WEBSITE AESTHETICS: DOES IT MATTER?
A STUDY ON EFFECTS OF PERCEPTION OF WEBSITE AESTHETICS, USABILITY AND CONTENT QUALITY ON ONLINE PURCHASE INTENTION

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SUMMARY

Aesthetics is advocated as one of the key factors influencing consumer judgment and preference in several areas of academia ranging from marketing, consumer research to architectural design. However, research in IS and HCI has paid little attention to topics concerning aesthetics until recently. The current study investigated the influences of website aesthetics together with usability and content quality on user's online purchase intention mediated by hedonic and utilitarian shopping value. It highlighted the importance of both utilitarian and hedonic shopping value to establish a complete shopping experience online. Additionally, task involvement was for the first time introduced to investigate its moderating effect on how aesthetics influences usability, content quality through the halo-effect as well as how aesthetics influences utilitarian shopping value. An experimental survey was conducted to collect responses from 165 undergraduate students. Although aesthetics is found to be a significant factor to both hedonic and utilitarian shopping value, the relationship between aesthetics and utilitarian shopping value weakens as user task involvement increases. Content quality and usability are found to be constantly significant factors of both shopping values. Results also showed that influence of aesthetics to usability and content quality is always significant and this extends the clause "what is beautiful is usable". The results suggest useful implications for practices and also offer numerous opportunities for future research.

CHAPTER 1

INTRODUCTION

The word “aesthetics” originates from the Greek word “aisthetikos” which refers to ‘perception by means of senses’ in response to a beautiful and pleasing object (Berlyne, 1974). Since ancient times, the study of aesthetics was largely concerned with poetry, fine arts, music and manifestations of natural beauty. Throughout the years, the importance of aesthetics has been recognized and has long been cited as one of the most critical components influencing judgment and preference (Lavie and Tractinsky, 2004). For instance, well-designed product packaging could induce consumers’ buying intentions (Veryzer, 1995). Aesthetic quality can make engineering products more readily acceptable and improve their commercial value (Lavie and Tractinsky, 2004). An aesthetically pleasant shopping mall or merchandise store could make the shopping experience more enjoyable, hence increasing the possibility of customers’ revisit (Baker and Levy, 1992). Similarly, aesthetics is found to play a significant role in forming preference in response to residential street scenes (Nasar, 1988). Moreover, the guru of cognitive science Norman (2004), who advocates “utility” in his book “The Design of Everyday Things”, also acknowledges the importance of emotion induced through exposure to aesthetic effects under the changes of today’s society and lifestyle.

Despite the significant body of findings regarding the importance of aesthetics in preference in various literatures, Information Systems (IS) and Human-Computer Interaction (HCI) researchers have paid little attention to aesthetics (Lavie and Tractinsky, 2004; Hoffmann and Krauss, 2004). The exact reason is not known; plausibly, many speculate that the trade-off between functionality and aesthetics leads website designers to favor the former (Foley, Dam and Feiner, 1990; Marcus, 1993; Thorlacius, 2004). Toward this end, some functionalists

hold the opinion that it does not matter whether the website is red or blue as long as it is functional (Thorlacius, 2004). Such a view may be largely due to two reasons (Veryzer, 1995). First, some conceptions of design regard aesthetics as essentially superficial styling or as pertaining primarily to works of art. Second, as opposed to functionality which could be quantitatively assessed, aesthetics could only be qualitatively gauged, which often entails ambiguity. Ultimately, this view casts the influence and scope of design and aesthetics into very narrow perspectives (Veryzer, 1995).

Aesthetics research is a theoretically and practically important arena to explore for two major reasons. First, recent advancement in and proliferation of broadband internet could dramatically reduce the concern over the effect of speed (e.g., downloading speed) on website performance. In this light, a variety of new technologies like flash that once would have slowed downloading time can now be used to create more aesthetically pleasing web fronts (Thorlacius, 2004). Therefore, websites created with a new range of technologies are emerging and it is meaningful to study the effects of aesthetics on user opinions and overall visiting experience with these websites.

Second, despite the substantial efforts devoted to analyzing and evaluating the technical aspects of software artifacts such as reliability and maintainability (Pressman, 2004), the look and feel of information systems are also important. Oates (2005) calls for attention from IS researchers to understanding visual aesthetic effects in order to fully analyze and evaluate them. The knowledge gap regarding if and how aesthetics can make a digital artifact (e.g.: website) stand out in a crowded market, generate favorable emotions in users, or help to satisfy basic human needs has not been well addressed in the HCI field. Furthermore, the aesthetics of an ecommerce website is very likely to have an influential impact on Web

visitor' purchase intention online. To our knowledge, among the few attempts that investigate website aesthetics, Schenkman and Jonsson (2000) show that the beauty of a website is the best indicator of the overall impression of the website. Another recent study by Lindgaard, Fernandes, Dudek and Brown (2006) contends that web visitors could form their first impression of a website within 50 milliseconds. This first impression is mostly based on the visual appeal of the website. This suggests that web designers have 50 ms or so to make an immediate good impression. However, the significance this first aesthetic impression carries in subsequent evaluation of the website is not reported in Lindgaard et al's study. In fact, it is touted that the degree of visual pleasantness could have a significant influence on the formation of positive affective responses toward the website (Karvonen, 2000). While empirical insights are evidently limited (Hoffmann and Krauss, 2004), the importance and influence of website aesthetics on web user intention to purchase online is highlighted and is one of the major objectives of this study.

Besides aesthetics of a website, when we study the overall quality of a website, usability and quality of content are also two important factors which are identified in literature (Shackel, 1991; Agarwal and Venkatesh, 2002; Palmer, 2002). Quality of content is found to be the main factor that attracts people to visit a particular website and generate more web traffic (Shapiro and Varian, 1999; Clikeman, 1999; Palmer, 2002). Website usability could help a user to locate the information which he needs and also influence his overall experience of the website. It is identified as a key design element in HCI and website research literature. Hence, the proposed study builds on these three important design factors (i.e., website aesthetics, usability and content quality) to construct a structural model for predicting user's purchase intention at a website. While the three constructs are conceptually distinct, some prior research indicates possible correlations among the three. One noteworthy example is the

famous clause that “What is beautiful is usable” (i.e., individuals assume that a computer system that is more attractive visually will also be easier to use) as according to Tractinsky and his colleagues (2000). The authors attribute the correlation to a “halo effect”. Subsequent studies such as van der Heijden (2003) reported that perceived visual attractiveness has significant positive impact on perceived ease of use. This study adds to the extant literature by contesting that the existence to other relationship, namely, aesthetics to content quality.

When consumers shop online, both hedonic and utilitarian outcomes jointly influence their experience interacting with an online store (Venkatesh and Brown, 2001). Hedonic value refers to the enjoyment and emotional satisfaction derived from shopping as a pleasurable experience, while utilitarian value views the shopping task as an errand or work wherein shopping is functional and the shopper seeks only to successfully complete his shopping task (Babin et al., 1994). The utilitarian function of websites to fulfill users’ goal-directed needs is well documented (Huang, 2003). However, the influences and effects of websites designed to enhance hedonic experience has received less attention (Huang, 2003). Therefore, the present study takes a design perspective by investigating the effects of aesthetics, usability and content quality on both hedonic and utilitarian shopping value. Moreover, the scales to assess both shopping values has been developed by Babin et al (1994) who also called for further development of the scale to fit into different shopping context. Therefore, the present study also aims to validate and refine the scales to assess shopping values for an online shopping context. The current study investigates both utilitarian and hedonic shopping value as mediating variables between the perceived website design features (i.e., aesthetics, usability and content quality) and intention to purchase online. Lastly, the current study further explores the role of aesthetics in the formation of utilitarian shopping value. This is also one

of the novel areas of the current study which proposed the moderating role of task involvement on the relationship between aesthetics and utilitarian value.

In sum, the current study develops a research model based on the influence of website aesthetics, usability, and content quality on purchase intention. We wish to make three contributions to the existing body of literature. First, we aim to provide a better understanding of the relationship between perceptions of web design features and intention to purchase online. This will highlight the emerging importance of website aesthetics. By understanding the significance of aesthetics on purchase intention, online store owners could reconsider the design balance between look/feel and other function aspects. Secondly, the study includes a complete perspective by incorporating both hedonic and utilitarian value for assessing an online shopping experience. Thirdly, to the extent that HCI literature which demonstrates that what is beautiful is usable, the current study aims to expand on the meaning of this clause by investigating the phenomenon further and introducing shopping task involvement as a moderating variable.

Overall, this study seeks to answer the following:

1) What are the significant website design factors which could enhance online shopping experiences?

2) How do perceptions of website aesthetics influence perceptions of usability and content quality?

3) How do perceptions of website aesthetics influence user's utilitarian shopping value?

4) Are perceived hedonic and utilitarian shopping values significant predictors of user's online purchase intention?

This thesis comprises 7 chapters. **Chapter 2** reviews theories and the framework guiding the study. Findings on aesthetics, usability and content quality will be reviewed. **Chapter 3** outlines the theoretical foundation for this study. It presents a research model on how web shopper's intention to purchase can be influenced by considering both hedonic and utilitarian shopping values from a design perspective. In the proposed conceptual framework, the effects of task involvement on the influences of website aesthetics, usability and content quality will then be introduced. Based on the earlier website design and HCI literature, the research hypotheses relating the independent variables, with influences from the moderating variable, to the dependent variable are formulated. **Chapter 4** illustrates the research methodology. It presents the design and the manipulation of task involvement. It also explains how the independent variable and dependent variable were measured and how controls were ensured. **Chapter 5** reports the results of the statistical analyses performed on the survey data. First, it describes the statistical methods employed. It then shows the statistical analyses on both measurement model and structural model. Finally, it presents the results of the statistical analyses carried out to assess the research hypotheses. **Chapter 6** interprets the findings from the analyses from Chapter 5. It answers the research question of this study. It then discusses the findings and draw implications from both research and practices. In **Chapter 7**, strength and limitation of the current study will be presented and it lastly concludes this thesis by summarizing the entire study.

CHAPTER 2

LITERATURE REVIEW

This chapter first reviews discussion of aesthetics and preference in various literatures and highlights the emerging importance of aesthetics in HCI. Prior studies on usability and content quality are subsequently reviewed. The theoretical background for our study will also be introduced and discussed.

2.1 System Quality and Information Quality

Building upon DeLone and McLean's IS success Model (1992), McKinney et al. (2002) specify that web satisfaction can be influenced by Information Quality (IQ) and System Quality (SQ). In the DeLone and McLean IS Success Model, "system quality" measures technical success and "information quality" measures the success semantically. In the original model, DeLone and McLean (1992) made an explicit distinction between information aspects and system features as determinants of satisfaction. McKinney et al. (2002) further note that the flexibility of the Web can further separate content from the content-delivery system and empirically examined that website performance in information delivery can be independent of the quality or nature of the information. Furthermore, Huizingh (2000) suggested that there are two components of website design: content component and design component. The content component addresses the issue of what is included in the site and identifies types of information. The design component addresses presentation and navigational features of the website.

In the present study, website aesthetics pertains to designs of look and feel aspects of the website such as color usage, layout design and other presentation related aspects. It clearly

differs from the content or information such as product information, or other text-based content. By considering the difference between the content-delivery system (i.e., the website) and the content (i.e., information on the website) and also the idea of two-component on website design from Huzingh (2000), we classify aesthetics as a quality of the content-delivery system rather than the content. Subsequent sections gives more detailed reviews on aesthetics in various literatures and highlight its importance to HCI research.

2.2 Aesthetics and Preference

2.2.1 Aesthetics

From prehistoric artifact design to present-day design of information systems, form and function are always main design factors. The emphasis on *function* stresses the importance of the artifact's usability and usefulness while the *form* of the artifact serves the aesthetic and perhaps hedonic needs of designers and customers (Tractinsky et al., 2000). Pursuing beauty is undeniably a part of human nature: a significant numbers of studies from psychology, consumer marketing, and architecture documents the influence of aesthetics on social attractiveness, product and advertisement appeal, and taste in residential streets and buildings.

Veryzer and Hutchinson' study (1998) recognized that aesthetics is a potentially important factor in product choice. In product design, the aesthetic quality of a product is increasingly recognized as a significant marketing variable in a competitive marketplace (Veryzer, 1993). Hence, it is not surprising that consumer researchers have found aesthetics worthwhile to study. It's noted that the beauty of a product can exert significant influence on consumer behavior and preference (Veryzer, 1995). This is largely due to the pleasure experienced by consumers through the conscious or unconscious influences of the product's aesthetics. Veryzer (1995) contended that an enhanced product appearance can be advantageous in a commercial sense, even for utilitarian products whose focus is mainly functional. Schenkman

and Jonsson (2000) also mentioned that products experienced as pleasurable are preferred by customers to those that are not pleasurable. Studies find product design principles such as proportion and unity can make a product more aesthetically appealing (Veryzer, 1993; Veryzer, Jr. and Hutchinson, 1998). In marketing literature, Holbrook and Zirlin (1985) define “aesthetic response” as a “deeply felt experience that is enjoyed purely for its own sake without regard for other more practical considerations. Veryzer (1993) and Bloch (1995) also contend that aesthetic response is derived from the design and sensory properties of the product rather than the performance or functional attributes.

In social psychology, Dion et al. (1972) found that people who are physically attractive are regarded as possessing more socially desirable personality traits than people who are unattractive. This is also known as the “beautiful is good” phenomenon according to some researchers (Dion et al., 1972). Recent findings on shopping environments also emphasize the importance of the aesthetic appeal of the shopping atmosphere in both online and offline settings. Store design that takes aesthetic appeal into account may attract more customers by having a unique image (Baker and Levy, 1992; Mathwick, Malhotra, and Rigdon, 2001). Furthermore, architecture should be enjoyable and visually pleasing to the inhabitant (Preiser et al., 1988). Nasar (1998) also explored the way in which aesthetics plays a significant role in preferential response to residential street scenes.

2.2.2 Aesthetics in HCI

Despite its centrality to human thought and practice, along with its salience in preference formation in various other literatures, aesthetics has played a minor role in HCI research (Hoffmann and Krauss, 2004). Arnheim (1964) mentioned that in our daily lives, the experience of art can awaken our senses to go beyond the need for efficiency. In the last two decades or so, changes in requirements for computer systems have taken place through

advances in technology and ever-changing user requirements. According to Lavie and Tractinsky (2004), the central focus on functional attributes such as usability features no longer suffices to satisfy people's needs. The notion of 'affective computing' mentioned by Picard (1998) firstly introduces the idea of holistic user experience and emphasizes affective and emotional experience apart from functionality. Recently, the new trend of 'affective computing' is gradually gaining attentions from both designers and scholars in the HCI literature (Campbell and Pisterman, 1996; Kim and Moon, 1998; Reeves and Nass, 1996; Picard, 1998; Hassenzahl et al., 2001; Hassenzahl, 2004). One notable example of aesthetic computing in hardware HCI design is Apple's desktop PC which is heralded as starting the "aesthetics revolution in computing." The ever-increasing popularity of Apple PC also indicated that the visual appearance of the computer has become a significant factor in consumer choice (Postrel, 2001).

Website Aesthetics

Recently, hedonic experiences like fun, enjoyment and pleasure becomes increasingly anticipated to enhance the experience of using a computer system and websites in particular (Heijen, 2004). Several studies have shown that aesthetic design provides sensory pleasure to the user throughout his or her experience on a website (Batra and Ahtola, 1990, Crowley, Spangenberg and Hughes, 1992). This trend of emphasizing hedonic experience when interacting with computers is shifting researchers' attention to a new and emerging focus requirement namely aesthetics.

