ABSTRACT. The objective of the study is to help online marketers in designing effective online stores. To accomplish that task we explore the mediating role of product types in consumers’ evaluations of different characteristics of websites. Products are categorized using the FCB grid and web design features are identified based on past literature. To address the study objective we empirically test consumers’ opinions and analyze the data using MANOVA procedures followed by ANOVA and t tests. The results of this research show that both product types and website characteristics influence how consumers view websites. Overall however, navigation, product comparison, and quality of information provided on the websites were found to be the most important across different product types.

KEYWORDS. Consumer evaluation, FCB grid, online marketing, website design
Forrester Research predicts that online business-to-consumer sales will rise from $172 billion in 2005 to an estimated $329 billion by 2010 (Johnson, 2005). Knowledge of what makes consumers purchase online will dictate which retailers will profit most from this predicted exponential rise in online spending (Falk, Sockel, and Chen, 2005; Davis, 1989). Although dozens of studies have identified different drivers of online sales (e.g., website infrastructure quality, vendor trust, price, advertising), website design has been consistently found to be a key factor contributing to website success (Boyer and Hult, 2006; Falk et al., 2005; Katerattanakul, 2002; Liu and Arnett, 2000; Madeja and Schoder, 2002; Palmer, 2002; Song and Zahedi, 2005; Wan, 2000).

Past research suggests that different website features (e.g., navigation, ease of purchase) weigh differently in the consumer decision to purchase (Katerattanakul, 2002; Page and Lepkowska-White, 2002; Palmer, 2002; Song and Zahedi, 2005). All of these studies examine websites in general, regardless of the types of products they sold. Past studies; however, suggest that the consumer’s decision to shop online is largely affected by the product for which they are shopping (Girard, Korgaonkar, and Silverblatt, 2003; Lokken et al., 2003; Chih-Chung and Chang, 2005) and therefore different products may require different types of websites with different features. The research reported here addresses this issue and tests which web factors are most important to consumers when they evaluate different types of products online.

**RELEVANT LITERATURE AND HYPOTHESIS**

In the following sections we present a theoretical foundation for this study. We discuss past findings regarding characteristics of websites important in online stores and product typologies used in the previous research and adopted in this study.

**Website Characteristics**

Prior research has shown the importance of web design (Falk et al., 2005) in online stores. Numerous studies have uncovered an extensive array of variables that help explain the relationship between website design and customer purchase intention. These factors
include download delay, navigability, site content, interactivity, responsiveness, site promotion, advertising, customer service, external opinions, ease of use, purchase facilitation, customer enjoyment, product quality, media richness/variety, consumer trust, playfulness, reliability, quality information, personalization, experiential nature, privacy, security, selection, and pricing (Boyer and Hult, 2006; Katerattanakul, 2002; Liu and Arnett, 2000; Page and Lepkowska-White, 2002; Palmer, 2002; Song and Zahedi, 2005; Thakur and Summey, 2005; Urban, Sultan, and Qualls, 2000; Wan, 2000).

Despite identifying factors important to online purchase behavior, disagreement exists with respect to the level of importance of each of these variables. Addressing this point, some research suggests that dividing these variables into categories (medium characteristics, vendor characteristics, product/service characteristics, marketer communications, and website characteristics) allows for a better assessment of the their importance (Lepkowska-White, Page, and Youndt, 2004; Page and Lepkowska-White, 2002). To that end, several studies have found website design elements to be fundamental in developing positive web perceptions (Katerattanakul, 2002; Lepkowska-White et al., 2004; Liu and Arnett, 2000; Madeja and Schoder, 2002; Palmer, 2002; Song and Zahedi, 2005; Wan, 2000). Consequently, such characteristics are the focus of the current study.

Website characteristics are defined generally as “factors that are important to creating a positive web experience” (Page and Lepkowska-White, 2002, p. 236). Majority of past research suggests that they include navigability, quality information, product comparison, personalization, experiential nature, ease of ordering, and external subjective opinions (Brown, Tilton, and Woodside, 2002; Chaterjee, 2001; Lepkowska-White et al., 2004; Page and Lepkowska-White, 2002).

