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Cross Product Generalizability of Shopping Site Judgments

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CROSS PRODUCT GENERALIZABILITY OF SHOPPING SITE JUDGMENTS

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ABSTRACT

The purpose of this study was to examine the generalizability of attribute performance and attribute importance ratings across product classes. Data were collected, with the use of an online survey, from 313 respondents of which 287 were U.S. college students and 26 were close acquaintances of the research team. Seventy-four percent of respondents were male, all respondents had at least four years of internet use experience, and 44% claim to make at least one online shopping purchase per month. Twenty-six web site attributes were selected from the Variegated Inventory of Site Attributes (VISA) (Blake, Hamilton, Neuendorf & Murcko, 2010) to be rated for attribute performance and attribute importance by respondents in this study. Attribute performance ratings were gathered based on www.Frys.com for the consumer electronic product class and www.Powells.com for the bookstore product class. Also, attribute importance ratings were gathered for the consumer electronic product class, the bookstore product classes, and the general importance domain. An exploratory factor analysis and a series of confirmatory factor analyses were used to identify, confirm, and provide marginal evidence for the generalizability of an underlying four factor, 22 attribute performance structure across the consumer electronic and bookstore product classes. On the other hand, this study failed to identify an underlying attribute importance structure with the use of an exploratory factor analysis. As a result, no structural level assessments of the generalizability of attribute importance ratings could be assessed. Repeated measures MANOVA analyses revealed that the majority of web site features are rated significantly differently across product classes for both performance and importance. Correlation

analyses demonstrated that the relationship between attribute ratings for the book and consumer electronic product classes tended to be stronger for performance than importance. Also, attribute importance correlations varied across the domains of book, consumer electronic, and general importance.

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CHAPTER I

LITERATURE REVIEW

Many companies have already entered the online shopping market or are in the process of transitioning from brick-and-mortar retailing to online retailing. To illustrate this transition, companies like Barnes & Noble, which have been traditionally brick-and-mortar retailers, are shifting efforts toward online retailing after experiencing approximately five percent declines in sales in 2010 (Milliot, 2010). Borders Group Inc., the second largest bookstore chain, has recently filed bankruptcy due to debts of at least \$1.29 billion. The company posits that the cause of the bankruptcy was a failure to handle online sales at a critical time (Czurak, 2011). Amazon.com, a leading online retailer for the book and consumer electronic product classes, has realized a net sales climbs of as much as 39% within the past two years (Kopytoff, 2011). Some experts claim that Amazon.com is able to beat out brick-and-mortar competition due to having a price advantage over brick-and-mortar stores like Best Buy and specialty electronic stores (Verdon, 2011). Additionally, the Internet has revolutionized the way consumers rent and purchase music, television shows, and movies. All of this media can now be purchased and downloaded digitally through Internet commerce web sites. No longer do consumers have to travel to the store to

buy these products. Apple's iTunes is a market leader in this area through owning a 64% share in this \$385 billion industry (Pomerantz, 2011).

Making the move from brick-and-mortar to online retailing does not guarantee success for a company. Psychologists have known for almost a decade that products with primarily "geometric" properties—with dominant attributes of size and shape; vision is highly diagnostic in evaluating the product—are neither preferred to be purchased online nor offline by consumers. However, products consisting of primarily "material" properties—with dominant attributes of texture, roughness, hardness, weight and temperature; physical inspection is highly diagnostic in evaluating the product—are preferred to be purchased in the offline environment. Interestingly, though, a web site feature such as a detailed product description has the ability to reduce the preference for offline purchase of products with primarily material characteristics (McCabe & Nowlis, 2003). This study and many others throughout the online shopping literature have shown the utility of features of e-tailer web sites in helping companies differentiate themselves from competitors in the online shopping realm. For instance, researchers at IBM surveyed 32,000 consumers to identify that consumers value customization services in online shopping (Jackson, 2010). Further, Best Buy's web site now offers a promotion each week called the "deal-of-the-day" in order to attract customers within the consumer electronic market (Wolf, 2011).