Several pioneers have attempted to empirically investigate the importance of aesthetics along with the emerging phenomenon of websites which provides hedonic and aesthetic experiences. Benjamin (1995) and Jordan (1998) contend that website aesthetics is a strong determinant for overall quality of experience in visiting a website. Several other studies

indicate that visual appearance has become one of the most significant factors in overall interface evaluation (Tractinsky et al., 2000; Liu and Arnett, 2000; Hoffmann and Krauss, 2004). In particular, Schenkman and Jonsson (2000) examined the relationship between overall impressions of websites and dimensions of website design in their study, Aesthetics and Preference of Web Pages. Their findings suggest that among beauty, meaningfulness, comprehension, order, legibility and complexity, beauty was found to be the primary key predictor to the overall impression of a website.

Apart from the influence of aesthetics on overall evaluations of websites, Tractinsky and his colleagues (2000) conducted an experiment to test the relationship between user perceptions of a computer system's beauty and its usability. The experiment used Automated Teller Machines (ATMs) to elicit a subject's perception of aesthetics and usability both before and after the experiment. Their results indicated that "perceived aesthetics" is correlated with "perceived usability" both before and after actual use of the ATM. In van der Heijden's study (2003), he conducted a web survey with 828 responses and found that "perceived attractiveness" influences usefulness, enjoyment, and ease-of-use of the website. Therefore, the influence of website aesthetics extends not only towards the overall experience of website use but also towards perception of other website design features.

Besides website aesthetics, usability and content quality are another two salient design aspects which we are interested in investigating. The following two subsections provide detailed reviews on the two in HCI and website design literature in particular.

2.3 Website Usability

With the widespread use of the Internet, the evaluation of website usability has become an important step towards improving usability (Lecerof and Paterno, 1998). The notion of

usability is a key theme in the HCI literature and has received substantial attention from scholars (Agarwal and Venkatesh, 2002). Prior research includes both conceptual discussions on what should be evaluated and discussions on how evaluations should be done. Because of its broad nature, usability has been conceptually defined and operationally measured in multiple ways. Nielsen (1993) and Shneiderman (1998) recommended applying traditional usability criteria to the Web environment. However, Lecerof and Paterno (1998) also argued that usability is contingent upon the actual system and identify it as the most critical aspect in evaluating a system's usability.

As the Web becomes an increasingly essential interface, many scholars have recently extended basic usability principles into the Web environment (Shneiderman, 1998; Nielsen, 2000). Nielsen (2000) developed usability aspects for the Web design that include (1) navigation, (2) response time, (3) credibility, and (4) content. This suggests that higher navigability, frequent updating, minimal download delays, and high-quality content are important to build web interfaces with good usability. Palmer (2002) notes that website usability includes consistency, clarity of interaction, ease of reading, arrangement of information, download speed and the ease with which users can get the website to do what they intend it to do. Ongoing research identifies approaches to improved usability by proposing new aspects of usability. However, basic usability design principles such as navigability and download delay tend to endure (Pearrow, 2000). **Table 2-1** summarizes prior studies on website usability and its dimensions.

Table 2- 1: Summary of Studies on Usability Components/Dimensions

Study	Usability Components
Pitkow and Kehoe, 1996	• Response time • Ease of locating a page • Information organization
Shneiderman, 1998	• Organization • Presentation • Interactivity
Eighmey and McCord, 1998	• Personal involvement • Useful information • Simplicity of organization • Desire for relationship
Gehrke and Turban, 1999	• Page loading • Content • Navigation • Efficiency • Security
Nielsen, 2000	• Navigation • Response time • Credibility • Content
Palmer, 2002	• Consistency • Ease of use • Ease of reading • Information organization • Speed • Navigation
Nah and Davis, 2002	• Ability to locate desired information • Ability to know what to do next • To do so with minimal effort

The table above reveals several key aspects of usability from different studies. Among the few identified aspects, navigability is a key variable and important outcome of overall interactive experience with websites (Shneiderman, 1998; Nielsen 2000; Palmer, 2002). Navigability deals with sequencing of pages, organization of layout, and consistency of navigation protocol (Palmer, 2002). Extensive research on usability has shown that navigation usability is one of the most important criteria and a key challenge for quality websites (Radosevich, 1997; Alexander and Tate, 1999; McKinney et al., 2002). High navigability providing ease of website navigation has potential implications for the information search stage. Other aspects of usability such as download delay and access time also draw the attention of usability scholars. Length of wait on the Internet is important, as

users are often unwilling to wait more than a handful of seconds for a response (Shneiderman 1998). For websites, access time is actually the download delay various activities interacting with the website. That is, it is the initial request for access to the page and then each subsequent request for changing pages within the site (Rose et al. 1999). Palmer (2003) further suggested that websites with lower download delay will be associated with greater perceived success by site users.

Moreover, several prior studies include content or information quality as one dimension of usability. The current study separates the two. In our view, content quality belongs to information quality whereas usability is one type of system quality. This is in line with the roles of information quality and system quality in McKinney's framework (2002) for assessing satisfaction with websites.

Besides identifying important dimensions of improved website usability, the HCI literature typically takes an engineering approach that attempts to identify a set of principles and common practices for ensuring usability (Nielsen, 1993). On the other hand, usability can be evaluated by subjective assessments in the form of user judgments (Agarwal and Venkatesh, 2002). In the present study, we define *perceived usability* as an overall perception of the usability of the website.

2.4 Content Quality

The importance of information quality in traditional information systems has been addressed by researchers and practitioners because of the ever increasing amount of information from various internal and external sources (Xu and Koronios, 2004). DeLone and McLean (2003) contend that the "information quality" mentioned in their original IS Success Model captures the content issue in the context of website studies. Studies have identified content quality as

the most important building block of the web; it should therefore be perceived and managed as a valuable asset (Xu and Koronios, 2004). To achieve high content quality and expect more prospective visitors to regularly visit the website, web content should be complete, relevant, and easy to understand (DeLone and McLean, 2003). The present study defines website content as the information which an ecommerce website provides. The content of the ecommerce website includes product descriptions, promotion details, shopping policy and so on.

In general, content quality is assessed by the informational capability of the website (Agarwal and Venkatesh, 2002). Detailed evaluation of the information quality of a website has also been the subject of broad research. Agarwal and Venkatesh (2002), for instance, propose four areas for content evaluation: (1) relevance, (2) media use, (3) depth and breadth, and (4) current and timely information. This suggests that in order to maintain content quality, website owners should ensure that content is current and pertinent to the core audience and that multimedia content and the range and detail of topics presented are appropriate. Palmer (2002) further noted that content richness was the key element in content quality on the Web. McKinney et al. (2002) note that information quality on the Web pertains to understandability, reliability and usefulness. Understandability is concerned with such issues as clearness and quality of information. Reliability is concerned with the degree of accuracy, dependability, and consistency of the information. Usefulness concerned with the likelihood that the information will enhance user decisions. In the present study, we treat perceived content quality as an overall evaluation of the website content quality.

2.5 Online Purchase Intention and Store Environment

Both online and offline studies has confirmed that purchase intention has been widely used in the marketing and consumer study literature as a predictor of subsequent purchase behavior

(Grewal et al., 1998). The current study defines purchase intention as the degree to which a consumer is inclined to purchase products at a website. Past HCI studies have examined the antecedents of this construct by borrowing factors from the well known technology acceptance model (TAM). However, the current study takes a different approach and aims to adapt theories and findings from the traditional shopping environment to investigate their presences in an online setting.

In the offline shopping setting, purchase intention and the subsequent purchasing behaviors are regarded as potential aspects of consumer's patronage decisions in relationship to a store (Baker and Levy, 1992). Several factors have been shown to affect this decision. Among these factors are: location, service level, pricing policies, and merchandise assortment (Schary and Christopher, 1979; Morey, 1980). However, irrespective of the goods offered, most shoppers also share the experience that, some stores are offering pleasant and attractive experience than others. Some stores induce a feeling of wellbeing, while in other stores one becomes irritated or even angry about the whole experience. It is said that shoppers tends to buy more things and to spend more money when he is having a positive rather than in a negative shopping experience (Spies et al., 1997). According to Sherman at al. (1997)'s findings, although cognitive factors may largely account for store selection and for most planned purchases or purchasing intentions within the store, the environment in the store and the emotional state of consumers in the shopping experience is also an important determinant of purchase intention and behavior. Subsequent studies have also found that although merchandise quality, general price level, selection and all other product related factors influence one's purchasing intention, overall perception of the shopping experience and environment also plays a role in forming purchase intention (Darden et al., 1983; Baker and Levy, 1992). In environment psychology, Donovan ad Rossiter (1982) proposed an affective

approach to investigate this phenomenon. Their study which is based on Mehrabian-Russell environmental psychology model contended that attractive and pleasant experience induced by store design and environment significantly influence the subsequent purchasing intent and behavior in that store. This approach maintains that an individual's perceptions of, and purchase behavior within, a given environment are the result of emotional state created by that environment. This emotional state is largely formed throughout the interacting experience with the environment. Therefore, store design stimuli and functions play an important role in affecting the emotional state of pleasure which in turn affect the purchase behavior and intention (Baker and Levy, 1992).

In online shopping literature, several factors have been identified to influence online purchase intention. Lee and Lee (2003) found that customer satisfaction with online store design were significant factors to induce buying intention. Level of payment security (Salisbury et al. 2001), product and service quality (Huddleston et al. 2001) company trustworthiness (van der Heijden et al. 2003) have also been shown their influences on purchase intention online. Alba et al. (1997) contended that Web technologies which provide interactive tools can present huge volumes of information, searching and product selection tools to assist shopper where they couldn't experience at offline shopping environment. All the interactive technologies from the online store can better facilitate shopper to make purchase decisions. These technologies also give online store clear advantages such as conveniences over offline shopping context. However, Meuter et al. (2000) suggested that the Web technologies are the most satisfactory only when they are easy to use, reliable, save time, offer greater control and address salient needs. Conversely, new technologies may pose interaction difficulties on product which customers prefer to touch and feel before making a purchasing. Therefore, the design of online store is crucial to encourage usage.

2.6 Utilitarian Shopping Value and Hedonic Shopping Value

Babin et al. (1994) noted that the conceptualization of value in offline shopping context consists of two dimensions: hedonic and utilitarian. Hedonic value reflects the entertainment value and emotional worth derived from shopping as a pleasurable experience. It reflects gratification derived from hedonic pleasure (Fischer and Arnold, 1990). Conversely, utilitarian value largely depends on whether a shopping task is accomplished and it includes expressions of accomplishment and/or disappointment over the ability (inability) to complete the shopping task. Even though the hedonic and utilitarian shoppg values are different, they are complementary. Therefore, shopping experience need to incorporate both shopping values in order to become truly compelling shopping experiences. (Schechter 1984; Senecal et al., 2002).

The majority of attention in previous consumer research has been focused on shopping's utilitarian aspects (Bloch and Bruce, 1984). In traditional retail store, a successful layout of a store depends on whether the store has a clear concept, whether a shopper can easily find things, whether different categories are clearly separated, whether a shopper does not get lost. This is because a successful layout of a shopping environment helps shoppers to orientate, and locate merchandise and therefore increase the overall effectiveness of the shopping trip (Bitner, 1992). In addition to the ease of locating products and other utilitarian aspects of shopping, hedonic aspect of a store environment design also influences the overall shopping experiences. Consumer researchers' have expressed their growing interest in shopping experience and called for an increasing need to study both hedonic and utilitarian aspects of the shopping values (Babin et al., 1994). Babin et al. (1994) acknowledge that not all consumer behavior is directed towards satisfying some functional physical or economic need. Perception of hedonic value also contributes to the overall shopping experience (Babin et al.,

1994). Therefore, value here is provided by the "complete shopping experience," not simply by product acquisition. By identifying both hedonic and utilitarian shopping value, Babin et al. (1994) emphasize the overall assessment of subjective worth by considering all relevant evaluative criteria during shopping.

Several researchers acknowledge that shopping experiences can indeed produce both utilitarian and hedonic value and suggest that the two types of value have been useful to describe the rewards of shopping and reflect the shopping experience (Belk, 1987; Sherry, 1990). As for online stores which offer direct sales through an electronic channel via an electronic catalog or other more innovative format (Hoffman et al. 1996), a well-designed one which offers rich shopping value could affect traffic and sales significantly (Lohse and Spiller, 1999). Despite the significant body of research on online shopping, taking shopping experience by including both values are without much empirical support (Babin et al., 1994).

2.7 Inferential Belief Formation and Elaboration Likelihood Model

A belief represents the information a person has about an object (Fishbein and Ajzen, 1975). A belief can be expressed as a person's subjective expectation that some object has some specific attribute (Fishbein and Ajzen, 1975). Fishbein and Ajzen (1975) suggest that there are two different processes underlying belief formation which are relevant to the current study. First, a ***descriptive belief*** is based on a perceived relationship between the object and a belief about the object. It is actively established on the basis of direct observation. ***Inferential belief*** shows that belief formation is established through a process of inference from some other sources or belief. The current study investigates descriptive and inferential belief formation regarding website usability and content quality. A descriptive belief about the two can be formed by direct observation and interaction with the website. Inferential beliefs, which are our focus, can be formed through aesthetic perception explained by 'Halo effect'.

‘Halo effect’, also known as confirmation bias, offers an explanation for the inferential belief formation mentioned above. ‘Halo effect’ has been studied in psychology, human decision-making theory and judgment literature. It occurs when people search exclusively for confirmatory evidence supporting their initial hypothesis while ignoring disconfirmatory evidence (Koriat, Lichtenstein and Fischhoff, 1980). Campbell and Pisterman (1996) contend that in the presence of a very positive (negative) feeling upon exposure to an object, a person may disregard or downplay possible negative (positive) issues encountered later. In general, halo-effect happens when an individual seeks or interprets evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand (Nickerson, 1998). Nickerson (1998) offers several explanations for this perceptual distortion. From philosophical and psychological points of view, it is observed that people find it easier to believe propositions they would like to be true over propositions they would prefer to be false. This tendency has been seen as one manifestation of what has been called the Pollyanna Principle (Martin and Stang, 1978), which describes humans as being likely to give preferential treatment to pleasant thoughts and memories over unpleasant ones. The desire for beliefs to confirm initial beliefs and hypotheses explains the halo effect.

Studies of social judgment provide evidence that people tend to overemphasize confirmatory evidence or underemphasize disconfirmatory evidence. Pyszczynski and Greenberg (1987) interpret such evidence as supporting the view that people generally require less hypothesis-consistent evidence to accept a hypothesis than hypothesis-inconsistent information to reject a hypothesis. Other researchers with similar views argue that although people realize the need for accuracy as one important determinant of hypothesis-evaluating behavior, they suggest self-esteem, control and cognitive consistency also play significant roles in giving biased perceptions (Nickerson, 1998).

In HCI literature and website studies in particular, there is limited empirical evidence to support the inferential relationship leading from perceived aesthetics to perceived usability and content quality of websites. In their experiment, Tractinsky et al. (2000) found the strong correlations between a system's perceived aesthetics and perceived usability both before and after interacting with the ATM system. Perceptions of the aesthetics and usability of the ATM system were elicited before and after the participants used the system. In another study investigating factors influencing the usage of a generic portal website in the Netherlands, van de Heijiden (2003) found that the perceived visual appeal of a website has a significant positive impact on the website's perceived usefulness and ease of use. Both studies used the explanation of a spill-over effect from visual perception to other perceptions about the object (website). The spill-over effect resembles the halo-effect used to explain the formation of inferential beliefs.

Nevertheless, inferential belief formation and its underlying halo-effect can be viewed similarly as representing the peripheral route to persuasion in Petty and Cacioppo's (1986a) elaboration likelihood model (ELM) (MacKenzie, Lutz and Belch, 1986). The ELM proposed by Petty and Cacioppo (1986b) has been widely used in attitude change and persuasion studies (Tam and Ho, 2005). It offers a fairly general framework for organizing, categorizing, and understanding the basic processes underlying the effectiveness of persuasive communications and attitude formation (Petty and Cacioppo, 1986b). According to ELM, there are two basic routes to attitude change: ***a central*** and ***a peripheral route***. A person will follow the central route when he or she is highly involved with and motivated to think about the issue, and is capable of emphasizing a thoughtful consideration of the attitudinal issue or object. Effects on attitude or belief formation via the central route are characterized by highly elaborative and extensive evaluation of informative and functional elements of the objects.