**Navigation**

Page and Lepkowska-White define navigation as the “extent that consumers are able to find desired information readily” (2002, p. 236), and research has shown it can have a significant effect on customer behavioral intentions (Wan, 2000; Zhang and Myers, 2005). The effectiveness of website navigation dictates how much content a user will be exposed to in a given amount of time. For example, Kau, Tang, and Ghose (2003) found that only 7.6% of their internet-user sample located desired content a “high” percentage of
the time. A website that is difficult to navigate might cause users to view only the home page and bypass any possibility for purchase (Zhang and Myers, 2005). Navigability can be quantified through the presence of navigation tools (search, filtering, and comparison tools) and the effectiveness of navigational structure (Huizingh, 2000; Markellou, Rigou, and Sirmankessis, 2005; Van den Poel and Buckinx, 2005; Wan, 2000).

**Quality Information**

Literature suggests that quality information, (i.e., the textual content of a website) is a key characteristic of website success (Chen, Gillenson, and Sherrell, 2002; Huizingh, 2000; Katerattanakul, 2002; Liu and Arnett, 2000; Liu, Arnett, Capella, and Taylor, 2001; Palmer, 2002). Lepkowska-White et al. (2004) found that a high level of quality information leads to customer purchase intention and positive attitudes toward websites. Yang and Lester (2004) found that website variables related to informational content were among the most preferred by consumers. However, additional research attention is still needed to understand the optimal amount of informational content. Ranganathan and Ganapathy (2002) propose that websites should present just enough quality information for a consumer to make the decision to purchase, and providing too much information results in a discouraging informational overload.

**Product Comparison**

Prior research on product comparison is relatively sparse. Yang and Lester (2004) reported student subjects preferred websites with a large variety of goods and multiple models of each product, which suggests the need for effective product comparison. Research also suggests that the presence of tools to aid consumers in product selection is seen as valuable to web patrons (Ranganathan and Ganapathy, 2002). However, Lepkowska-White et al. (2004) discovered that product comparison had no significant effect on young buyers’ purchase intention.

**Level of Personalization**

Personalization of content is when an online entity tailors pages based on past customer actions, the geographic location of the user,
and the users access interface. An emerging capability of the internet, personalization can be a powerful tool to manage customer relationships and affect customer purchase intentions by delivering appropriate material to each unique user (Rohm and Swaminathan, 2004; Thakur and Summey, 2005; Zhang and Myers, 2005). With personalization, websites can use the principles of one-to-one marketing on a large scale, with minimal labor cost (Fink, Koenemann, Noller, and Schwab, 2002). Additionally, mobile devices that have access to the internet (such as mobile phones and PDAs) have smaller screens, slower data rates, and limited input capabilities, as compared with computers; and therefore depend on personalization of websites to deliver appropriate content (Billsus, Brank, Evans, Gladish, and Pazzani, 2002).

**Experiential Features**

As opposed to catalogs or television shopping programs, the internet can provide an interactive experience, which is enjoyable for consumers and has shown to have a significant effect on consumer purchase intentions (Lester, Forman, and Loyd, 2005; Palmer, 2002; Zhang and Myers, 2005). There are a variety of ways that websites can engage customers in an experiential way. Page and Lepkowska-White (2002) define “experiential” as simply the degree to which a website is enjoyable or fun, while other authors have used different examples of experiential characteristics including sensual stimulation, playfulness, interactivity, presence of multimedia, customization, and entertainment (Chen, Gillenson, and Sherrell, 2002; Katerattanakul, 2002; Liu et al., 2001; Palmer, 2002; Parsons and Conroy, 2006).