A great deal of research has focused on the performance and importance of these web site features for e-commerce web sites. The performance literature (notably, Barnes & Vidgen, 2001; Cheung & Lee, 2005; Elliot & Fowell, 2000; Goi, 2010; Griffith & Krampf, 1998; Huang, 2005; Huang, Le, Li & Gandha, 2006; Jiang & Rosenbloom, 2005; Kim & Stoel, 2003; Loiacono, Watson & Goodhue, 2007;

Musante, Bojanic & Zhang, 2008; Oppenheim & Ward, 2006; Pan, Ratchford & Shankar, 2002; Seock & Chen-Yu, 2007; Seock & Norton, 2008; Szymanski & Hise, 2000; Zhao, Truell & Alexander, 2006) and the importance literature (notably, Belanger, Hiller & Smith, 2002; Blake, Hamilton, Neuendorf & Murcko, 2010; Butler, Dyer, Jia & Tomak, 2008; Demangeot & Broderick, 2010; Fink & Laupase, 2000; Guo & Salvendy, 2009; Hasan, 2010; Hwang, Jung & Salvendy, 2006; Kuzic, Giannatos & Vignjevic, 2010; Levin, Levin & Weller, 2005; Liao, Proctor & Salvendy, 2009; Lightner, 2003; Liu & Arnett, 2000; Lohse & Spiller, 1998; McCabe & Nowlis, 2003; Mukhopadhyay, Mahmood & Joseph, 2008; Papatla, 2011; Torkzadeh & Dhillon, 2002; Yang & Lester, 2005; Zhang & von Dran, 2002; Zhang, von Dran, Blake & Pipithsuksunt, 2001) have been conducting studies for over a decade to build up understandings about the performance and importance of web site features in online markets. By establishing a better understanding of the role web site features play in online markets, both companies and consumers benefit. Knowing the nature of the importance and performance of web site features in a given market can help web-designers for a company design web sites in a way that can increase sales, promote customer loyalty, advertise deals, and provide opportunities for other business endeavors. For consumers, benefits can be realized through product selection, lower prices, entertainment, and other aspects of the shopping experience. The present study seeks to add to the literature pertaining to consumer judgments of the performance and importance of web site features to potentially help both consumers and companies realize such benefits as those just described.

The literature review portion of this paper will flow as follows: 1) shopping web site attribute performance structures discussed in the e-commerce literature, 2) shopping web site attribute importance structures discussed in the e-commerce

literature, 3) formal scales that have been discussed in the e-commerce literature for measuring the performance and/or importance of web site features, 4) The Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010) as a list of attributes and dimensions that is available for use by future online shopping researchers, 5) studies relating to the generalizability of performance and importance judgments of web site features across various domains, and 6) justification for the present research. Then, the purpose of the present research will be discussed.

1.1 Shopping Web Site Attribute Performance Structures

Throughout the e-commerce literature, many researchers have sought to identify an underlying structure which consumers use to rate the performance of web site attributes. To explore this underlying structure, most researchers have used exploratory factor analysis on a series of performance judgments of shopping site attributes. The exploratory factor analysis technique is useful in grouping together variables or web site attributes that are similar in order to reduce the data from a larger number of attributes down to a smaller number of dimensions of attributes, whereby attributes grouped together tend to be measuring the same thing. A major problem with past literature has to do with the inconsistency of shopping site attributes that have been used to rate the performance of shopping web sites. As a result, it is hard to compare the findings of one study to that of another study which may have used an entirely different web site attribute list.

The variety of attributes used in past literature has directly affected the dimensions arrived at in past exploratory factor analyses of performance ratings of shopping sites. Kim and Stoel (2004) gathered performance ratings of 21 attributes for the apparel product class. Their exploratory factor analysis revealed a six dimension solution. The dimensions they found include: web appearance,

entertainment, information fit-to-task, transaction capability, response time, and trust. In contrast, Seock and Chen-yu (2007) gathered performance ratings of 19 shopping site attributes for the apparel product class. The results of their exploratory factor analysis pointed to a five factor solution consisting of the following dimensions: product information, customer service, privacy/security, navigation, and auditory experience/comparison shopping.

On the other hand, Pan, Ratchford and Shankar (2002) were only concerned with gathering performance ratings for 10 attributes. Performance ratings of attributes were gathered for web sites selling products that ranged from books to consumer electronics. The exploratory factor analysis in this research suggested a five factor solution. The dimensions were reliability of the e-tailer, shopping convenience, product information, shipping and handling, and pricing policy. Further, Seock and Norton (2008) collected performance ratings for 35 attributes pertaining to the clothing product class. The results of their factor analysis yielded a five factor solution with dimensions of product information, customer service, privacy/security, navigation, and auditory.