Conversely, the peripheral route emphasizes attitude or belief formation that is lowly elaborative and depends on simple inference or affective association to provide context in the absence of argument processing (Petty and Cacioppo, 1986b). Therefore, involvement or motivation serves as a situational factor to determine if an individual undergoes peripheral or central route. Despite the numbers of studies on involvement as moderator in ELM related research (Sicilia, Ruiz and Munuera, 2005), empirical evidence of involvement as moderator to investigate inferential belief formation or halo effect is rather limited. Due to the similarity of inferential belief formation and the peripheral route of ELM, the current study aims to explore if involvement serves a moderating factor to affect the belief formed inferentially or via peripheral route according to ELM.

Involvement has been a focus of much research in psychology and marketing. In psychology, involvement is considered a psychological state triggered by two key aspects of an issue its importance or significance and its personal relevance. In marketing literature, there is no single precise definition of involvement, but it is generally regarded as an individual-level, internal-state variable that refers to the importance and personal relevance of the objects, activities or events (Krugman, 1967; Mitchell, 1979; Greenweld and Leavitt, 1984). In the current study, we define task involvement as a subjective psychological state, reflecting the importance and personal relevance of a shopping task. Involvement is externally motivated and also refers to situational sources of personal relevance (Celsi and Olson, 1988). It is widely accepted that higher involvement is positively associated with increased cognitive processing (Gardial and Biehal, 1985) while people with low involvement respond to peripheral cues such as source expertise, celebrity status and attractiveness, according to ELM (Petty and Cacioppo, 1986a). The current research further investigates the moderating role of involvement in two competing theory, namely, inferential belief formation and ELM.

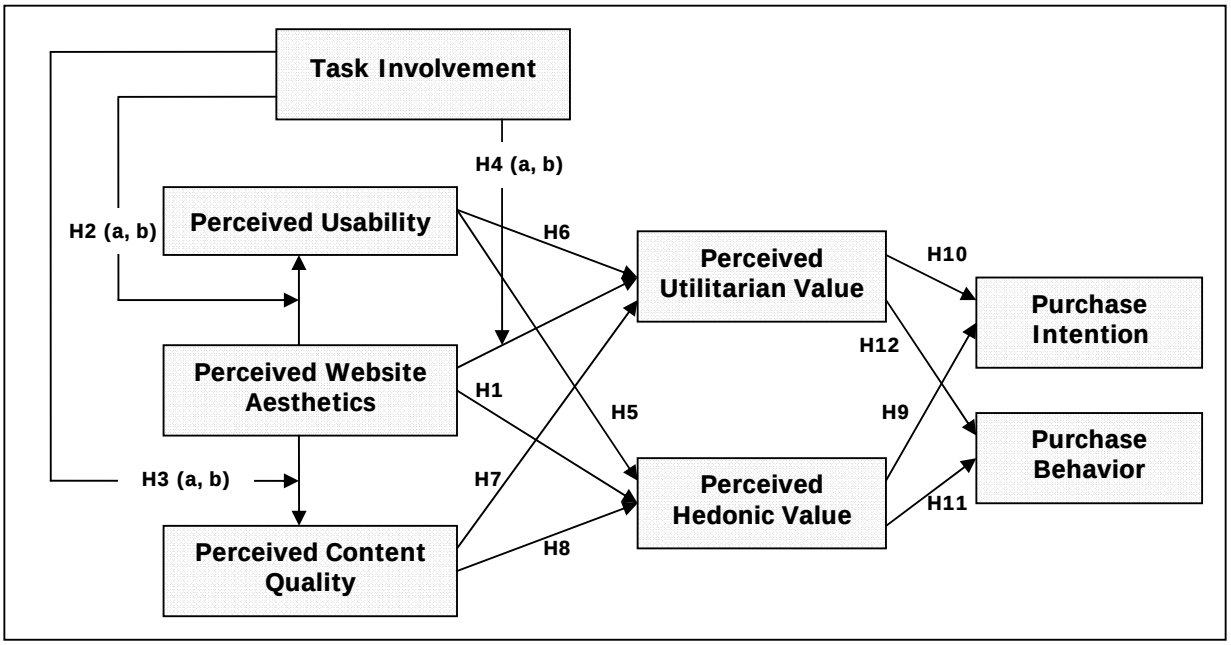
The current study empirically investigates if involvement contributes a moderating effect by following both theories.

CHAPTER 3

RESEARCH MODEL AND HYPOTHESES

This section outlines the theoretical foundation for this study. The research model that links independent, moderating and dependent variables are depicted in **Figure 3-1**. The independent variables are perceived website aesthetics, perceived usability and perceived content quality. The moderating variable is task involvement. The mediators are perceived hedonic value and perceived utilitarian value. The dependent variable is attitude towards online shopping. The proposed model is based on the system quality and information quality classification (DeLone and McLean, 1992; McKinney et al., 2002). We further propose website aesthetics as another dimension of system quality. Detailed discussion of each variable will be provided in the following sub-sections.

Figure 3- 1: Research Model



3.1 Effects of Aesthetics and Hedonic Value

Aesthetics has been found to play a significant role in product development, marketing strategies, and retail environment for determining consumer preferences (Russell and Pratt, 1980; Russell, 1980; Kotler and Rath, 1984). The new wave of research on the visual aesthetics of HCI found that aesthetic aspects of various computing products serve an important role in creating pleasure and emotional contentedness (Kurosu and Kashimura, 1995; Tractinsky et al., 2000), especially in the context of online shopping (Schenkman and Jonsson, 2000; van der Heijden, 2003). As suggested by Jordan (1998), aesthetics is a strong determinant of pleasure experienced by users interacting with computer systems. In the context of the Web usage, online visitors can develop affective feelings through exposure to website aesthetics (Dick and Basu, 1994). When visitor experiences high levels of aesthetic pleasure on a website and since visual exposure to the aesthesis would lead to an enjoyable emotional state, therefore, he or she will be more likely to develop positive beliefs toward the website's quality and hence report a more enjoyable experience of the website regardless of task completion. Conversely, it is also possible that the affective response to website aesthetics is negative, such that the website is not found to be aesthetically pleasing. Under such a situation, the enjoyment is reduced due to the poor look and feel of the website. Hedonic value was defined as one's enjoyment and emotional satisfaction interacting with the website. Therefore as an affective response perceived website aesthetics can directly influence one's perceived hedonic value of the online shopping experience. Hence, we posit that:

> **H1:** Greater perceived website aesthetics will result in increased perceived hedonic value of the shopping experience.

3.2 Effects of Aesthetics on Usability, Content Quality and Utilitarian Value

The application of *inferential belief formation* (Mitchell and Olson, 1981) to website design is novel with this study. A possible inferential belief about usability and content quality could result from the perception of website aesthetics. According to halo-effect which is used to explain the formation of inferential belief, it is plausible that the visual appeal of a website could have a strong enough impact (i.e. halo effect) to draw attention away from usability problems, even if the site has poor functionality or quality of information. An unattractive or aesthetically poor website would lead web users to think it may not have high quality content and usability. This is due to the halo-effect which describes that in the presence of a very positive (negative) feeling upon exposure to an object, a person may disregard or downplay possible negative (positive) issues encountered later. In other words, people tend to overemphasize confirmatory evidence or underemphasize disconfirmatory evidence. This further illustrates that pleasing website aesthetics could make the visitor disregard any disconfirmatory evidence which may be encountered later. Although similar arguments have been supported in the literature (Tractinsky et al, 2000; van der Heijden, 2003), the influential relationship is likely to be situational dependant on task involvement. When a shopper is highly involved with the shopping task, beliefs or perception of the usability, content quality are largely formed by responding to the actual usability and content quality while exploring the site. Conversely, when a shopper is lowly involved with the shopping task, his perception and belief on usability and content quality is affected by the result of exposing to aesthetic features of the website. Therefore, we posit the following four hypotheses:

> **H2a:** Under high task involvement, there is no effect of website aesthetics on the perceived usability of the website.

H2b: Under low task involvement, website aesthetics has a significant positive influence on the perceived usability of the website.

H3a: Under high task involvement, there is no effect of website aesthetics on the perceived content quality of the website.

H3b: Under low task involvement, website aesthetics has a significant positive influence on the perceived content quality of the website.

According to ELM, perception and judgment formed via central route on utilitarian shopping value depends on whether the particular consumption needs is accomplished and if it is accomplished effectively. Conversely, a shopper could also form his judgment on utilitarian shopping value via the peripheral route. A possible factor contributing the utilitarian perception of the shopping experience is website aesthetics. A first-sight exposure to the website aesthetics which either induces a positive or negative response could thereafter infer a consistent perception on utilitarian value via a peripheral route. Likewise, we believe when a shopper is highly involved with a shopping task, more cognitive brain activities take place and therefore the inferential effect weakens and central route becomes dominant. Van der Heijden (2003) also noted that people tended to associate visual attractiveness of a website with the positive belief such as usefulness of the website. However, the effects of task involvement on the mentioned association were not explored. Hence, in our present study, we hypothesize that:

H4a: Under high task involvement, there is no effect of website aesthetics on the perceived utilitarian value of the shopping experience.

H4b: Under low task involvement, website aesthetics has a significant positive influence on the perceived utilitarian value of the shopping experience.

3.3 Effects of Usability on Hedonic Value

According to the theory of flow, experiential flow is the optimal experience of feeling in control of our actions, a sense of exhilaration, and a deep sense of enjoyment (Csikszentmihalyi, 1990). It has been established in the literature that online shoppers do experience flow while using the Web (Chen, Wigand and Nilan, 1999; Novak et al., 2000). The flow state online is characterized by a seamless sequence of response facilitated by machine functionalities and is intrinsically enjoyable (Hoffman and Novak, 1996). A website with good usability will facilitate a shopper to achieve the experience of flow during his use of the website. This happens because a good usability gives the online shopper better information interaction and also a high level of freedom and control when interacting with the online store. A highly usable website resembles a well designed offline store which helps to locate the desired merchandise, orientate the shopper in the store both effectively and efficiently. In an online store, a shopper will find himself with minimal stop and hesitation of where to go, what to do if the store is with high usability. This will result in reductions in frustration and decrease shopping's psychological costs. Furthermore, in a flow state in the web environment, the resulting state of mind is extremely gratifying (Novak et al., 2000). Novak et al (2000) further suggested that when the user is in a flow state, the individual will find the activity intrinsically interesting and self-rewarding. The gratification and feeling of self-reward will eventually lead to an intrinsic enjoyment. Conversely, a badly designed usability will increase frustration which will then contribute to the psychological cost. It eventually leads to a less enjoyable experience. Therefore higher hedonic value will be perceived by the user. Hence, we posit that:

> **H5:** Greater perceived usability will result in increased perceived hedonic value of the shopping experience.

3.4 Effects of Usability on Utilitarian Value

During the information search stage, users can easily get "lost in space" due to the overwhelming amount of information. Good website usability could help user to explore the website with a good roadmap which allows users to know where they are, where they have been and where they could go from the current location. This will increase the perceived ability to complete a shopping task by the shopper. Past studies in end user computing literature find that the usability of a computer system is touted as an important factor in determining if a task could be completed efficiently (Shackel, 1991**;** Cafferky, 1995). Users desire to use systems within an acceptable level of human cost in terms of tiredness, discomfort, frustration and personal effort (Shackel, 1991). Prior research also acknowledges that good interface usability is associated with numerous positive outcomes: reduction in errors, high capability for handling errors, enhanced accuracy, and increased efficiency and operability (Nielsen, 1993; Lecerof and Paterno, 1998; Nielsen, 2000). A website with poorly designed usability will generate anxiety, impatience and frustration through cognitive costs incurred to the shopper, hence forming obstacles to accomplishing a certain shopping task (Shneiderman, 1998). Madu and Madu (2002) contend that websites with higher usability generate more desirable perceptions of their capability to accomplish tasks, due to time and effort saved. Conversely, a website that cannot help users to accomplish tasks will result in a bad impression of the website's utilitarian capability. Therefore, the proceeding discussion points to the following hypothesis:

> **H6:** Greater perceived usability will result in increased perceived utilitarian value of the shopping experience.

3.5 Effects of Content Quality on Utilitarian Value and Hedonic Value

While website usability can be designed to help users locate needed information, content quality is also decisive in the realization of user goals. A website with poor content such as out-of-date, inaccurate content may produce pages that no one reads or needs because online shopper will not find them useful and helpful. Past research works have indicated that website content is one of the most important elements in attracting visitors to a particular website (Clikeman, 1999; Palmer, 2002). In online shopping, content quality (e.g.: product description, promotion details) has been found to be a key consumer measures (Jarvenpaa and Todd, 1997). High quality content improves decision quality and it also influences the perceived benefits of information systems (Liu and Arnett, 2000).

Delivery of high quality content is found to be a major factor that can maximize a user's perception of value in visiting a commercial website (Keeney, 1999). By reading high quality of content such as product information and shopping policies, a shopper can make a sound purchase decision thereafter. An online shopper will acquire the needed information of the product efficiently and effectively if the website content satisfies their information-search needs. The satisfaction with information-search needs will then contribute to an accurate decision on acquisition of the product. Therefore, a positive perception on the website's utilitarian ability is formed. Conversely, dissatisfactory or lower quality content which may not help the shopper in completing the shopping task contributes to negative impressions and affecting their overall shopping experience. Ducoffe's (1996) study on attitude towards Web ads shows that level of informativeness is positively related with their perception of value. Informativeness refers to the ability to effectively provide information that users search for. This factor contributes to value mainly because it determines the primary effectiveness of Web ads. Thus, the following hypothesis is stated:

H7: Greater perceived content quality will result in increased perceived utilitarian value of the shopping experience.

In addition, high quality information helps the shopper to capture the product information effectively to make a sound decision both effectively and efficiently. Therefore it generates a positive emotional state during the shopping process. According to the M-R model[1] in environmental psychology, the positive emotional state from reading the content leads to a pleasant feeling which contributes to a greater hedonic value perceived. Therefore, it is conceivable that:

H8: Greater perceived content quality will result in increased perceived hedonic value of the shopping experience.

3.6 Effects of Hedonic Value, Utilitarian Value on Purchase Intention

A shopper is portrayed as both intellectual and emotional during a shopping process. When shopper perceives his shopping experience with both high hedonic and utilitarian value, he is more likely to engage in a positive emotional state and is more inclined to engage in emotional or financial transactions – that is, for the shopper to place an order (Sherman et al., 1997). Identical to an offline shopping context, when the shopper neither enjoy the whole shopping process nor acquire what he needs successfully, it is less likely for him to express a purchase intent in the store. Therefore, higher degrees of both forms of shopping value (i.e.: utilitarian and hedonic value) will result in increased internalization of the two shopping values (i.e., hedonic and utilitarian value). Conversely, lower assessments of either or both values will lead to reduction in internalization, and will therefore decrease the propensity to purchase from the online store. Hence, we posit the following:

[1] M-R model refers to the Mehrabian-Russell environmental psychology model (Donovan ad Rossiter, 1982)

H9: Higher perceived hedonic shopping value will result in greater intention to purchase from the online store.

H10: Higher perceived utilitarian shopping value will result in greater intention to purchase from the online store.

3.7 Effects of Hedonic Value, Utilitarian Value on Purchase Behavior

Besides consumers' self-reported intentions which have been used widely in academic and commercial research, we also extend our interest in the real purchase behavior. Hedonic and utilitarian value are found to be important outcome variables influencing future consumer decision process as represented by retail patronage which includes the eventual purchase behaviors (Monroe and Guiltinan, 1975). Intrinsic enjoyment and hedonic gain can increase a user's exploratory behavior (Ghani and Deshpande, 1994). When an online shopper enjoys his shopping experience, he might engage in more exploratory browsing in the online store leading to more unplanned purchases. Unplanned purchase also known as impulsive buying implies that they rely a lot on consumer feelings. Hence, we believe that hedonic shopping value such as fun and enjoyment will induce an ultimate purchase behavior online. Therefore, we posit that:

H11: Perceived hedonic value has a significant positive influence on the purchase behavior.