**Ease of Ordering**

Shipping, ease of payment, and time/effort savings in the transaction process, are all factors that comprise the concept “ease of ordering.” Their effect on customer purchase intentions has been examined in the literature (Esper, Jensen, Turnipseed, and Burton, 2003; Liu et al., 2001; Yang and Lester, 2004; Yang, Lester, and James, 2007), and research has found that ease of ordering has led to customer satisfaction and purchase intention (Katerattanakul, 2002; Liu et al.; Song and Zahedi, 2005).
External Subjective Opinions

Shoppers tend to respect and trust the opinions of their fellow consumers (Fong and Burton, 2006). The use of these subjective opinions of other internet users are manifested in community website features such as discussion boards, chat rooms, and peer product reviews (Brown et al., 2002; Chatterjee, 2001; “Does It Matter,” 2007; Fong and Burton, 2006;). Past studies that examined external subjective opinions have found that it significantly affects behavioral purchase intentions (Brown et al, 2002; Chatterjee, 2001; Chiou and Cheng, 2003; Song and Zahedi, 2005; Van den Poel and Buckinx, 2005. Customers who use community features are nearly ten times more likely to return to the site, almost twice as likely to repeat a purchase, and although they only make up one third of all internet users, community members purchase items that account for two thirds of all internet sales (Brown et al.). Community features are also capable of sparking what is commonly referred to as eWOM, or online word of mouth advertising. eWOM is the process by which customer’s opinions of products are influenced by other customers without direct contact with the company that creates the product and has been found to have a significant effect on consumer purchase intentions.

PRODUCT TYPES

Past studies suggest that the impact of website characteristics on purchase intention may be affected by product type (Lester et al., 2005; Song and Zahedi, 2005). However, few past studies of website characteristics have focused on product type as an important variable. Song and Zahedi reported website characteristics have an important effect on purchase intention; however, they told their participants to pretend they were buying a single assigned product, while later expressing the need for a multiproduct study. Lester et al. indicated that consumers preferred to purchase certain products online, but did not discuss website characteristics. The current study explores how product type, categorized using prior research, affects consumers’ view of website characteristics.

Past research has used a variety of methods of categorizing products including grouping products by general product characteristics
and by the thought processes that go into purchasing of those products (Girard et al., 2003; Ilfeld and Winer, 2002). The current study groups products into thinking and feeling categories using the FCB grid, a tool widely used in marketing literature and easily adaptable to the internet arena (Ilfeld and Winer; Parsons and Conroy, 2006; Yoon and Kim, 2001).

The FCB grid was developed in 1980 by Richard Vaughn, the director of the advertising firm Foote, Cone, and Belding. Vaughn developed a $2 \times 2$ grid to explain consumer mental processes concerning different product types (Vaughn, 1980). He used involvement (high to low), and the thinking or feeling nature of a product purchase decision to classify goods into four quadrants (Ratchford, 1987).

The current study examines the thinking/feeling product dimensions. Thinking goods require at least some level of rational thought (e.g., considerations about costs, commitment, financing, etc.) which may be intense (when people are buying a house) or less intensive (when; for instance, purchasing a toaster). Feeling purchases are perceived to be emotional and often involve ego-fulfillment thought processes. They may be unimportant, but still emotionally driven, like fast food, or salty snacks; or important and emotionally driven like expensive perfumes or a sports car (Ratchford, 1987). Taking into consideration all of these factors the current research hypothesizes that product type affects the way customers view website characteristics as seen in exhibit one. Hence:

\[ H1: \] The level of importance of different website characteristics will vary with a product type.

**METHODS**

To test the above hypothesis, the current study used a pretest and a main study which are described below.

**Pretest**

In order to determine which products best represent thinking goods and feeling goods, a pretest was conducted with a convenience sample of 70 undergraduate students. A brief pen and paper survey
was used asking participants to rate 33 products on the thinking, involvement, and feeling dimensions in order to accurately place them in the FCB-style grid. Based on the results of this pretest and the \( t \)-test analysis, books read for pleasure, CDs, DVDs, posters, winter hats, perfume/cologne, and candy were good representatives of feeling goods; and concert tickets, air travel, computer, textbooks, digital cameras, televisions, and palm pilots were good representatives of thinking goods. These products were subsequently used in the main study.