A still different approach was exercised by Zviran, Glezar and Avni (2006) who assessed the performance of publish/subscribe, online shopping, customer self-service, and trading web sites. These researchers focused on performance ratings of 12 attributes and arrived at a four factor solution with dimensions of content, navigation, search, and performance. A final researcher focused on the performance of 23 bi-polar rating scales and identified a two factor solution consisting of dimensions of hedonic and utilitarian (Huang, 2005).

A great deal of variability exists among studies regarding which attributes were rated in deriving the performance structures. Some studies used attributes that

other studies did not use in deriving the structures. Also, other studies used attributes that are indirectly related or have a level of overlap with features used in other studies in deriving these performance structures. While some researchers used a web site attribute called “visually pleasing design” (Kim & Stoel, 2004; Seock & Chen-yu, 2007; Seock & Norton, 2008), others either did not use or indirectly used this attribute in deriving an attribute performance structure (Huang, 2005; Pan et al., 2002; Zviran et al., 2006). Some researchers used an attribute called “ease of use” (Kim & Stoel, 2004; Zviran et al., 2006). However, other did not or used features indirectly related to “ease of use” (Huang, 2005; Pan, et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008). Additionally, Kim and Stoel (2004) used an attribute called “easy to read web site pages,” while other did not or used attribute indirectly related to “easy to read web site pages” (Huang, 2005; Pan et al., 2002; Seock & Chen-yu, 2002; Seock & Norton, 2008; Zviran et al., 2006).

Some researchers considered the attribute “enjoyable to use” in deriving performance structures (Huang, 2005; Kim & Stoel, 2004; Seock & Chen-yu, 2007; Seock & Norton, 2008). Others did not consider “enjoyable to use” (Pan et al., 2002; Zviran et al., 2006). “Site interactivity” was an attribute used by some researchers (Kim & Stoel, 2004), and not by other researchers (Huang, 2005; Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008; Zviran et al., 2006). The “innovative/creative design” and “Ability to complete business processes adequately” attributes were only considered by one set of researchers in deriving a performance structure (Kim & Stoel, 2004). “Customer service” was an attribute that was considered by some researchers (Kim & Stoel, 2004; Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008), but not other researchers (Huang, 2005; Zviran et al., 2006) in determining a performance structure. A “load time/efficiency” attribute

was considered by some researchers (Kim & Stoel, 2004; Seock & Chen-Yu, 2007; Seock & Norton, 2008; Zviran et al., 2006). But, this “load time/efficiency” attribute was not used by other researchers (Pan et al., 2002) indirectly used by another researcher (Huang, 2005).

Further, “web site trust” was an attribute considered by some researchers (Kim & Stoel, 2004; Seock & Chen-yu, 2007; Seock & Norton, 2008), yet not by other researchers (Pan et al., 2002; Zviran et al., 2006) in deriving a performance structure. Further, Huang (2005) indirectly used a “web site trust” attribute by considering attributes called “safe-dangerous” and “beneficial-harmful.” Additionally, some researchers derived a performance structure with the use of an attribute called “safe transactions/security” (Kim & Stoel, 2004; Seock & Chen-yu, 2007; Seock & Norton, 2008). Other researchers did not consider the “safe transactions/security” attribute (Pan et al., 2002; Zviran et al., 2006). Still, another researcher indirectly considered the “safe transactions/security” attribute by measuring a set of related attributes (Huang, 2005). “Return policy” was also an attribute considered by some researchers (Seock & Chen-yu, 2007; Seock & Norton, 2008), and not considered by other researchers (Huang, 2005; Kim & Stoel, 2004; Pan et al., 2002; Zviran et al., 2006).

“Product information” is an attribute that was considered by some researchers (Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008), not by other researchers (Kim & Stoel, 2004), and indirectly by other researchers (Huang, 2005; Zviran et al., 2006) in determining a performance structure. The “product price” attribute was used by some researchers (Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008), not used by other researchers (Huang, 2005; Zviran et al., 2006), and indirectly used by other researchers (Kim & Stoel, 2004). Further, only some researchers used the web site attribute “accuracy of information” (Huang, 2005;

Zviran et al., 2006). Other researchers did not use the attribute “accuracy of information” (Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008). Still further, other researchers used the “accuracy of information” attribute indirectly in deriving a performance structure with a variable called “the web site accurately meets my information needs” (Kim & Stoel, 2004).