When a shopper shop online, a store environment which creates stimuli that facilitate his goal achievement will increase the chance of him buying it, whereas stimuli that impede goal achievement will build barrier for the eventual acquisition (Kaltcheva and Weitz, 2006). In a situation which the needed merchandise can't be located and relevant information of the

product is missing, it is hard for a shopper to make a purchase decision. Therefore, the chance of purchasing the product becomes slim. Conversely, an eventual purchase behavior is more likely to occur on an online store website which provides more effective way to help shopper to locate the product and acquire product information. Therefore, we hypothesize that:

H12: Perceived utilitarian value has a significant positive influence on the purchase behavior.

CHAPTER 4

RESEARCH METHODOLOGY

This chapter describes the research methodology. An experimental survey with manipulating task involvement variable was used to test the proposed hypotheses. In this design, task involvement variable was chosen as a between-group factor and is manipulated into high and low levels. Independent variables (i.e., perceived website aesthetics, perceived usability and perceived content quality), mediating variables, dependent variable, and other control variables were measured by a questionnaire. The following section provides an overview of the research design and related details.

4.1. Website Selection

The websites were selected for this study based on two criteria: 1) the website has to be unknown to the subjects; 2) the products on the website have to be gender-neutral. The reason to select unknown websites to subjects is because familiarity with the website can influence the users' perception and evaluation (Cox and Cox, 1988; Lavie and Tractinsky, 2004). In addition, selecting gender-neutral product minimizes the effects of gender of the purchase decision making. We selected website which sells electronic products such as MP3 players, digital cameras, laptops which are gender-neutral products. To ensure the websites are unknown to the subjects, all of whom reside in Singapore, we selected the websites hosted in non-Asian countries and included questions on if subject had known or visited any of the sites at the beginning of the questionnaire to further control the effect of familiarity to the website.

To select an initial set of sample websites with the two requirements, fifteen electronic product websites are selected from search engines such as google.com and yahoo.com. We

then asked thirty PhD candidates to rate the fifteen selected sites on aesthetics, usability and content quality by a questionnaire which is a sub-section of the final survey questionnaire.

The rating results of the fifteen website by PhD candidates suggested a considerable range of variation in aesthetics, usability and content quality. Among the fifteen websites, we chose ten websites eventually and utilized them for the actual study. In addition to the ten selected websites, one site was selected as a benchmark site. Provision of such a benchmark site to evaluate other websites are based on Helson's Adaptation Theory (Helson, 1964), which suggests that people's judgments are based on 1) the sum of their past experience, 2) the context and background of a particular experience, and 3) a stimulus. Therefore, doing so could minimize the effects of subject's prior experience with a particular website on his assessment of the website in the study thereafter.

4.2 Design

Although we adapted a survey approach for the present study and did not manipulate any independent variables, we manipulated the moderating variable, i.e., shopping task involvement. The between-subject design divides subjects into two groups, namely high and low task involvement group.

4.2.1 Task Involvement Manipulation

Manipulation of the task involvement occurred prior to the start of the actual survey. Since it is a between subject design, subjects were directed to either high or low task involvement group. The manipulation was designed to increase the degree to which subjects felt either highly or minimally involved with the shopping task. Subjects with high task involvement were told to purchase an electronic product as a gift from their parents for the satisfactory academic results. A maximum budget USD200 was given to the subjects for the gifts.

This manipulation method for task involvement is adapted from Gardial and Biehal (1985). The procedures are followed for two main reasons. First, the suggestion of purchasing a gift by using subject's parent's money for himself because of good academic performance is intended to help subjects visualize the shopping task in terms of personal importance or connections (Leavitt et al., 1981). It is hoped that this would personally involve or interest the subject more so than (1) a choice with no recipient in mind, and (2) importance weights where subjects were given no additional personal preference such as budget limit and reason of buying to guide purchasing decisions. There were manipulation checks in the questionnaire to ensure the manipulation is carried out as intended.

For high task involvement group, in order to further increase subject's involvement with the shopping task, we added additional $20 bonus incentive to those who could write a better justification of their purchase decision[1]. Huber and Seiser (2001) suggest that justification of the decision made provides pressure to lead to a distinct increase in the amount of utilized information and to a more elaborate choice process. By requesting subjects to justify their decision choice at the end and mentioning a bonus incentive to be awarded, it further increases their elaboration on the choice and hence it is more likely for them to spend more time and elaborate on his shopping criteria while performing the task. Conversely, justification reward did not appear in the shopping task description of low task involvement group. Please refer to **Table 4-1** for the complete descriptions for both high and low task involvement group.

[1] We awarded the additional $20 to the top 20% subjects based on the quality ranking of their written justifications

Table 4- 1: High and Low Task Involvement Scenario Descriptions

- High Involvement Scenario-
Scenario: Your parents have promised to award you an electronic product, preferably a MP3 player, for your satisfactory progress in your course work. You are asked to buy the product for yourself with a maximum budget of around **USD$200**. Assume that you come across the website (which will be given to you shortly). You would like to explore the website carefully and examine a large variety of products displayed as if you were making a purchase decision now. If you are interested in purchasing a particular product, please follow the check-out procedure until you have to fill in credit-card information. Write down the product name, price, and delivery information, and show the survey investigator the corresponding webpage. Alternatively, if you do not find anything that matches your preference or your parents' budgets, you may also complete the task without selecting anything. Please inform the survey investigator once you have completed the task. Following that, you will be asked to write a JUSTIFICATION on why you choose to purchase a particular product or why you choose not to buy any products from the website. The quality of your justification will be evaluated and the top 20% participants will be awarded extra $20 bonus based on the quality of the justification.
- Low Involvement Scenario -
Scenario: In this task, you are asked to browse a website without any specific purchase intentions. If you happen to find anything which you like, please follow the check-out procedure until you have to fill in credit-card information and inform the survey investigator. Alternatively, if you do not find anything of your preference, you can complete the task without selecting anything.

4.2.2 Independent Variables

The items for the three independent variables are generated by us by referring to various literatures. Validation procures were taken to ensure their reliability and content validity. Pilot testing provided good evidences on the validity and reliability of the scales. Furthermore, we invited two IS professors to check items again and they further fine-tuned the items and

the sequences of the questions for the survey questionnaire. (Please refer to **Appendix B** for all the scales used for independent variables)

4.2.3 Dependent Variables

Perceived hedonic value (HV), perceived utilitarian value (UV), intention to purchase (INTPH) were all measured in the questionnaire, using a 7-point semantic differential scales ranging from strongly disagree (1) to strongly agree (7). Six items for hedonic value[1] and five utilitarian value items are adapted from Babin et al.'s (1994) study on measuring hedonic and utilitarian shopping values. Meanwhile, intention to purchase is measured using four items adapted from Coyle and Thorson (2001)'s study. Lastly, purchase behavior is measured by asking subjects to fill out their shopping decision on the shopping outcome sheet at the end of the study.

4.2.4 Control Variables

In the current study, we also seek to control individual difference (e.g. gender, age, education disciplines, and online shopping experiences). Hence, subjects were randomly assigned to one of the treatment conditions to control for the impact of their background on the results. The success of this random assignment had been checked.

4.3 Survey Details

4.3.1 Recruitment and Motivation to Subjects

The entire study was conducted in 15 sessions with 10-12 subjects in each session. Every session lasted approximately 40-50 minutes. A total of 165 subjects participated in the survey. Subjects were students from various schools of National University of Singapore. Since we used academic result award as a reason for the shopping task in high involvement group,

[1] Six of eleven items were adapted from Babin et al.'s (1994) study to measure hedonic value for the current study

student subjects were the most appropriate. In addition, university students were also identified as representing a typical Internet shopper segment (Iposo-Reid, 2001). Therefore, the use of students as subjects was properly considered.

Subjects were informed about the objective and background of the study prior to the start of the experimental survey. They were also told the time needed (maximum 45 minutes) for the study. The subjects were paid $10 each for their participation. In addition, they were also informed that they could win a one-five chance of receiving $20 cash bonus based on the quality of their justifications for high involvement group (For low task involvement group, a lucky draw with one-in-five chance was conducted to ensure the fairness among all subjects). A contact email address was included on the questionnaire so that subjects may further enquire about the findings of the study as further incentive for participating. **Table 4-2** shows the details the descriptive statistics of subjects.

Table 4- 2: Descriptive Statistics of Subjects

Age (Overall)			**Age (High Involvement)**		**Age (Low Involvement)**	
20 and below	16	9%	6	7%	10	12%
21	34	21%	20	24%	14	17%
22	47	28%	26	31%	21	26%
23	34	21%	13	15%	21	26%
24 and above	34	20%	19	22%	15	18%
Gender (Overall)			**Gender (High Involvement)**		**Gender (Low Involvement)**	
Male	72	44%	40	48%	32	40%
Female	93	56%	44	52%	49	60%
Schools (Overall)			**Schools (High Involvement)**		**Schools (Low Involvement)**	
Computing	55	33%	33	39%	22	27%
Engineering	8	5%	4	5%	4	5%
Building	4	2%	2	2%	2	2%
Business	73	44%	36	43%	37	46%
Arts	15	9%	6	7%	9	11%
Science	10	6%	3	4%	7	9%

4.3.2 Survey Procedure

A pilot study was first conducted prior to the actual study. The purpose of the pilot study mainly was not only to check the general procedures to conduct the study but also to test the reliability and validity of the questionnaire items. The pilot study was conducted with the help with 32 undergraduate students (18 male and 14 female). The procedures of the pilot test resembled the actual study's.

In the actual study, two research assistants conducted the survey session. Although time was not limited in the survey, most participants spent between 30-50 minutes to finish the survey (shopping) tasks and complete the questionnaire. Subjects were randomly assigned into either treatment group (i.e., high involvement and low involvement group). To begin, the subjects completed a short questionnaire that elicited their demographic details, level of experience with computers and online shopping. Next, a research assistant briefed the subjects' on the general information of the task and also basic information of shopping online. A five minutes warm-up and training shopping task on the benchmark website (*www.refurbdepot.com*, please refer **Figure C-11** in **Appendix C**), which proved to be adequate, was then given to the subjects on how to shop online and which information to be evaluated to make a purchase decision. Each subject was then given one shopping task description (either high or low involvement task) and one website URL to start the shopping task. The URL was given to the subjects in a round-robin manner to ensure that we used every website for a similar number of times. The shopping task description differed from high and low involvement group (Please refer **Table 4-1** for details of shopping task descriptions).

For subjects in high task involvement group, to further increase the involvement of the shopping task in high involvement group setting, the research assistant emphasized again about the bonus awarding criteria which is on the justification of their purchase decision as

mentioned earlier. For both high and low involvement groups, if the subject decided to purchase something from the given website, his task was considered to be completed when he had shown the research assistant the last step of the shopping page (i.e., filling payment details) from their computer screen. If the subjects did not intend to purchase anything, his task was also considered as completed after exploring the site.

Upon completing the task, subjects were required to complete a questionnaire. The first section of the questionnaire consists of two manipulation check questions to ensure the manipulation succeeded as intended. The questionnaire then assessed the subjects' perceptions of website aesthetics, usability and content quality. Perceived hedonic and utilitarian shopping values were then evaluated in the questionnaire. Next, subjects report their purchase intention after the shopping task.

Lastly, subjects were also given a shopping outcome sheet (Please refer **Appendix D**) to write down the product brand, price, and model if they have found something they would have purchased. If they did not find anything which they liked, they could leave the sheet blank. Furthermore, we recorded the whole shopping task process, mainly screen action performed by subjects using screen recording software "Camtasia". These screen files were viewed after each survey session. The results indicated successful survey designs and manipulations on task involvement, i.e. all subjects did shop on the website they were assigned to and subjects spent more time on the task than subjects from low task involvement group.

CHAPTER 5

DATA ANALYSES AND RESULTS

This chapter reports the various statistical analysis performed on data collected to assess the proposed research model and hypotheses. The statistical methods employed are first described. Next, we present the results of testing the measurement model and structural model respectively. The results of the hypotheses are also presented.

5.1 Partial Least-squares Analysis

Structural equation modeling (SEM) approach was adopted in our data analysis. Partial Least Square (PLS), an advanced second-generation statistical method with SEM approach, was selected to assess our model. PLS was chosen for our analysis for several reasons. (1) Unlike the traditional regression analyses and factor analysis, PLS allows optimal empirical assessment for both measurement model and structural model concurrently (Wold, 1982). (2) PLS is more prediction-oriented and seeks to maximize the variance explained in constructs so as to provide optimal prediction accuracy (Fornell and Cha, 1994) (3) Our sample size of 165 is large enough to meet the PLS requirement of ten times the number of indicators in the most complex construct (Barclay, Higgins and Thompson, 1995) (4) PLS technique is appropriate for testing models in an exploratory in the early stages rather than a confirmatory fashion. This fulfils the requirement of the current study in which we seek to explore influences of three website design factors on shopping values as well the moderating effect of task involvements.

PLS-Graph version 3.00 (Chin and Frye, 1996) and jackknife re-sampling method (100 re-samples) were used in data analysis to assess the measurement and structural model. All

statistical tests were conducted at one-tailed 5-percent level of significance. Manipulation checks were first performed prior to assessing the measurement and the structural model.

5.2 Validation Tests

5.2.1 Manipulation Checks

The manipulation check was performed with two questions on the involvement level they experienced. All questions were anchored on a 7-point scale from "strongly disagree" (1) to "strongly agree" (7). Questions used for checking the manipulation of task involvement were "This shopping task is important to me" and "This shopping task means a lot to me". Consistent with the experimental manipulation, subjects under the high involvement treatment agreed to these questions to a significantly greater extent than subjects under the low involvement treatment ($p<0.001$). Furthermore, the significantly more time spent by subjects in task involvement group than low involvement group also confirms the success of the manipulations (**Table 5-1** shows the descriptive mean of two questions, **Table 5-2** shows the significant different on one-way ANOVA test and **Table 5-3** and **Table 5-4** further displays the result of means and one-way ANOVA on time spent on the task between two groups)

Table 5 - 1: Descriptive Means on Two Manipulations Check Questions

Involvement Level	Question 1 (Mean)	Question 2 (Mean)
Low	3.78	3.43
High	5.44	5.20

Table 5 - 2: Results of One-Way ANOVA on the Mean of Two Manipulation Questions between Two Groups

	F-statistics	Significance Level
Question 1 (Between two groups)	55.85	P<0.001
Question 2 (Between two groups)	70.34	P<0.001

Table 5 - 3: Descriptive Means on Task Duration for Two Groups

Involvement Level	Task Duration (Mean)
Low	11.48 min
High	17.16 min

Table 5 - 4: Results of One-Way ANOVA on the Mean of Task Duration of Two Groups

	F-statistics	Significance Level
Task Duration (Between two groups)	43.33	P<0.001

5.2.2 Control Checks

One-way ANOVA tests showed that subjects in the two treatments (i.e., high and low task involvement group) did not differ significantly in terms of gender, age, online shopping experience and educational discipline. Therefore, controls over subjects' background, enforced through randomization, appeared to be effective.

5.2.3 Measurement Model

The strength of the measurement model can be demonstrated through measures of convergent and discriminant validity (Hair, Anderson, Tatham and Black, 1998). Convergent validity refers to the extent to which two or more items measuring the same construct agree and discriminant validity is the degree to which items measure different constructs (Cook and Campbell, 1979). All multiple-item constructs were subjected to tests of convergent and discriminant validity. The following subsection discusses the assessment of these two types of validity. Please refer to **Appendix B** for items' descriptions.