**Main Study**

A convenience sample of 249 undergraduate students was used. All subjects were between 18- and 29-years old and 56% of them were female. Over 31% of the sample shopped online at least four to five times and the rest shopped on the internet less than four times. The survey was given only to those students who had shopped online in the last 6 months. The students who had not shopped online in the last 6 months were given a different survey so they would not distract the students filling out the real survey.

The survey was organized into two parts. The first part consisted of two multiple choice questions asking participants to identify either a thinking or a feeling product which they have purchased online most frequently in the last 6 months from a list provided (and based on the pretest). If a subject was unable to identify any product they were directed to fill out one open-ended question which asked about any other products that they might have purchased. The second section consisted of 5-point Likert multi-item measures for consumer attitudes toward the website characteristics and manipulation checks for product types. At the end of the survey demographic questions were asked.

To measure customer attitudes toward website features the survey utilized measures developed by Lepkowska-White et al. (2004, see Appendix). For external subjective opinions a new multi-item measure was developed based on past literature review (Brown et al., 2002; Chaterjee, 2001; Fong and Burton, 2006). All scales were anchored with (1) *strongly agree* and (5) *strongly disagree*. Cronbach’s alpha analysis showed that all the scales had high levels of reliability ranging from 0.67 to 0.96 (see Appendix). Factor analysis showed that the scales were unidimensional as all the
items loaded on desired factors with factor loadings of above 0.53 (see Appendix).

**DATA ANALYSIS AND RESULTS**

**Main Analysis and Results**

To analyze the results, the reactions to websites were submitted to the 2 (high/low feeling dimension) \times 2 (high/low thinking dimension) MANOVA. The GLM SAS procedure was used because of the difference in cell sizes. MANOVA was followed with ANOVA and planned comparisons.

The results of MANOVA show that there were no significant interactions between the feeling dimension and the thinking dimension. Subsequent analysis showed significant main effects for thinking goods \((F=7.53, p<.00)\) and feeling goods \((F=4.71, p<.00)\).

ANOVA results (see Table 1) showed that for thinking goods this significance is attributed to ease of navigation \((F=4.91, p<.05)\), product comparison \((F=5.10, p<.05)\), quality of information \((F=50.76, p<.00)\), and external opinions of consumers \((F=4.52, p<.05)\). For feeling goods these differences were due to ease of

<table>
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<tr>
<th>TABLE 1. ANOVA Results</th>
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<td><strong>Independent Variable</strong></td>
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navigation \((F=4.72, p<.05)\), experiential website features \((F=14.35, p<.00)\), and ease to order from a website \((F=18.13, p<.00)\).

Tables 1 and 2 show that when consumers purchased high thinking goods navigation, product comparison, quality of information, and external opinions were more important to them than when they were purchasing low thinking goods at \(p<.05\). When consumers were purchasing high feeling goods, navigation, ease of ordering, and experiential aspects of a website were more important to them than when purchasing low feeling goods.

The rather high means for all variables in Table 2 show that all these factors are relatively important to consumers. However, since the \(t\) test showed that consumers’ perception of different characteristics of websites varies with product types, subsequent analysis was conducted to further test which factors are most important for which types of goods. In the following section we discuss the results of the subsequent \(t\)-test analysis that compared each of websites characteristics with others for each type of product.

For customers who purchased high thinking products navigation (mean = 4.24) was significantly more important than product comparison, quality of information, and experiential aspects of a website at \(p<.01\). Product comparison (mean = 3.58) was significantly more important to consumers than experiential aspects of the site, ease of order, and external opinions of others at \(p<.05\). Quality information (mean = 4.08) was significantly more important than experiential website elements (mean = 3.13), ease of ordering (mean = 3.22), and product comparison (mean = 3.58) at \(p<.05\). Product comparison (mean = 3.58) was significantly more important than experiential