It is clear from the examples highlighted above that variability exists among the studies regarding which attributes were sampled as inputs in the exploratory factor analyses that were used in deriving attribute performance structures. Examples of the variability were also evident for the following web site attributes: “personalization of service,” “order process,” “site design/format,” “music/sounds,” “product comparison,” “product selection,” “site navigation/search function,” “shipping and handling/tracking,” and “up-to-date information” (Huang, 2005; Kim & Stoel, 2004; Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008; Zviran et al., 2006). None of the web site attributes considered in identifying a performance structure was universally considered across studies in determining a performance structure (Huang, 2005; Kim & Stoel, 2004; Pan et al., 2002; Seock & Chen-yu, 2007; Seock & Norton, 2008; Zviran et al., 2006).

By nature, the results of an exploratory factor analysis are heavily influenced by the inputs of the analysis. The inputs for the exploratory factor analyses used in deriving an attribute performance structure within the e-commerce literature were each of the attribute performance ratings. However, each of the studies used a different set of attributes to rate regarding performance. With this logic, it is possible that each of the researchers arrived at a different performance structure due to considering a different set of web site attributes as inputs into their exploratory factor analyses.

1.2 Shopping Web Site Attribute Importance Structures

Like the e-commerce performance literature, inconsistencies in attributes lists considered in past literature that sought to identify an underlying structure for importance of shopping web site attributes were also present. Blake, Hamilton, Neuendorf and Murcko (2010) used importance ratings of 55 attributes from what is formally known as the Variegated Inventory of Site Attributes (VISA). The results of their exploratory factor analysis provided evidence for an 11 dimension solution. Dimensions included in this solution are security transactions and privacy, near ideal, visual and auditory richness, web site functionality, product comparison, new and different, uniquely entertaining, true to its word, human touch, product information, and others' recommendation. Descriptions of each of these 11 dimensions can be found within Table I of the Methods section of this paper. To the contrary, Papatla (2011) collected importance ratings from only 17 attributes to arrive at a three factor solution with dimensions of post-purchase service, efficiency, and shopping experience/familiarity.

A different approach was used by Hwang, Jung and Salvendy (2006) that involved gathering importance ratings of 20 attributes. The results of their exploratory factor analysis evidenced a five factor solution with dimensions of information seeking and security, efficiency of transaction behavior, effectiveness of site design, instant attraction, and online purchase with credit cards. On the other hand, Demangeot and Broderick (2010) were determined to identify an underlying importance structure with the use of 23 shopping site attributes. Their emphasis was on the online bookstore product class. The results of the exploratory factor analysis pointed to a six dimension solution with factors that included page clarity, site

architecture, visual impact, experiential intensity, marketer informativeness, and non-marketer informativeness.

Varying still further, Guo and Salvendy (2009) asked respondents to rate the general importance of 70 shopping web site attributes. They arrived at a 15 dimension exploratory factor analysis solution. The dimensions found include security content, quality content, service content, appearance description, contact information, aid function, customized function, search function, product specification, purchasing aid, price content, detail description, comment content, matching products, and review content. Differing more, Liu and Arnett (2000) derived a four factor solution from importance ratings of 24 attributes. Their exploratory factor analysis provided dimensions of quality of information and service, system use, playfulness, and system design quality. General importance ratings of 36 shopping site attributes were considered in the research of Mukhopadhyay, Mahmood and Joseph (2008). Exploratory factor analysis yielded a four factor solution. The importance dimensions identified include internet shopping convenience, internet ecology, internet customer relations, and internet product value.

Szymanski and Hise (2000) were only interested in general importance ratings of 11 attributes which provided a five factor solution with dimensions of convenience, site design, financial security, merchandising relating to product offerings, and merchandising relating to product information. Two exploratory factor analyses of general importance ratings for shopping site attributes were performed by Torkzadeh and Dhillon (2002). One of the exploratory factor analyses centered on means objectives of web sites. Means objectives consist of attributes related to meeting the goals of an online business. In their other exploratory factor analysis, fundamental objectives were the focus. Fundamental objectives consist of attributes related to

meeting the goals of the customer. In all, importance ratings of 21 attributes were considered in their analyses. Regarding means objectives, a five factor solution was found with dimensions of internet product choice, online payment, internet vendor trust, shopping travel, and internet shipping errors. For the fundamental objectives, a four factor solution was identified with dimensions of internet shopping convenience, internet ecology, internet customer relation, and internet product value. Finally, Belanger, Hiller and Smith (2002) took yet separate approach focusing on the importance of 14 attributes related to the shoe and bookstore product classes. Their factor analysis yielded a four factor solution with dimensions of site trustworthiness, purchase intention, site quality, and importance of features.