5.2.3.1 Convergent Validity

Convergent validity is normally assessed with three tests as suggested by Fornell and Larcker (1981) – (1) item (indicator) reliability, (2) composite reliability and Cronbach's Alpha of construct and (3) the average variance extracted (AVE) by construct.

Table 5-5 presents the final results for composite reliability of different constructs, average variance extracted and Cronbach's alpha. Composite reliabilities of constructs are all above the minimum value of 0.7 (Fornell and Larcker, 1981) and Cronbach's alpha were also higher than the requisite minimum 0.7 suggested by Nunnaly (1978). The average variance extracted by each construct refers to the amount of variance in the item explained by the construct

Table 5 - 5: Convergent Validity of Constructs

Construct Indicators	Composite Reliability	Average Variance Extracted	Cronbach's Alpha
Perceived Aesthetics (PA)	0.957	0.882	0.933
PA1			
PA2			
PA4			
Perceived Usability (PU)	0.937	0.790	0.911
PU1			
PU2			
PU3			
PU6			
Perceived Content Quality (PCQ)	0.914	0.780	0.859
PCQ1			
PCQ6			
PCQ8			
Hedonic Value (HV)	0.933	0.699	0.913
HV1			
HV2			
HV3			
HV4			
HV5			
HV6			
Utilitarian Value (UV)	0.910	0.772	0.852
UV2			
UV3			
UV5			
Intention to Purchase (INTPH)	0.979	0.959	0.957
INTPH1			
INTPH2			

relative to the amount due to measurement error (Fornell and Larcker, 1981; Grant, 1989) and average extracted variance for every factor fulfilled the accepted value of 0.5 suggested by Fornell and Larcker (1981). The results of the three convergent validity tests provided evidence for convergent validity of the measurement model.

5.2.3.2 Discriminant Validity

Discriminant validity was next assessed to ensure that a construct differed from other construct. Discriminant validity was assessed by item correlation test which compares the squared correlations between constructs and the average variance extracted for a construct (Fornell and Larcker, 1981).

Item correlation was assessed by comparing the squared correlations between constructs and the average variance extracted for a construct (Fornell and Larcker, 1981). The correlations of two different constructs should be lower than the square root of average variance shared between a construct and its own measures. In other words, measures of construct should correlate more highly with their own items than with items measuring other constructs in the model (see diagonal versus non-diagonal elements in **Table 5-6**). All constructs met his requirement, satisfying Fornell and Larcker's (1981) criteria for discriminant validity.

Factor loading was then conducted to further assess the item reliability in PLS and SPSS. **Table 5-7** below shows the loading pattern with all items. However, UV1 and UV4 did not display loadings greater than 0.707 as suggested by Chin (1998) as the minimum loading requirement. Therefore, they were dropped from subsequent analysis. In addition, INPTH3 and INPTH4 were dropped too because they had high loadings on more than two constructs. **Table 5-8** shows the final loading pattern and each standardized item loaded more highly on

its corresponding construct than on the rest of the constructs. Therefore, it indicated that adequate discriminant validity is achieved.

Table 5 - 6: Discriminant Validity of Constructs

	PA	PCQ	HV	INTPH	PU	UV
PA	**0.939**					
PCQ	0.428	**0.883**				
HV	0.649	0.610	**0.836**			
INTPH	0.527	0.571	0.736	**0.979**		
PU	0.517	0.541	0.537	0.498	**0.889**	
UV	0.396	0.538	0.523	0.540	0.447	**0.879**

Note: Diagonal elements are the SQRT (AVE) and all off-diagonal elements represent the correlations among the constructs.

Table 5 - 7: Factor Loading with All Items

	PA	PU	PCQ123	HV	UV	INTPH
PA1	**0.94**	0.51	0.41	0.60	0.38	0.64
PA2	**0.97**	0.51	0.43	0.65	0.38	0.63
PA4	**0.90**	0.42	0.36	0.58	0.35	0.52
PU1	0.50	**0.92**	0.53	0.50	0.45	0.58
PU2	0.45	**0.93**	0.47	0.47	0.43	0.53
PU3	0.49	**0.89**	0.50	0.53	0.45	0.56
PU6	0.39	**0.80**	0.42	0.41	0.41	0.55
PCQ1	0.32	0.48	**0.90**	0.51	0.43	0.50
PCQ6	0.37	0.41	**0.87**	0.53	0.41	0.49
PCQ8	0.43	0.54	**0.89**	0.58	0.56	0.65
HV1	0.56	0.54	0.49	**0.83**	0.56	0.71
HV2	0.56	0.45	0.51	**0.82**	0.52	0.65
HV3	0.42	0.41	0.43	**0.77**	0.38	0.55
HV4	0.58	0.44	0.51	**0.89**	0.42	0.67
HV5	0.55	0.39	0.57	**0.85**	0.42	0.66
HV6	0.55	0.45	0.54	**0.85**	0.45	0.67
UV1	0.25	0.45	0.33	0.42	**0.66**	0.47
UV2	0.36	0.34	0.37	0.42	**0.83**	0.43
UV3	0.32	0.36	0.52	0.42	**0.87**	0.49
UV4	0.12	0.16	0.17	0.23	**0.48**	0.28
UV5	0.37	0.48	0.53	0.54	**0.84**	0.61
INTPH1	0.52	0.48	0.55	0.72	0.59	**0.92**
INTPH2	0.52	0.50	0.57	0.73	0.54	**0.91**
INTPH3	0.64	0.67	0.61	**0.70**	0.59	**0.92**
INTPH4	0.65	0.64	0.55	**0.71**	0.55	**0.92**

Table 5 - 8: Factor Loading after Excluding UV1, 4 and INTPH 3, 4

	PA	PU	PCQ123	HV	UV	INTPH
PA1	**0.94**	0.51	0.41	0.60	0.38	0.53
PA2	**0.97**	0.51	0.43	0.65	0.38	0.51
PA4	**0.90**	0.42	0.36	0.58	0.35	0.45
PU1	0.50	**0.92**	0.53	0.50	0.42	0.45
PU2	0.45	**0.93**	0.47	0.47	0.38	0.43
PU3	0.49	**0.89**	0.50	0.53	0.41	0.44
PU6	0.39	**0.80**	0.42	0.41	0.38	0.46
PCQ1	0.32	0.48	**0.89**	0.50	0.42	0.47
PCQ6	0.37	0.41	**0.87**	0.53	0.42	0.45
PCQ8	0.43	0.54	**0.89**	0.58	0.56	0.58
HV1	0.56	0.54	0.49	**0.82**	0.52	0.65
HV2	0.56	0.45	0.51	**0.82**	0.50	0.61
HV3	0.42	0.41	0.43	**0.77**	0.34	0.54
HV4	0.58	0.44	0.51	**0.89**	0.38	0.63
HV5	0.55	0.39	0.57	**0.85**	0.42	0.62
HV6	0.55	0.46	0.54	**0.85**	0.44	0.63
UV2	0.36	0.34	0.37	0.42	**0.87**	0.41
UV3	0.32	0.36	0.52	0.42	**0.91**	0.45
UV5	0.37	0.48	0.53	0.54	**0.85**	0.57
INTPH1	0.52	0.48	0.55	0.72	0.55	**0.98**
INTPH2	0.52	0.50	0.57	0.73	0.50	**0.98**

5.3 Structural Model and Assessment of Moderation Effects

Following confirmation of good psychometric properties in the measurement model, the explanatory power and the significance of the paths were assessed by PLS test to examine the structural model. Since PLS does not generate an overall goodness of fit index, the primary assessment of validity is by examine R^2 and the structural paths (Chwelos et al., 2001).

The interpretation of the results from PLS analysis could be done in a similar manner as traditional regression analysis. The R^2 value represents the amount of variance explained by the independent variables and indicates the predictive power of the model. It should be interpreted in the similar manner as R^2 in a standard regression analysis. The path coefficients which are equivalent to the standardized beta weights in the multiple regressions indicate the strength and direction of the relationships between the dependent and independent variables

and it should be significant and directionally consistent with expectations. Comparing to traditional regression analysis, PLS analysis is stronger since the computation of the path coefficients and variances took into consideration the interactions between all the constructs and causal links within the model. Taken together, R^2 and path coefficients indicate whether the model is structurally adequate. Statistical significance was assessed using jackknife re-sampling method with 100 re-samples (Barclay et al., 1995).

5.3.1 Hypotheses Testing for Main Effects

Figure 5-1[1] depicts the results of PLS analysis for the both main effect and interaction effects with task involvement as the moderating variable. T-values for all paths of main effects and whether it is consistent with our hypotheses are shown in **Table 5-9.** The findings supported hypotheses at the $p < 0.05$ level. The detailed discussion of the results of hypotheses testing is elaborated in the next chapter, Chapter 6.

Table 5 - 9: Summary of Hypothesis and Findings for Main Effects

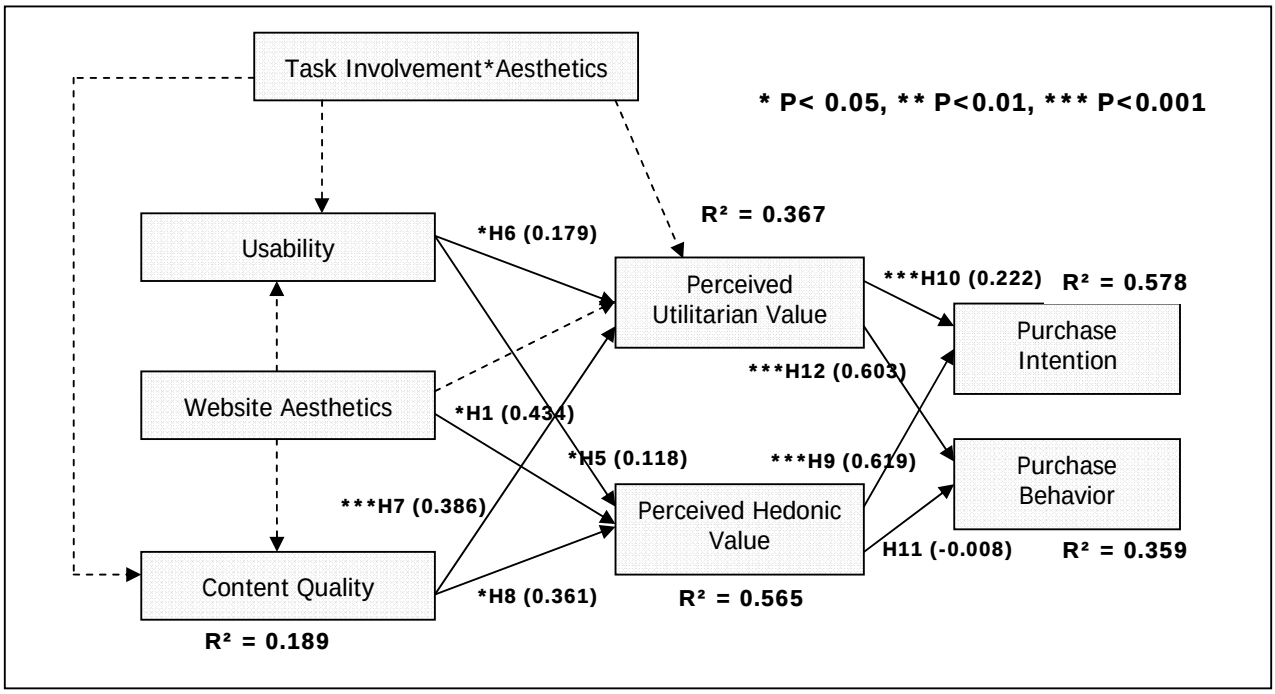
Hypothesis	t-Value	Supported
H1: Website aesthetics → Perceived hedonic shopping value	**7.50*** **	**YES**
H5: Usability → Perceived hedonic shopping value	**2.51** **	**YES**
H6: Usability → Perceived utilitarian shopping value	**2.01***	**YES**
H7: Content quality → Perceived utilitarian shopping value	**4.57*** **	**YES**
H8: Content quality → Perceived hedonic shopping value	**5.09*** **	**YES**
H9: Perceived hedonic shopping value → Purchase intention	**7.99*** **	**YES**
H10: Perceived utilitarian shopping value → Purchase intention	**2.77*** **	**YES**
H11: Perceived hedonic shopping value → Purchase behavior.	0.99	NO

[1] Figure 5-1 includes both main effects (*solid arrows*) and moderation effects (*dashed arrows*). However, only results for main effects are reported in this subsection. Moderation effects will be reported in the next subsection. In addition, since we do not hypothesized any main effect from task involvement, Figure 5-1 doesn't include this variable although it was drawn as a variable in PLS graph for model testing.

H12: Perceived utilitarian shopping value → Purchase behavior.	**7.35*** **	**YES**

*** P< 0.05, ** P<0.01, *** P<0.001**

Figure 5 - 1: PLS Structural Model



5.3.2 Assessment of the Moderation Effect

The current research considers shopping task involvement to moderate the relationship between aesthetics and content quality, aesthetics and usability as well as aesthetics to utilitarian value. Chin et al. (2003) show a method on how to deal with moderating effect using PLS. It comprises two steps. The first step is to estimate the main model, that is, the model excluding interaction terms. From this step, we will obtain the first R^2, namely, R^2 (main effect model). The next step is to multiply the main latent variable and the moderating variable and insert the result to the model as the interaction product (i.e., Task involvement*aesthetics[1] as shown in **Figure 5-1**). From this interaction model, we will obtain

[1] We standardized the independent and moderator variables that were measured on a continuous scale when we compute the interaction terms, as suggested by Chin et al., 2003

another R^2, namely R^2 (interaction model). Based on these two values, the strength of the moderation effect can be evaluated and confirmed.

In order to have a true interaction effect, main effect variables should be included in the analysis (Chin et al., 2003). Therefore, overall interaction model is shown as **Figure 5-1**. The moderation effect size can be assessed by first calculating the f^2[1] value. **Table 5-10** presents the change in R^2 from the main model to the moderated model and its moderation effect size. Furthermore, the coefficients of interaction term as shown in **Figure 5-1** for the three moderation effects have been reported in **Table 5-11**.

Table 5 - 10: The Moderation Effect Size by Comparing R^2

Latent Construct	**R^2 (main model)**	**R^2 (interaction model)**	**f^2**
Usability	0.267	0.272	0.007
Content Quality	0.183	0.209	0.033
Perceived Utilitarian Value	0.350	0.367	0.027

Table 5 - 11: Path Significance of Interaction Terms

Path	**t-Value**	**Significant**
Task Involvement*Aesthetics→ Usability	1.39	NO
Task Involvement*Aesthetics→ Content Quality	0.85	NO
Task Involvement*Aesthetics→ Utilitarian Value	**2.69*** **	**YES**

*** P< 0.05, ** P<0.01, *** P<0.001**

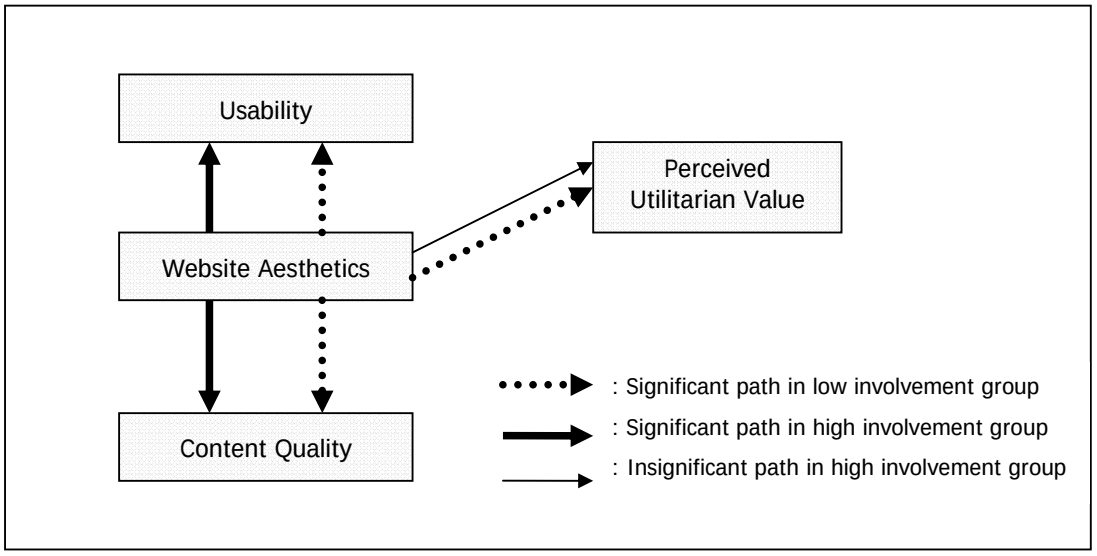
Cohen (1998) contended that interaction effect sizes are small if f^2 is 0.02, medium if 0.15, and large if 0.35. From comparing the change in R^2 for main effect model and interaction effect model, we can conclude the R^2 change for both content quality and perceived utilitarian value meet the minimum effect size for there to be an interaction effect. However,

[1] f^2 = [R^2 (interaction model) - R^2 (main effect model)] / [1- R^2 (main effect model)]. Interaction effect size are small if 0.02, medium if 0.15, and large if 0.35 (Cohen, 1988)

Table 5-11 only shows a significant path for Task Involvement*Aesthetics towards utilitarian value. Therefore, only this moderation effect is significant. Although the effect size for this significant moderation is rather small, Chin et al. (2003) mentioned that even a small interaction effect can be meaningful despite the small value of f^2.