<table>
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<tr>
<th>Types of Products</th>
<th>Navigation</th>
<th>Product Comparison</th>
<th>Quality Information</th>
<th>Personalized</th>
<th>Experiential</th>
<th>Ease of Ordering</th>
<th>Ext. Subjective</th>
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<td>Low (n=100)</td>
<td>4.07</td>
<td>3.31</td>
<td>3.46</td>
<td>3.04</td>
<td>3.00</td>
<td>3.23</td>
<td>2.60</td>
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<tr>
<td>High (n=144)</td>
<td>4.24</td>
<td>3.59</td>
<td>4.01</td>
<td>3.18</td>
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<td>3.22</td>
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<td>Feeling</td>
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<td>Low (n=139)</td>
<td>4.10</td>
<td>3.49</td>
<td>3.84</td>
<td>3.14</td>
<td>2.89</td>
<td>3.03</td>
<td>2.77</td>
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<tr>
<td>High (n=247)</td>
<td>4.23</td>
<td>3.44</td>
<td>3.81</td>
<td>3.10</td>
<td>3.31</td>
<td>3.48</td>
<td>2.86</td>
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aspects of a website (mean = 3.13), ease of ordering (mean = 3.22), and external opinions (mean = 2.85) at \( p < .05 \). Ease of ordering (mean = 3.22) was significantly more important than external opinions (mean = 2.95), experiential aspects of the site (mean = 3.13), and personalization (mean = 3.18) at \( p < .01 \). Finally, personalization was more important that external opinions and experiential aspects of websites while the later were more important to consumers than external opinions at \( p < .01 \).

For customers who purchased low thinking products navigation (mean = 4.07) was significantly more important than quality of information (mean = 3.46), experiential aspects of websites (mean = 3.00), and ease of order (mean = 3.23) at \( p < .05 \). Personalization (mean = 3.04), and experiential website characteristics (mean = 3.00) were both significantly more important than external subjective opinions (mean = 2.60) at \( p < .05 \).

For customers who purchased high feeling products navigation (mean = 4.27) was significantly more important than product comparison (mean = 3.45), quality of information (mean = 3.80), and experiential aspects of websites (mean = 3.32) at \( p < .05 \). Product comparison (mean = 3.45) was significantly more important than external subjective opinions (mean = 2.87) at \( p < .01 \). Ease of ordering (mean = 3.47) was significantly more important to consumers than personalization (mean = 3.11) and both these factors were significantly more important to consumers than external opinions (mean = 2.87) at \( p < .05 \).

For customers who purchased low feeling products navigation (mean = 4.1) was more important than product comparison (mean = 3.49), quality of information (mean = 3.84), and ease of ordering (mean = 3.03) at \( p < .01 \). Quality of information (mean = 3.84) was significantly more important than product comparison (mean = 3.49) at \( p < .01 \). Product comparison (mean = 3.49) was significantly more important than experiential web features (mean = 2.89) and ease of ordering (mean = 3.03) at \( p < .05 \). Personalization (mean = 3.14) was more important than experiential website elements (mean = 2.89) and external subjective opinions (mean = 2.77) at \( p < .01 \). Ease of ordering (mean = 3.03) was evaluated higher than experiential site features (mean = 2.89) and external subjective opinions (mean = 2.77) at \( p < .05 \). Lastly, experiential website elements were significantly more important than external subjective opinions at \( p < .01 \).
CONCLUSIONS AND FUTURE RESEARCH

Overall our study shows that the website factors tested in this research are considered important by consumers. This implies that online marketers should pay attention to them when they design their websites. The study shows that there are some differences in how consumers evaluate different aspects of websites depending on the types of products they advertise.

When selling high thinking products website designers should focus on navigation, quality information, product comparison, and quality of information. This is not surprising as consumers who are buying thinking goods that are important to them often look for easy to access good quality information in order to evaluate these goods thoroughly. For low thinking goods navigation is the most important to consumers. Websites with high feeling products should focus heavily on navigation, quality of information, product comparison, and ease of ordering. Here experiential aspects of websites are also important. For websites designed to sell low feeling products, navigation and quality information should be a priority, while product comparison is also very important.

