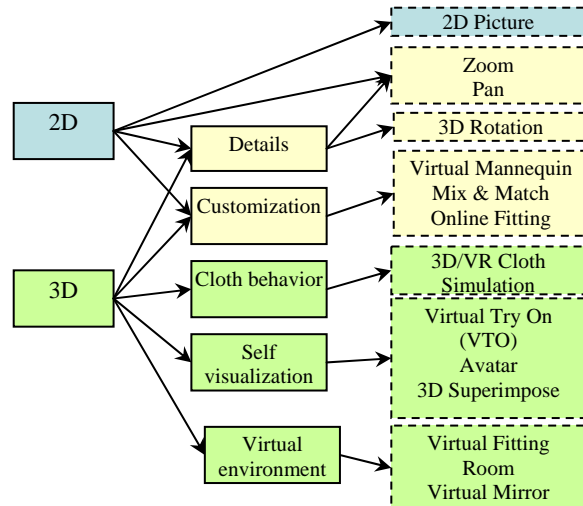

Figure 4: Model of the use visual technology on online clothing website.

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5 CONCLUSION AND FUTURE WORKS

In providing better shopping experience, the results of this study do not indicate that the use of trendy technologies offers a great solution. The research is now looking at invoking consumer's emotional connectivity with website design. Previous studies have suggested that the making of a product has mainly based on designers intuition (Anitawati and Nor Laila, 2006, Nagamachi, 2003, Norman, 2002). This includes the design and production of website. Previous researches have also suggested that consumer makes decision based on their feelings or emotion. Therefore, studying the consumers emotional responses to websites can be seen to offer a better online shopping experience (Anitawati and Nor Laila, 2006). This is an important element in an effort of consumer conversion and retention.

As all the details of the design elements have been identified, the result will enable the research to analyze associations with consumer's emotional values in web design. Result from these studies will discover links between consumer's emotional responses with website design elements, and in the end will enable the research to provide guideline in associating emotional values with website design. The guideline will help designers, researchers, e-retailers and other stakeholders to understand which design elements elicit what kind of emotional responses to the website users. Thus enable them to devise strategies to improve website affective qualities, whereby positive affective qualities are proven to influence visitor's emotion and eventually cognitive judgment. Ultimately, the guideline to the design of affective e-Commerce website will promote a paradigm shift from "What You See Is What You Get" to "What You See Is What You Desired". The study is currently in progress.

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