Further confirmation of this moderation effect was carried out by comparing the coefficient significance of path from aesthetics to utilitarian value in high and low task involvement group respectively (See **Figure 5-2**). Aesthetics was found as a significant predictor to utilitarian value in low task involvement and aesthetics lost its predicting power in high task involvement. However, aesthetics is found to be a significant factor on usability and content quality in both high and low task involvement settings.

Figure 5 - 2: Path Comparison for Moderating Effect of Task Involvement



CHAPTER 6

DISCUSSIONS AND IMPLICATIONS

In this chapter, the discussions and interpretation of the findings are presented. It further discusses the statistical results obtained for the dependent variables under the various hypotheses. Important issues and new findings related to these variables will be discussed and compared to findings from previous studies. Lastly, implications for both research and practice are also elaborated.

6.1 Summary of the Findings

Chapter 5 summarizes the study's findings, which answer the research questions. First, among the three design factors, content quality and usability are found to be constant and significant factors which affect the overall shopping experience, specifically, through realization of hedonic and utilitarian value of the shopping trip. Aesthetics is shown as an important factor to affect hedonic value. Although its predicting power to utilitarian value appears significant in low involvement setting, it weakens as shopper is more involved with the shopping task.

Secondly, by considering both hedonic and utilitarian shopping value, effects of perception on both values on purchase intention and behavior were investigated. It is found that both values showed strong predicting power towards intention to purchase at the online store. Our current results also indicated that only utilitarian shopping value is a constantly significant factor of a shopper's eventual purchase behavior.

Lastly, one of our three proposed moderation effects was tested as significant. “What is beautiful is usable” clause is extended to “what is beautiful is of higher content quality”. However, our attempt to conclude the dependency on task involvement of these two relationships didn’t produce the expected results.

6.2 Discussion of Results

6.2.1 Purchase Intention

The explanatory power of the structural model was determined based on the amount of variance in the endogenous construct for which the model could account. Approximately 57.8% of variance in intention to purchase was accounted form both shopping values in the model [$R^2 = 0.578$] under high task involvement. This confirms our **H9** and **H10** which emphasize the importance of the complete shopping values on purchase intention. This result echoes with other findings in the offline retailing context: it is more likely for a shopper to express purchase intent in a store when he not only acquired what he needs successfully but also enjoyed the whole shopping process (Childers at al., 2001).

6.2.2 Aesthetics, Usability, Content Quality and Shopping Values

As for antecedents of hedonic shopping value, the current results indicated significant positive links between all three independent variables and hedonic shopping value. This suggests that not only the appealing visual effect from aesthetics (**H1**) but a sense of flow attributed to usability (**H5**) as well as gratification from reading the content (**H8**) all contribute significantly to the hedonic shopping value.

For utilitarian shopping value, most of the variance is from perception of usability (**H6**) and content quality (**H7**). This is consistent with our prior hypotheses and empirical evidences

which identified the importance of usability and quality of the content on the utilitarian quality of the shopping trip (Morke and Nielson, 1999; Keeny, 1999; Madu and Madu, 2002).

Other than the two main effects on utilitarian value from usability and content quality, a significant moderation effect of task involvement on influence of aesthetics to utilitarian value is found in the current study. This finding confirms the effect of task involvement on how design factor of the store affects shopping experience. As discussed in the **chapter 3**, when a shopper is lowly involved with a shopping task, a peripheral route was more likely to be taken to form judgment of the utilitarian shopping value other than central route. In a high task involvement setting, effect of aesthetics on utilitarian value weakens as it is a peripheral judgment. This further confirms the effect of involvement on deciding which route dominates the realization or formation of the judgment and perception of an issue according to ELM. However, following a similar reasoning used on relationship between aesthetics to utilitarian value, task involvement neither affects the influences from aesthetics to usability nor to content quality (i.e. **H2a** and **H3a**). In high task involvement setting, significant influences (t-value = 7.08) on usability from aesthetics is found; Aesthetics also significantly influenced perception of content quality with t-value = 4.09. Similar predicting power from aesthetics to usability and content quality was found in low task involvement group. In our hypothesis, the main reason for high elaboration and increased cognition of brain activities is personal involvement. The contradicting results from aesthetics towards usability and aesthetics towards content quality could be due to the following three reasons. First, despite the research on halo-effect or inferential belief formation, none of them has shown the consideration of the moderating effect from involvement. Conversely, scholars who study ELM have made substantial contribution on involvement which decides if peripheral route or central route is taken to form one's judgment and belief on an issue or object. Secondly, we

suspect that insignificant moderating effect for task involvement on both aesthetics towards usability and aesthetics towards content quality link could be due to usability and content quality are also quality of the website as well as aesthetics. However, the influence of aesthetics to utilitarian value is from a quality of the website to a perception of the shopping trip. Although this is not grounded with any empirical evidences both now and past, it certainly worth further effort to investigate. Thirdly, significant influence from aesthetics to usability and content quality regardless of involvement may also be due to the lack of strong manipulation on task involvement. This may also explain the relatively smaller effective size reported on the moderating effect of task involvement on aesthetics towards utilitarian value. Lastly, the present study neither measured objective usability and content quality nor manipulated them. Therefore, lack of such measurement may also increase the influences from aesthetics which appears to be the sole factor to both usability and content quality.

6.2.3 Purchase Behavior

Purchase behavior is another dependent variable of the present study. Several notable findings are found related to purchase behavior. Utilitarian value is found to be the only main factor for the eventual purchase behavior. There is no significant relationship found between perceived hedonic value and online purchase behavior. One of the possible explanations could be that for a shopper to actually purchase the product, he pays more attention on if the store presents the product catalog effectively as well as efficiently. The conveniences and effectiveness in locating the product and accurately providing the product information ultimately decides an actual acquisition of the product. Conversely, hedonic experience such as enjoyment and emotional satisfaction by the store design and atmosphere could only induce their purchasing intent which then may influence their future purchasing-behaviors.

6.3 Implications

This subsection presents several implications of the present study. Theoretical implications are discussed in terms of the overall conceptual framework and perspectives of each of the three independent variables as well as the effects of task involvement. Practical implications are discussed in term of suggestions to Web designers especially online store owners and e-commerce web designers.

6.3.1 Implications for Research

Several theoretical implications are worth mentioning. Firstly, this study proposes a conceptual model describing how web design factors influences online purchase intention and behaviors. The result of this study provides support for the proposed conceptual model. Studies that investigate the effect of website design on user satisfaction, user attitude, and purchase intention have been documented (e.g. McKinney et al., 2000; Koufaris, 2002). The current study is different from the previous studies in which it does not treat the web design factors per say, but in the form of the perceived hedonic and utilitarian shopping value i.e., a complete perspective on shopping experiences. This shows consistence with Holbrook's (1986) view on shopping values perceived by shoppers, which is characterized by shoppers' interactions with an environment, and indicated by both the event's usefulness and an appreciation of its activities on the way.

Secondly, scales to measure overall aesthetics, usability and content quality were developed in the present study. We examined the relations of the items to assess the three constructs in order to confirm the discriminant and the concurrent validities of the scales. Although this study was not designed to develop scales for three design factors per say, validation should occur in a cumulative, on-going process, involving multiple methods and samples in order to further utilities the scales.

Thirdly, the present study extended the usage of scales of measuring shopping values from offline into an online context. Babin et al (1994) also mentioned that their scales developed to assess both hedonic and utilitarian value are questionable to be adapted easily into other consumption context. In the case of online shopping, some items from the original scales were removed due to reliability issues in the present study. However, further effort is needed in order to provide additional support to validate the scales to measure online hedonic and utilitarian shopping values.

Next, the present study highlighted the salience of aesthetics in online store design and is the first attempt to consider task involvement as a moderator to investigate the influence of website aesthetics. From the current study, we concluded the strong effects of website aesthetics to other design factors (i.e., usability and content quality) and hedonic shopping value as well as utilitarian value in a low task involvement situation. It extends the existing literature on what is beautiful and usable by not only providing further empirical evidences but also investigating the influences of aesthetics on other design factor other than usability (i.e., content quality). Past studies on the effects of aesthetics to other design factors didn't consider the possible influences of task involvement (e.g.: Tractinsky et al., 2000; van Der Heijden, 2003). Although the results of the present study did not show any support on the effects of task involvement on the aesthetics towards usability and aesthetics towards content quality links, effects of aesthetics to utilitarian value of the shopping trip have well indicated the moderating role of task involvement. Although at the moment we can not make any conclusion on the difference of inferential belief formation and ELM, this partial evidence brought our attention to further investigate the underlying mechanism in explaining such effects. In addition, other individual difference such as need for cognition was not measure in the present study. Past studies on need for cognition has highlighted its influence on level of

elaboration actually taking place when one is making a judgment on the issue or object. Further research could consider this individual difference as another moderator to further investigated further on all relationships, aesthetics towards usability, aesthetics towards content quality and aesthetics towards utilitarian value.

6.3.2 Implications for Practice

The findings of the present study provide several important implications to practice for web designers and online store owners. First of all, the fact that user perceive aesthetically appealing interfaces as indicative of usable systems and having higher content quality calls for an integrative approach to website design to emphasize on aesthetic aspects. Besides the effects of aesthetics to other design factors, aesthetics also shows its influences onto hedonic and utilitarian (in low task involvement) shopping value. Therefore, the advantage of aesthetic interfaces is likely to not only improve the shopping experiences but also increase shopper's purchase intention from the online store.

Secondly, regardless of the shopping task involvement, content quality of the online store is found to be a constant and important factor to the both hedonic and utilitarian shopping values. Online store owner or designer need to recognize the distinctive roles of the content such as product information, shopping policy and other information-based web content in the store. On the other hand, no matter how thorough the information content of an online store is, a shopper who has difficulty in searching and getting the desired information is likely to have a frustrating shopping experience. This is especially important when shopper is highly involved with the shopping task. Therefore, one can add value and create a complete shopping experience to user by taking care of both content quality and overall usability of the online store.

Lastly, task involvement is novel in this study. Although it may pose some difficulties to identify shopper's involvement level when visiting a website, certain efforts such as number of clicks, time spent on the site could be some indicators of user's involvement. Along with the further advances in CRM technology, website owner and designer could better gauge user's involvement on each shopping visit to the site. After gauging shopper's involvement with the shopping trip, personalization of the website by varying levels of aesthetics, usability and content quality could be made in accordance to the results obtained from the present study. This personalization will then be extremely useful to increase purchase intention, eventual purchase and revenues of the online store.

CHAPTER 7

CONCLUSION

This chapter concludes the entire study. The strengths and limitation of this study are highlighted. These considerations should be included when interpreting the evidence presented.

7.1 Strength of Study

This study has several important strengths. First, the study has high statistical power. The power of statistical techniques increases with sample size and decreases with sample variation (Cohen, 1998). A considerable large number of student subject in the experimental survey raises the sample size and hence, statistical power. The subjects do not differ very much across their key characteristics, thereby, achieved a better control. Second, the study was undertaken in a well organized and managed manner in terms of survey procedures and administration. The entire screen movement of each subject was captured and recorded to ensure the validity of each data point and it also serves to better gauge the duration of each subject's shopping task. Lastly, the selection of the survey websites and results of pilot test ensured its generlizability.

7.2 Limitation of Study

One limitation of the present study is the usage of students as subjects. Although students are identified as representing a typical Internet shopper segment (Iposo-Reid, 2001), the external validity to other age group which are not investigated in this study may pose some generalization difficulties of the current results. Secondly, selection of the websites which were used for the current study may also contribute to threats to external validity of the

current findings. Another limitation of this study is the potential common method variance that is associated with the model testing. Since each subject answered multiple questions regarding the three independent variables at one time, there are likely common method variances among the observed variables (Bagozzi, 1990). That is, the inter-construct correlations might increase, while intra-construct correlation (reliability) might decrease (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). Therefore, readers are cautioned to better interpret the current findings with more prudential judgment based on theories.

7.3 Concluding Remarks

The objective of the current study is to explore the website design factors: aesthetics, usability and content quality affecting one's online purchase intention and behavior. A review of the literature was conducted on the HCI and website design to help us better understand various theories and approaches on studying effect of website design factors onto online shopping experience and purchase intention.

The proposed conceptual model based on information quality and system quality model by incorporating both hedonic and utilitarian shopping values from offline shopping literature to explain online shoppers' intention to purchase and subsequent purchase behavior. The proposed model and its constructs were operationalized through an extensive process of qualitative and quantitative assessment to ensure its validity. The model was investigated empirically using experimental survey collected from 165 student subjects. Measurement and structural models were then statistically assessed by using SPSS and Partial Least Squares (PLS) analysis respectively. The data was analyzed to assess instrument validity and test the hypotheses.

Our result indicated that online purchase intention was constantly affected by both hedonic and utilitarian shopping value. Perception of an online store design factors were found to affect both hedonic and utilitarian value. Aesthetics was found as a constant and major factor to influence a shopper's hedonic value such as enjoyment, fun and pleasantness in both task involvements setting. Perceived content quality also found as an importance factor to both hedonic and utilitarian shopping value. Furthermore, task involvement was introduced to investigate its moderating effects on aesthetics towards usability, aesthetics towards content quality and aesthetics towards utilitarian value links. The implications of these results were discussed for both theory and practice. In addition, limitations and directions for future research stimulated by this study were also suggested.

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APPENDIX A: Questionnaire I

BACKGROUND INFORMATION QUESTIONNAIRE

Section 1: General Background	
Name:	
Gender: ☐ F ☐ M	Age:
Year of Study: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ Master ☐ Ph.D. ☐Other	School/Department:
What is your first language? ☐ English ☐ Other language, please specify	
If English is not your first language, how long have you been living in English-speaking countries? _____Years	
Section 2: Background on Internet Shopping	
1. How often do you use the Internet each DAY, on average? ☐ <30 minutes ☐ 30 minutes ~ 1 hour ☐ 1 ~ 2 hours ☐ >2 hours	
2. How long have you been using the Internet? ☐ <1 year ☐ 1 ~ 2 years ☐ 2 ~ 4 years ☐ >4 years	
3. Have you ever made any purchase on the Internet? ☐ Yes ☐ No If so, how much did you spend Internet shopping in the past 6 months? ☐ zero ☐< $100 ☐ between $100 and $500 ☐ between $500 and $1,000 ☐ > $1,000	

	Strongly Disagree						**Strongly Agree**
4. I am comfortable with using the Internet.	1	2	3	4	5	6	7
5. I am familiar with using the Internet.	1	2	3	4	5	6	7
6. I am familiar with online shopping.	1	2	3	4	5	6	7

APPENDIX B: Questionnaire II

Department of
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A Study of Online Shopping

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Instructions:

This survey consists of **3 main parts, Part I, II and III**. It requires you to answer questions on your perceptions of website design and attitude toward the website after completing the shopping task on the website which you have just visited.