Across the board the most important element of website design is navigation. Specific elements of navigation online include an effective search tool that allows customers to find the product they are looking for quickly and easily (Boyer and Hult, 2006; Van den Poel and Buckinx, 2005). Navigational structure should also be a concern. The most effective navigational structure is an extensive network, where all pages lead to all other pages, and back to the home page in a way that is easy to understand (Huizingh, 2000). It is important to note that in our study navigation was more important for high thinking/feeling goods than low thinking/feeling goods and therefore online marketers of high thinking/feeling goods should pay special attention to this aspect of websites.

Product comparison and quality information were also evaluated higher than other website factors for most types of goods (expect low thinking goods). Websites that excel at product comparison do not just provide an easy way to juxtapose products, they also provide decision aids to help consumers decide which product is right for them (Ranganathan and Ganapathy, 2002). When it comes to website information, some authors have said “content is king” and providing information is the most fundamental goal of a website (Huizingh, 2000). Other authors have highlighted the importance of not only presenting quality information, but also displaying information in a
way that is easy for users to comprehend and digest (Yang and Lester, 2004; Yang, Lester, and James, 2007).

Finally, for high feeling goods ease of ordering was also more important than other features to consumers. Websites that are easy to order from allow customers to quickly place orders, track their orders, and give customers easy payment options (Liu et al., 2001; Yang and Lester, 2004).

Interestingly the least important characteristic of a website was external opinions of others posted on sites. Since quality of information posted online was viewed as important to consumers it seems that they attach more value to information presented by companies rather than other buyers. Alternatively, since this is still a relatively new feature on many sites, people may still not be used to it. Future studies should investigate the importance of this factor.

In addition it seems that many of these characteristics are more important when consumer purchase high thinking/feeling products rather than low thinking/feeling products. Navigation, product comparison, quality of information, and external opinions of others are significantly more important to buyers of high thinking goods rather than low thinking goods. Moreover, navigation, experiential features of websites, as well as ease of order were more important when shopping for high feeling goods rather than low feeling goods.

Future research is needed to examine different age and professional consumer groups to generalize these findings. Different product typologies could be used to examine the influence of other product characteristics on the online shopping behavior. Future research may also look at the way shopping orientations affect consumer evaluations. Moreover, different groups of website attributes (i.e., medium characteristics, vendor characteristics, product/service characteristics, and marketer communications) could be examined.

In summary, this study shows that there are some commonalities and differences in consumers’ evaluations of websites depending on types of products these websites present. In response to the exponential rise in online sales it is projected that there will be an increase in competition among online retailers and therefore online marketers should be sensitive to these similarities and differences. This study may help those who want to be most responsive and who want to create the most effective websites for their consumers.
REFERENCES


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ACCEPTED: August 3, 2007
APPENDIX. Scales and Reliabilities

**Navigation** \( \alpha = .81 \)
- This products’ website is easy to navigate.
- Once at this products’ website, I am able to easily find the information that I am looking for.
- It is easy to locate desired information on this products’ website.
- This products’ website has shortcuts that enable me to move easily where I want to go.

**Product Comparison** \( \alpha = .82 \)
- It is easy to compare products on this products’ website.
- I can easily compare the characteristics of the products offered on this products’ website.

**Quality Information** \( \alpha = .90 \)
- The information on this products’ website is important to me.
- The information on this products’ website is meaningful to me.
- The information on this products’ website is helpful to me.
- The information on this products’ website is useful to me.
- The information on this products’ website is relevant to my needs.

**Personalized** \( \alpha = .81 \)
- This products’ website uses my personal information to market products specific to me.
- This products’ website recognizes me each time I visit the site.
- This products’ website personalizes its offerings to me.

**Experiential** \( \alpha = .87 \)
- This products’ website is fun to surf.
- This products’ website is enjoyable to use.
- This products’ website is interactive.
- This products’ website is stimulating.

**Ease of Ordering** \( \alpha = .69 \)
- It is easy to return products on this website.
- It is easy to cancel orders on this website.
- It is easy to check my order on this website.

**External Subjective** \( \alpha = .95 \)
- This products’ website presents other online users' opinions of products.
- This products’ website contains comments from community members.
- This products’ website allows customers to discuss products online.
- This products’ website contains product reviews posted by other users.