As is apparent with the literature concerning the underlying structure of attribute performance, the literature that derived attribute importance structures also consisted of variability regarding the site attributes considered in arriving at the underlying structures. None of the researchers that sought to identify an underlying structure for the importance of attributes of web sites considered rating the same attributes for importance (Belanger et al., 2002; Blake et al., 2010; Demangeot & Broderick, 2010; Guo & Salvendy, 2009; Hwang et al., 2009; Liu & Arnett, 2000; Mukhopadhyay et al., 2008; Papatla, 2011; Szymanski & Hise, 2000; Torkzadeh & Dhillon, 2002). To illustrate the variability, the attribute called “navigation” was used by some researchers in deriving an importance structure (Blake et al., 2010; Demangeot & Broderick, 2010; Guo & Salvendy, 2009; Hwang et al., 2009; Liu & Arnett, 2000; Papatla, 2011; Szymanski & Hise, 2000). However, this “navigation” attribute was not used by other researchers in deriving an importance structure (Belanger et al., 2002; Mukhopadhyay et al., 2008; Torkzadeh & Dhillon, 2002). Additionally, the web site attribute called “product selection” was used by some

researchers in order to derive an importance structure (Blake et al., 2010; Mukhopadhyay, 2008; Szymanski & Hise, 2000; Torkzadeh & Dhillon, 2002), but not by other researchers (Belanger et al., 2002; Demangeot & Broderick, 2010; Guo & Salvendy, 2009; Hwang et al., 2009; Liu & Arnett, 2000; Papatla, 2011). Numerous other examples could be listed to illustrate the variability with which attributes were considered when arriving at the web site attribute importance structures. Like for the performance literature, no web site features seemed to be universally considered across all studies in the importance literature (Belanger et al., 2002; Blake et al., 2010; Demangeot & Broderick, 2010; Guo & Salvendy, 2009; Hwang et al., 2009; Liu & Arnett, 2000; Mukhopadhyay et al., 2008; Papatla, 2011; Szymanski & Hise, 2000; Torkzadeh & Dhillon, 2002).

By nature, the results of an exploratory factor analysis are heavily influenced by the inputs of the analysis. The inputs of the exploratory factor analyses used in deriving an attribute importance structure within the e-commerce literature were each of the attribute importance ratings. However, each of the studies used a different set of attribute to rate regarding importance. With this logic, it is possible that each of the researchers arrived at a different importance structure due to considering a different set of web site attributes as inputs into their exploratory factor analyses.

1.3 Formal Scales for Measuring Web Site Attribute Judgments

A number of formal scales have been developed and used throughout the online shopping literature to evaluate and systematically measure consumer attitudes toward the features of e-commerce web sites. One formal model that has received some attention was proposed by Zhang and von Dran (2002). This model was adapted from the ideas of a Japanese management and consulting researcher named Kano. Kano believed that customers have three levels of expectations that must be met in

order for a company to succeed. These three expectations are referred to as basic, performance, and exciting. Basic expectations are seen as unconscious expectations that consumers view as the minimum requirements for a company to succeed. An example of basic expectations customers might have for a fast food restaurant are that soda will be cold and the food will be adequately packaged. Performance expectations are those that are consciously stated. These expectations are often strong selling points for a company such as low prices or an extensive warranty on products. Exciting expectations are those that delight customers. These expectations are met when a company is doing something that no other companies are doing or very few competitors are doing to separate themselves from the rest of the market. An example might be providing a breakthrough technology on a product that no other companies have on competing products.

Zhang and von Dran (2002) applied the Kano Model to the online realm through reasoning that a web site can be used as a service offered to customers that are seeking out products. Thus, the web sites need to meet expectations aligning with the basic, performance, and exciting of the Kano Model in order to succeed in e-commerce. In the online realm, the Kano Model is useful in systematically examining features commonly used in web site design. Basic expectations in the online realm might be having a web site with hyperlinks that are not broken or having text that is legible and free of grammatical errors. Examples of performance expectations might be having a web site that is compatible with multiple browsers such as Internet Explorer, Firefox, and Safari. A social feedback mechanism might be considered an exciting expectation consumers have for a web site. One of the key advantages of the online-adapted Kano Model is its ability to identify quality features that fulfill unstated needs. Another advantage is its ability to understand how web site features

evolve over time as they move from being an exciting expectation, to a performance expectation, and eventually to a basic expectation.