Part I.

1. Did you ever hear of this website before? YES / NO

2. Did you visit this website before? YES / NO

(1) If **YES**, when was your last visit to this website?

☐ < 1 month ☐ 1 ~ 3 months ☐ > 3 months ☐ 3~6 months ☐ >6 months ☐ N.A

(2) If **YES**, Did you purchase anything on this website before? YES / NO

(3) If **YES**, from 1-7, how do you rate your familiarity with this website?

1 2 3 4 5 6 7

*Not **familiar at all*** *Moderately **familiar*** *Very Familiar*

Part II. Manipulation Checks

Task Involvement (Zaichkowsky, 1985)	**Strongly Disagree**						**Strongly Agree**
1. This shopping task is important to me. **[MC1]**	1	2	3	4	5	6	7
2. This shopping task means a lot to me. **[MC2]**	1	2	3	4	5	6	7

Part III.

→ **"This website" stated below refers to the website you've just seen.**

Perceived Aesthetics (self)	**Strongly Disagree**						**Strongly Agree**
6. This website is aesthetically appealing. **[PA1]**	1	2	3	4	5	6	7
7. This website looks attractive. **[PA2]**	1	2	3	4	5	6	7
8. This website is beautiful. **[PA3]**	1	2	3	4	5	6	7
9. This website looks lovely. **[PA4]**	1	2	3	4	5	6	7
10. This website looks professional. **[PA5]**	1	2	3	4	5	6	7
11. Overall, I find this website has a pleasant look and feel. **[PA6]**	1	2	3	4	5	6	7
Perceived Usability (self)	**Strongly Disagree**						**Strongly Agree**
12. This website is highly usable. **[PU1]**	1	2	3	4	5	6	7
13. This website is highly functional. **[PU2]**	1	2	3	4	5	6	7
14. This website is highly practical. **[PU3]**	1	2	3	4	5	6	7
15. In general, this website is user-friendly. **[PU4]**	1	2	3	4	5	6	7
Usability (McKinney, et al.,2002)	**Strongly Disagree**						**Strongly Agree**
16. This website has a simple layout for its content. **[PU5]**	1	2	3	4	5	6	7
17. This website is easy to use. **[PU6]**	1	2	3	4	5	6	7
18. This website is well organized. **[PU7]**	1	2	3	4	5	6	7
19. This website has a clear design. **[PU8]**	1	2	3	4	5	6	7

→ **Content of the website** refers to the text information, such as product information, shipping policy, contact us, about us and other text information displayed on the website

Perceived Content Quality (Self)	**Strongly Disagree**						**Strongly Agree**
20. This website contains high quality information about product and service. **[PCQ1]**	1	2	3	4	5	6	7
21. This website delivers poor information about product and service. **[PCQ2]**	1	2	3	4	5	6	7
22. The information about product and service on this website is of professional standard. **[PCQ3]**	1	2	3	4	5	6	7
23. The information of product and service on this website is up-to-date. **[PCQ4]**	1	2	3	4	5	6	7
24. In general, the product and service information on this website is highly understandable and clear. **[PCQ5]**	1	2	3	4	5	6	7
25. In general, this website provides comprehensive product and service information. **[PCQ6]**	1	2	3	4	5	6	7
26. In general, the product and service information on this website is highly reliable. **[PCQ7]**	1	2	3	4	5	6	7
27. In general, the product and service information on this website is highly useful. **[PCQ8]**	1	2	3	4	5	6	7
Perceived Usefulness Koufairs (2002) and Venkatesh and Davis (1996)	**Strongly Disagree**						**Strongly Agree**
28. This website improves my online shopping performance. **[USF1]**	1	2	3	4	5	6	7
29. This website increases my shopping productivity in online shopping. **[USF2]**	1	2	3	4	5	6	7
30. This website increases my online shopping effectiveness. **[USF3]**	1	2	3	4	5	6	7
31. I find this website useful. **[USF4]**	1	2	3	4	5	6	7

Perceived Ease of Use Koufairs (2002) and Venkatesh and Davis (1996)	**Strongly Disagree**						**Strongly Agree**
32. I find this website easy to use. **[PEOU1]**	1	2	3	4	5	6	7
33. Learning to use this website is easy for me. **[PEOU2]**	1	2	3	4	5	6	7
34. My interaction with this website is clear and understandable. **[PEOU3]**	1	2	3	4	5	6	7
35. It would be easy for me to become skillful at using this website. **[PEOU4]**	1	2	3	4	5	6	7
Shopping Enjoyment Koufairs (2002)	**Strongly Disagree**						**Strongly Agree**
36. I find my experience with this website interesting.**[SE1]**	1	2	3	4	5	6	7
37. I find my experience with this website enjoyable. **[SE2]**	1	2	3	4	5	6	7
38. I find my experience with this website exciting. **[SE3]**	1	2	3	4	5	6	7
39. I find my experience with this website fun. **[SE4]**	1	2	3	4	5	6	7
Perceived Hedonic Value (Babin et al., 1994)	**Strongly Disagree**						**Strongly Agree**
40. This online shopping trip was truly a joy.**[HV1]**	1	2	3	4	5	6	7
41. I would shop at this website, not because I have to, but because I wanted to shop on this website. **[HV2]**	1	2	3	4	5	6	7
42. This online shopping trip was truly like an escape to me. **[HV3]**	1	2	3	4	5	6	7
43. Compared to other things I could have done, the time spent on this online shopping was truly enjoyable. **[HV4]**	1	2	3	4	5	6	7
44. I enjoyed being immersed in the products displayed on this website. **[HV5]**	1	2	3	4	5	6	7
45. I enjoyed this shopping trip for its own sake, not just for the items I have purchased or examined. **[HV6]**	1	2	3	4	5	6	7

46. I had a good time because I was able to act on the "spur-of-the-moment". **[HV7]** ↓ ↓ ↓ ***Spur-of-the-moment*: in response to an unforeseen need. Or suddenly, without planning in advance.	1	2	3	4	5	6	7
47. During the online shopping trip, I felt the excitement of the hunt. **[HV8]**	1	2	3	4	5	6	7
48. While shopping on this website, I was able to forget other problems. **[HV9]**	1	2	3	4	5	6	7
49. While shopping on this website, I felt a sense of adventure. **[HV10]**	1	2	3	4	5	6	7
50. This online shopping trip was not a very nice time out. **[HV11]**	1	2	3	4	5	6	7
Perceived Utilitarian Value (Babin et al., 1994)	**Strongly Disagree**						**Strongly Agree**
51. I feel that I have accomplished just what I wanted to on this shopping trip. **[UV1]**	1	2	3	4	5	6	7
52. I couldn't find what I really needed on this website. **[UV2]**	1	2	3	4	5	6	7
53. While shopping on this website, I found the items and information I was looking for. **[UV3]**	1	2	3	4	5	6	7
54. I think a shopper may get disappointed because she may have to go to another store to complete her shopping. **[UV4]**	1	2	3	4	5	6	7
55. The online trip was effective in helping me find the item(s) that I wanted. **[UV5]**	1	2	3	4	5	6	7
Attitudes towards Shopping Online Grazioli and Jarvenpaa (2000) and Coyle and Thorson (2001)	**Strongly Disagree**						**Strongly Agree**
56. Overall, I like shopping on this website.**[ATT1]**	1	2	3	4	5	6	7
57. Overall, shopping on this website is a good idea. **[ATT2]**	1	2	3	4	5	6	7
58. Overall, shopping on this website is appealing to me. **[ATT3]**	1	2	3	4	5	6	7
59. Overall, I have formed a favorable impression toward shopping on this website. **[ATT4]**	1	2	3	4	5	6	7

Intention to return Coyle and Thorson (2001)	**Strongly Disagree**						**Strongly Agree**
60. I would like to revisit this website in the future. **[INRN1]**	1	2	3	4	5	6	7
61. Next time I need to shop for a personal electronic product, I would like to use this website. **[INRN2]**	1	2	3	4	5	6	7
62. Next time I need to shop for a personal electronic product, I would like to use a website with characteristics similar to those of this website. **[INRN3]**	1	2	3	4	5	6	7
63. I would use websites with similar characteristics to those of this website in the future. **[INRN4]**	1	2	3	4	5	6	7

Assuming that your mailing address is as stated on the given slip earlier, and that address is covered by this website's standard delivery service, please answer questions 63 to 66

Intention to purchase Coyle and Thorson (2001)	**Strongly Disagree**						**Strongly Agree**
64. It is likely that I will buy an electronic product from this website in the future.**[INTPH1]**	1	2	3	4	5	6	7
65. I will probably purchase product(s) from this website next time when I need an electronic product. **[INTPH2]**	1	2	3	4	5	6	7
66. Suppose that a friend calls me to get my advice in his/her search for an electronic product, I would recommend him/her to buy the product from this website. **[INTPH3]**	1	2	3	4	5	6	7
67. I will definitely try product (s) on this website. **[INTPH4]**	1	2	3	4	5	6	7
Cognitive Trust Komiak and Benbasat (2007) Kim and Benbasat (2006) McKnight et al. (2002)	**Strongly Disagree**						**Strongly Agree**
68. I trust that this online store keeps customers' best interests in mind. (B) **[CT1]**	1	2	3	4	5	6	7
69. I trust that this online store cares about its customers. (B) **[CT2]**	1	2	3	4	5	6	7
70. The online store has the ability to meet most of my needs as a customer when I purchase or examine product (C). **[CT3]**	1	2	3	4	5	6	7
71. This online store does not have sufficient expertise and resources to do business on the internet. (C) **[CT4]**	1	2	3	4	5	6	7
72. I believe that this online store keeps its promises and commitments. (I) **[CT5]**	1	2	3	4	5	6	7

73. I would characterize this online store as honest. (I) **[CT6]**	1	2	3	4	5	6	7
74. This online store is trustworthy. **[CT7]**	1	2	3	4	5	6	7
Emotional Trust Komiak and Benbasat (2007)	**Strongly Disagree**						**Strongly Agree**
75. I feel secure about relying on this website for shopping. **[ET1]**	1	2	3	4	5	6	7
76. I feel comfortable about relying on this website for shopping. **[ET2]**	1	2	3	4	5	6	7
77. I feel content about relying on this website for shopping. **[ET3]**	1	2	3	4	5	6	7
SERVQUAL	**Strongly Disagree**						**Strongly Agree**
78. I believe that shopping on this website is reliable.**[SEQ1]**	1	2	3	4	5	6	7
79. I think that this website I purchased from performs the service right. **[SEQ2]**	1	2	3	4	5	6	7
80. I trust this shopping website to deliver the product on time. **[SEQ3]**	1	2	3	4	5	6	7
81. I believe that this shopping website is responsive to my needs. **[SEQ4]**	1	2	3	4	5	6	7
82. In the case of any problem, I think the website will give me prompt service. **[SEQ5]**	1	2	3	4	5	6	7
83. I was satisfied with the payment options (e.g., different credit cards) at the store I shopped. **[SEQ6]**	1	2	3	4	5	6	7
84. I think this shopping website can address the specific needs of each customer. **[SEQ7]**	1	2	3	4	5	6	7
85. I felt confident about the online purchase decision at this website. **[SEQ8]**	1	2	3	4	5	6	7
86. I feel safe in my transactions with this shopping website. **[SEQ9]**	1	2	3	4	5	6	7
87. In general, I believe this shopping website provides excellent service. **[SEQ10]**	1	2	3	4	5	6	7

88. In general, I believe this shopping website delivers professional service. **[SEQ11]**	1	2	3	4	5	6	7
89. In general, I believe this shopping website performs high quality service. **[SEQ12]**	1	2	3	4	5	6	7

Satisfaction (McKinney, et al.,2002)	**Strongly Disagree**						**Strongly Agree**
90. After shopping on this website, I am very satisfied.**[SA1]**	1	2	3	4	5	6	7
91. After shopping on this website, I am very pleased. **[SA2]**	1	2	3	4	5	6	7
92. Shopping on this website made me feel contented. **[SA3]**	1	2	3	4	5	6	7
93. After shopping on this website, I feel delighted. **[SA4]**	1	2	3	4	5	6	7
94. I will definitely recommend this website to my friends. **[SA5]**	1	2	3	4	5	6	7
95. After shopping on this website, I will never use it again. **[SA6]**	1	2	3	4	5	6	7