Another scale used to evaluate and systematically measure consumer attitudes toward web site features in e-commerce was designed by Torkzadeh and Dhillon (2002). The scale stemmed from Keeney's (1999) ideas about the role of fundamental objectives and means objectives in influencing online shopping. Fundamental objectives are related to web site functions important to the goals of consumers. On the other hand, means objectives are related to the web site functions that are important to the company in meeting goals as an e-business. Torkzadeh and Dhillon (2002) developed one instrument to measure fundamental objectives and another instrument to measure means objectives. The fundamental objectives instrument contains four dimensions and consists of 16 web site attributes. The attributes that make up the means objective scale are related to product selection, ability to compare products, credit card security, vendor trust, vendor legitimacy, shipping and handling, and site accuracy. The means objective instrument contains five dimensions and 21 web site attributes. Attributes that make up the fundamental objectives scale are related to ease of use, hassles involved, payment time, environmental impact, tax cost, product cost, quality of after-sale service, and product value. Both measures were shown to be reliable and possess construct, content, and discriminant validities. In order to further define what is considered a fundamental objective and what is considered a means objective, one can ask the question: why is the attribute important? If the answer to this question suggests that the given objective is "the essential reason for interest in a case, it is considered a fundamental objective" (Torkzadeh & Dhillon, 2002, p. 189). If the answer to the question suggests that "the objective is important due to its implication for some other objective" (Torkzadeh &

Dhillon, 2002, p. 189), it is considered a means objective. Due to the promising psychometric properties of the fundamental and means objective scales, Mukhopadhyay et al. (2008) used the scales to gain a better understanding of online shopping behaviors.

WebQual (Loiacono, 2000; Loiacono, Watson & Goodhue, 2007) is another scale which is cited more than once throughout the e-commerce literature. WebQual is an instrument that is used to gain consumer evaluations of the performance of attributes of organizational web sites. The scale measures 12 dimensions of performance with the use of performance ratings of 36 web site attributes. A rigorous approach was undertaken to create, refine, and validate the WebQual instrument. The approach involved literature reviews, interviews, web-designer and user collaboration, and it was tested with four separate samples. The instrument was designed to provide both wide and fine grained measurements of attitudes toward attributes of web sites. Barnes and Vigden (2001) used WebQual to evaluate a series of internet bookstores. Kim and Stoel (2004) used WebQual to measure shopper perceptions of apparel web sites.

Huang (2005) developed another scale called the Web Performance Scale. This researcher conducted two studies to demonstrate that the Web Performance Scale possesses face validity, construct reliability, convergent validity, discriminant validity, and nomological validity. The purpose of the scale is to measure consumer perceptions of web site performance with the use of two dimensions. The dimensions the scale measure relate to hedonic needs and utilitarian needs. Hedonic needs are satisfied when a web site provides things like entertainment. On the other hand, utilitarian needs are satisfied when things like information are sufficient. The hedonic and utilitarian dimensions were first developed and validated for measuring consumer

attitudes toward product categories and different brands within a product category in offline markets (Batra & Ahtola, 1990; Voss, Spangenberg & Grohman, 2003; Crowley, Spangenberg & Hughes, 1992). Huang (2005) was the first to carry these ideas into the online shopping environment.

One researcher used what is known as Web Page Analyser 0.961 to evaluate web sites (Goi, 2010). Web Page Analyser 0.961 is a free online tool used to measure the performance and speed of web sites. This tool is successful at giving precise measurements of the performance of logistical-oriented features of shopping sites. However, this tool lacks coverage in what features are measured by the device. The tool does not directly take consumer attitudes into account when measuring the performance of web sites attributes.

Other researchers have conducted studies with the use of scales provided by BitzRate.com (Jiang & Rosenbloom, 2005; Pan, Ratchford & Shankar, 2002). Bitzrate.com is a web site that provides consumer attitudes toward web sites from a variety of product classes based on survey data gathered from consumers after they purchase an item from a given site. The consumers are asked specific questions about shopping experiences they had with a particular site such as ratings of the checkout process or other features of the web site. One key advantage of this approach to evaluating web sites is that the sample will most likely provide more realistic data than student samples due to the fact that the respondents have completed a purchase with the site. Purchases are less likely to be made in e-commerce research that uses a sample of college students and where resources are limited.