Please ensure you have completed all the questions

-THANK YOU VERY MUCH FOR YOUR PARTICIPATION-

APPENDIX C: Sample Websites Used in this Study

Figure C-1: www.crutchfield.com

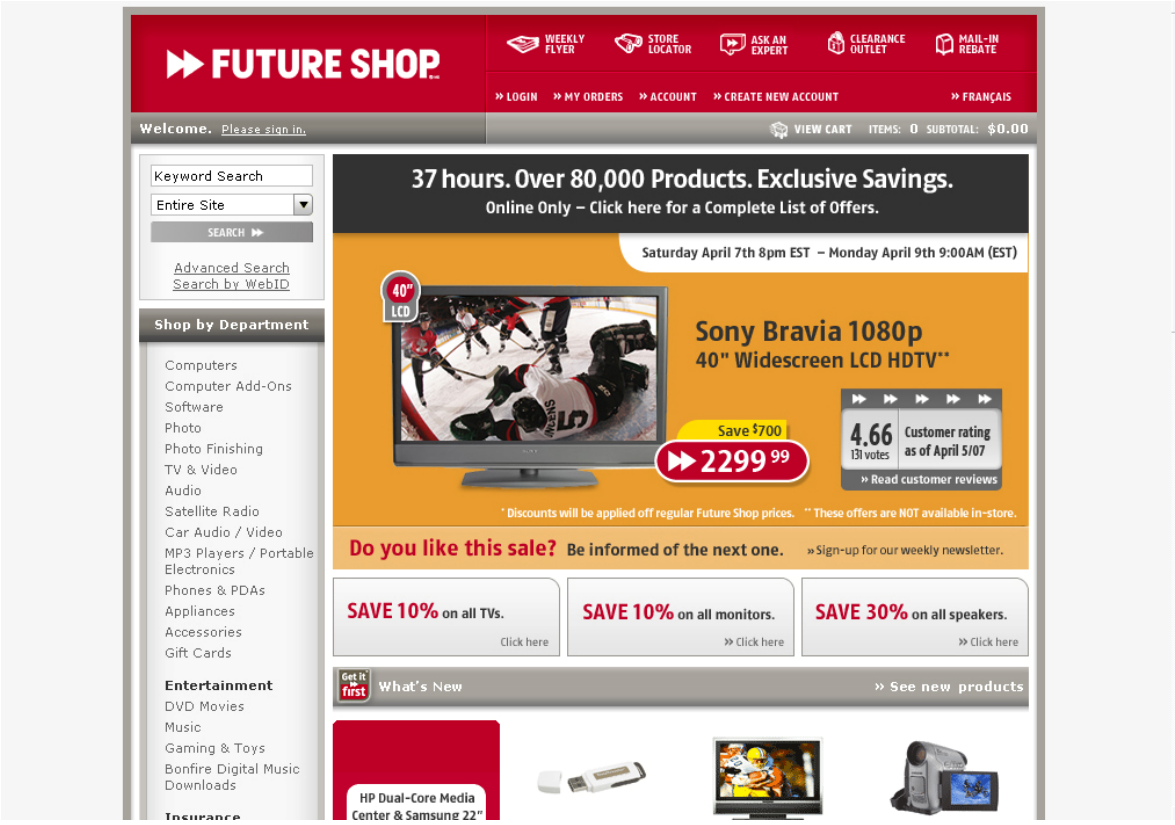

Figure C-2: www.futureshop.ca

Figure C-3: www.pigpony.com

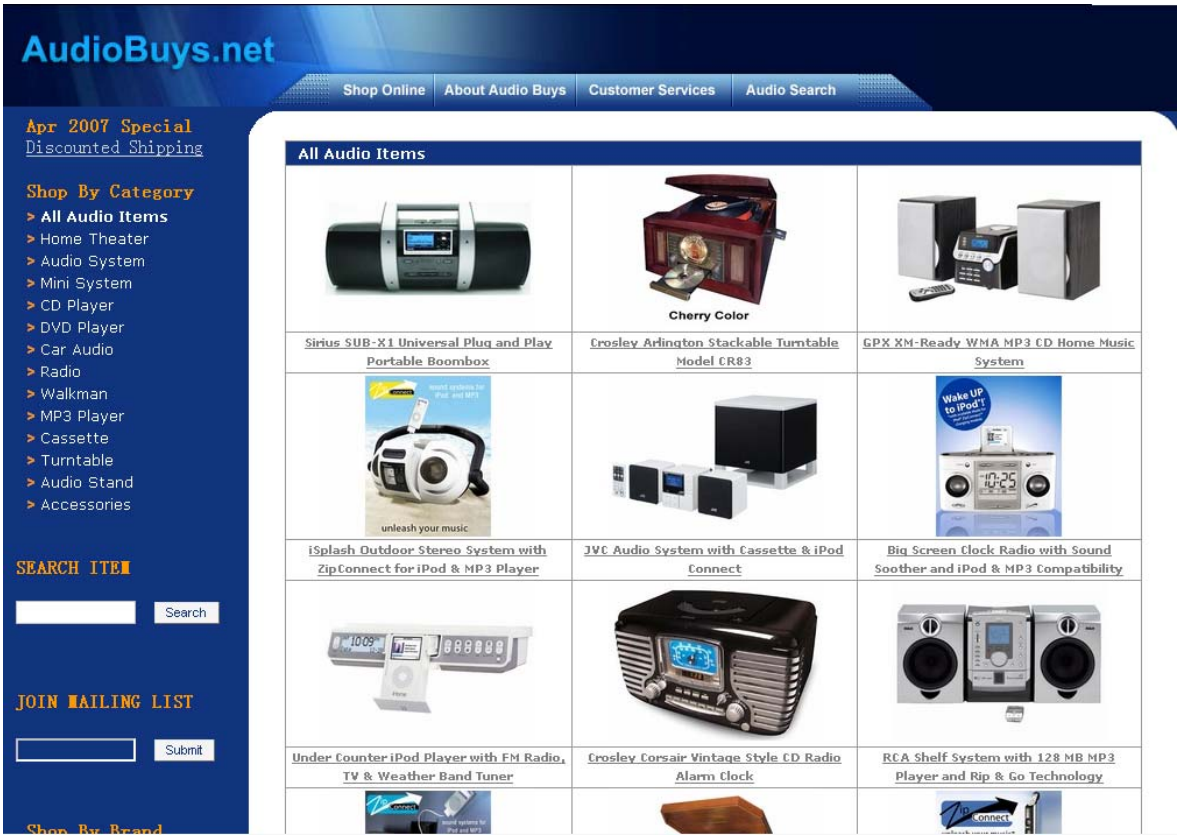

Figure C-4: www.audiosbuys.net

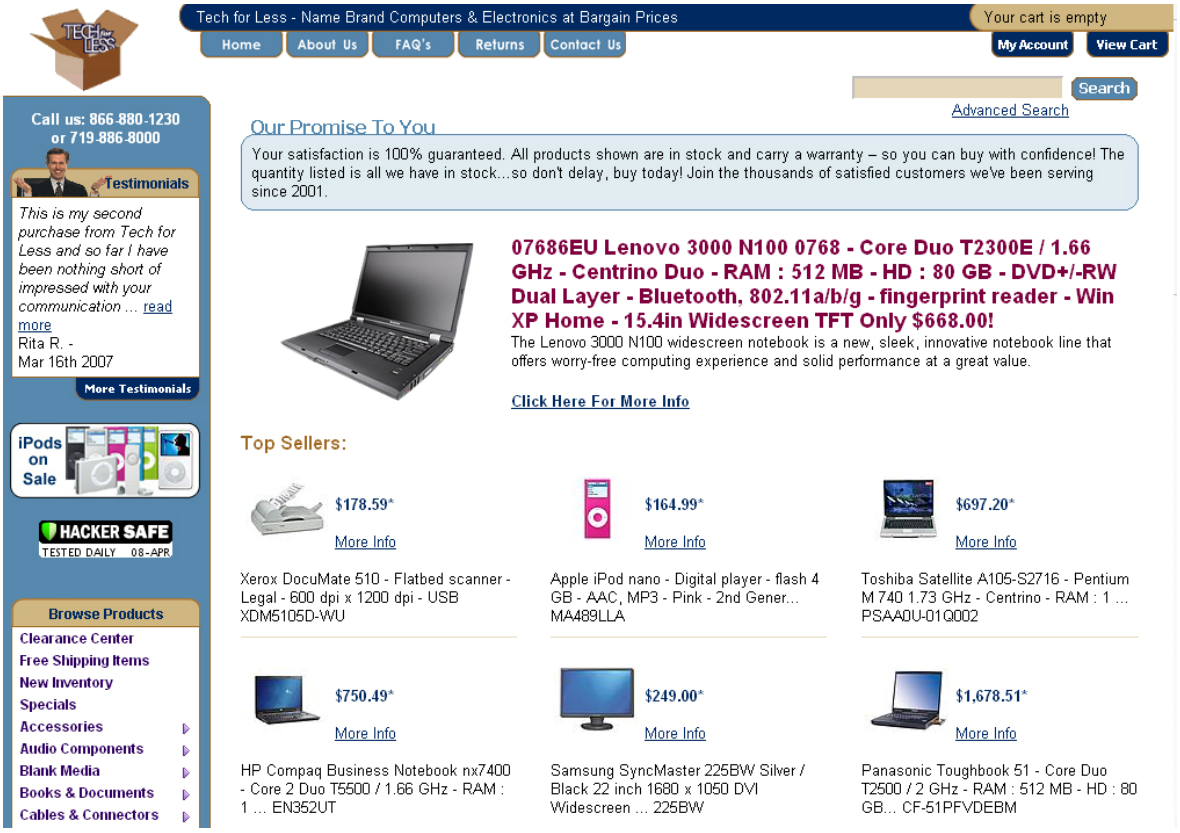

Figure C-5: www.techforless.com

Figure C-6: www.mp3playerstore.com

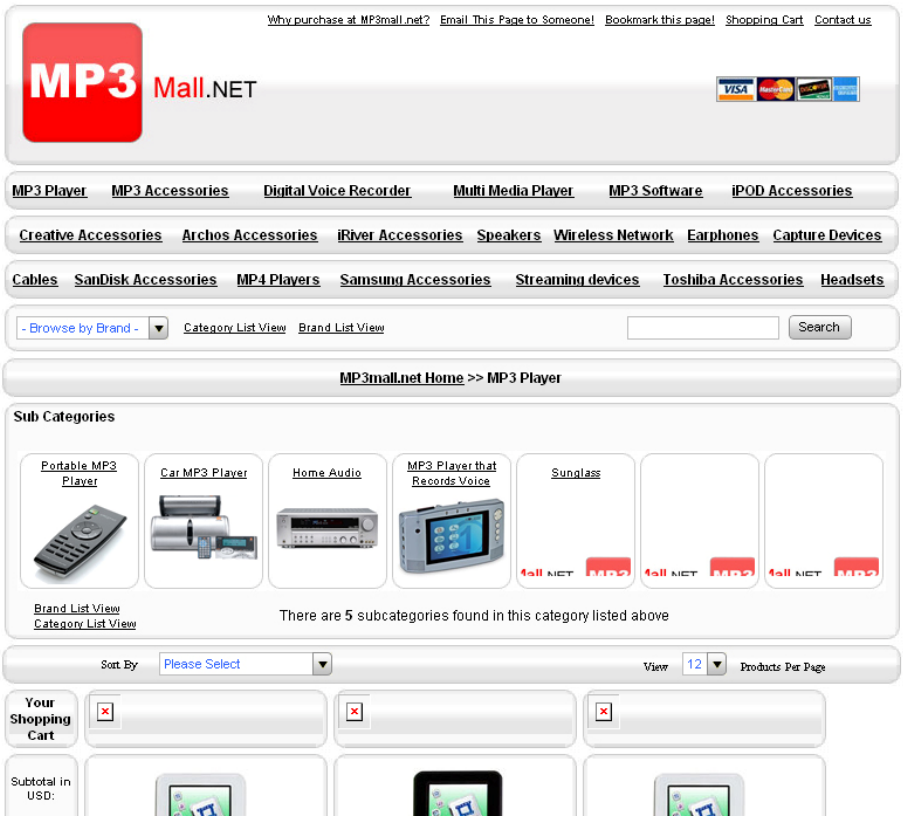

Figure C-7: www.mp3mall.net

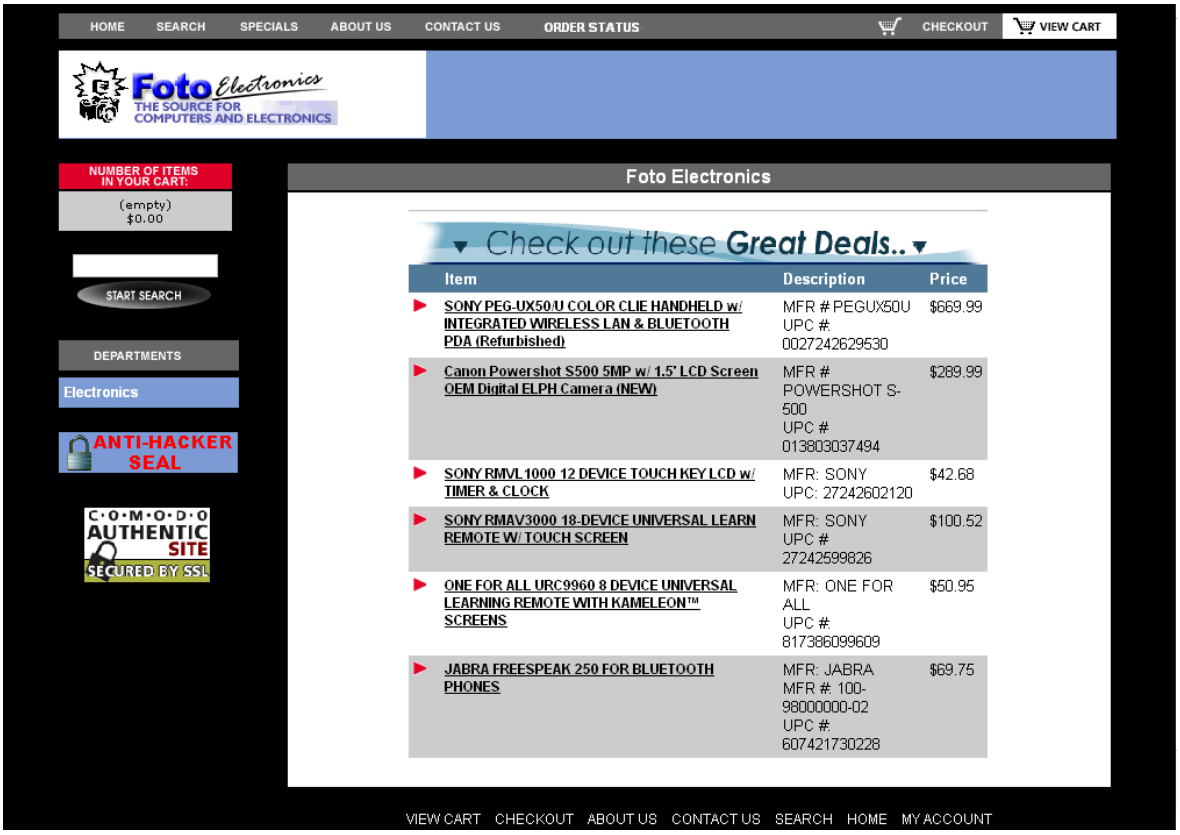

Figure C-8: www.fotoelectronics.com

Figure C-9: omega-electronics.stores.yahoo.net

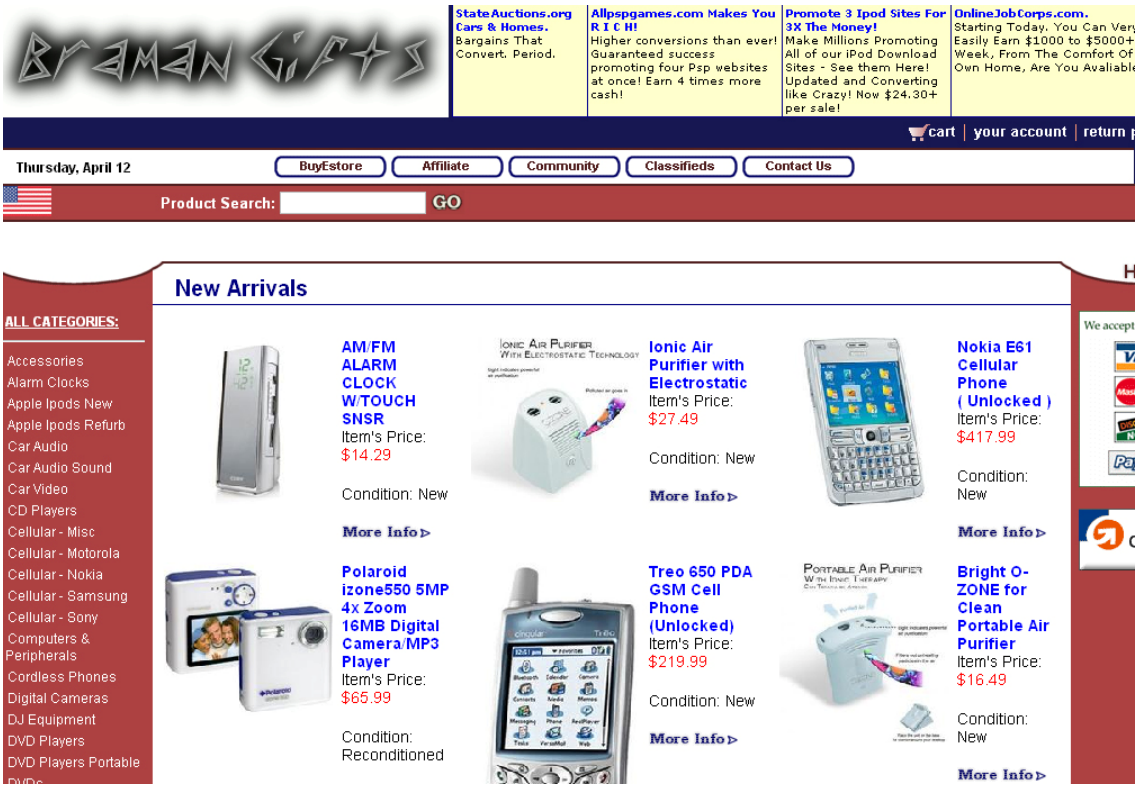

Figure C-10: www.bramansgifts.net

Figure C-11: www.refurbdepot.com

APPENDIX D: Shopping Outcome Sheet

Shopping Outcome

FORM 1
Have you found a product of your preference? (This product will be the one which you will buy from this site now) ☐ **YES** ☐ **NO** **If YES**, please fill in **FORM 2** **If NO**, you are done!

FORM 2
Please **fill in the details** of the product you have selected **Name:** **Brand:** **Price:** **Delivery charge**: **Delivery time needed:**