Blake et al. (2010) also developed a formal scale to be used in e-commerce research at both the scientific and professional levels called the Variegated Inventory of Site Attributes (VISA). VISA is a comprehensive list of 55 web site attributes that

is both wide ranging in abstraction and coverage. Abstraction refers to the extent to which a feature is a concrete/objective characteristic of a site (e.g., product prices, seals of companies stating that user information on the site is secure, being free of grammatical and typographical errors, and the site is in the primary language of the user) or is an evaluative response to either the site as a whole (e.g., it is enjoyable to visit, it is quite different from the usual sites for the type of product involved, the things I am looking for are easy to find, and it uses a lot of color) or to a particular component of a site (e.g., products can be easily compared, the order process is easy to use, it has a wide selection and variety of products on the site, and the site offers price incentives).

Coverage refers to the variety of feature groupings tapped by the items. For the present study, an attempt was made to secure adequate coverage by selecting items to reflect each of the 11 factor/dimension revealed by Blake et al. (2010), and these dimensions include: security transactions and privacy, near ideal, visual and auditory richness, web site functionality, product comparison, new and different, uniquely entertaining, true to its word, human touch, product information, and others' recommendation. Each of these 11 dimensions is further described in Table I within the Methods section of this paper. The dimensions found in Blake et al. (2010) were identified based on an exploratory factor analysis of attribute importance ratings for the 55 web site features that make up VISA. Each of the 55 web sites attributes that make up VISA were gathered from e-commerce literature pertaining to theory and taxonomies of web site features. These theories and taxonomies included features related to: shopping convenience, customer relations, product value, product choice, online payment, vendor trust, shipping error (Keeney, 1999; Torkzadeh & Dhillon, 2002), content, design, security, privacy (Ranganathan & Ganapathy, 2002),

interactivity, organization, privacy/security, informativeness, personalization, entertainment (Chakraborty, Lala & Warren, 2003), competitive advantage, compatibility with social environment, complexity of use, trialability, observability (Rogers, 2003), perceived usefulness, perceived ease of use, opinions of others in one's social circle (Davis, Bagozzi & Warshaw, 1989), privacy, security, navigation, brand strength, advice, order fulfillment, community, absence of errors (Bart, Shankar, Sultan & Urban, 2005), price information, merchandising information, comparison of products, seeing products in advance, well known brands, money back guarantee, can exchange products, speak with sales person, payment security, word of mouth about site, remote contact, site reputation, familiarity with the site (Das & Teng, 2004), product performance, financial, time, delivery, social, privacy, payment, sources (Blythe, 1999), and presence (Gefen, 2004).

1.4 Using the Variegated Inventory of Site Attributes (VISA)

It is apparent that many approaches have been used to investigate consumer attitudes of shopping web site attributes. A variety of attribute lists, underlying structures, and scales have been employed by researchers to enhance our understanding of the phenomena surrounding both importance and performance judgments of attributes of e-tailer web sites. Due to all of these inconsistencies, it is hard to enrich our understanding of consumer behavior regarding online shopping. It is difficult to compare the findings of one study to that of another study when they are comparing different measures of attributes and using different scales. As a result, this paper argues that one list of attributes should be used as a point of reference when evaluating and measuring variables related to web site features across studies. Based on a reflection of the current literature, the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010) seems like a promising candidate to take on this role.

VISA consists of a comprehensive list of 55 attributes. The 55 attributes can be reduced to 11 dimensions which makes rating this comprehensive list less tiresome for participants in e-commerce research. Additionally, VISA provides wide-ranging coverage and abstraction which make VISA relevant for most web sites. Furthermore, VISA was presented in the year 2010. As a result, VISA is based on more recent consumer attitudes than past scales and attribute lists which were based on earlier attitudes (Huang, 2005; Jiang & Rosenbloom, 2005; Loiacono et al., 2007; Pan et al., 2002; Torkzadeh & Dhillon, 2002; Zhang & von Dran, 2002). Also, Blake et al. (2010) demonstrated that VISA has some level of robustness with regard to importance dimensions across demographic variables.

1.5 Generalizability Studies

In the e-commerce literature, many researchers have assessed the generalizability of shopping site attribute performance judgments across a variety of domains. Huizingh (2000) used Chi-square and Mann-Whitney Tests to provide mixed evidence for the generalizability of the performance of web site features across five industries. The industries considered in the study were computers, information, finance/insurance, services, and products. Specifically, the results of the study found that features related to search functions, protection of content, quality structure, and company image significantly differed across industries. However, features related to navigation structure and presentation style tended to not significantly differ from one industry to the next. Another study conducted by Seock and Chen-yu (2007) used a factorial MANOVA approach to provide evidence for a lack of generalizability of performance ratings of web sites across consumer shopping orientations. The shopping orientations considered in this study included hesitant in-home shoppers, practical shoppers, and involved shoppers.

Musante, Bojanic and Zhang (2008) were concerned with the generalizability of performance judgments for the hotel product class. They wanted to know if the performance ratings of 33 web site attributes could be generalized across star-ratings for hotels such as five-star hotel, four-star hotel, five-star hotel, and budget hotel. They ran a series of F-tests for each of the 33 attributes between each star-rating for the hotels. The results of their study showed that only six of the 33 attributes significantly differed across star-ratings. These six attributes include: company information, product offerings, transactions, support services, interactive functions, and overall appearance. The 27 attributes that were generalizable across star-ratings include: a different company information attribute, contact information, logo/brand name/tagline, product/service information, program/activities, prices/rates, availability, special offers/discounts, describe payment methods, online reservations/ordering, transaction security information, cancellation policies, maps and directions, transportation information, calendar of events, testimonials/awards, links to related web sites, multi-language support, online customer service, chat/discussion forums, Tips/FAQs, newsletters/club membership, contests/sweepstakes, email, career services, internal search engine, multimedia (e.g., video clips). These results illustrate that the performance of a majority of attributes can be generalized across star-ratings for the hotel product class. However, the performance of some attributes provides evidence of a lack of generalizability across star-ratings for the hotel product class.

Huang, Le, Li and Gandha (2006) conducted a study to examine the generalizability of performance ratings across Industries. These researchers evaluated the performance of 252 e-tailers from 23 different industries. The features considered in this study were features that speed up online tasks, features that establish multiple

communication channels, features providing suitable access to contacts, features making web sites personal, features providing company information and advertising, features facilitating customer feedback, features allowing users to control information detail, features aiding online shopping decisions, and features using multimedia tools. Each of these features received a rating on a scale of one to seven for how effective the feature performed for each industry. It was found that some features appear to be seen to perform commonly across industries while others were seen to perform differently across industries. For example, the attribute of allowing users to control of information detail is heavily used in the telecommunication industry, yet not in the paper and packaging industry. On the other hand, the feature concerned with establishing multiple communication channels was rated as performing commonly between the media and insurance industries. Many examples like the ones just mentioned were presented in this study. The list of differences and similarities across industries would be too extensive to list them all here in this paper. The results of this study provided mixed evidence for the generalizability of the performance of shopping site attributes across industries.

Another set of researchers conducted a content analysis in order to provide some support for the generalizability of performance of e-commerce sites across product classes (Griffith & Krampf, 1998). These researchers used interviews, observation, and e-commerce literature to identify seven strategic objectives of retailer web sites. The strategic objectives identified include: online sales, presentation of merchandise, present price information, advertising and sales promotion, public relations, customer service access, and providing enhanced customer service responsiveness. The content analysis was conducted with a series of judges who used coding sheets to gauge the degree to which each of these strategic objectives was

present on 100 United States e-tailer web sites from a variety of product classes. If at least 50% of sites used a particular strategic objective, it was concluded that the majority of online retailers were using online shopping sites for the respective strategic objective. The results of the study indicate that the majority of online retailers are using web sites for advertising, public relations, and customer service access.

Despite some evidence for the generalizability of performance judgments across product classes, one study found a lack of generalizability of performance judgments for three online shopping sites within the same product class. Specifically, Barnes and Vigden (2001) found that performance ratings differed significantly among three online bookstores known as Amazon, Blackwells, and IBS. These differences were noticed upon evaluating each of the three web sites with the use of the formal WebQual scale developed and validated by Loiacono, Watson and Goodhue (2007).

Kuzic, Giannatos and Vignjevic (2007) were concerned with investigating the generalizability of the ability of the performance of a shopping site's features to change attitudes toward a company's image across genders. They employed a nonparametric sign test to determine this generalizability across genders. This sign test involved gathering company image ratings prior to and after exposing respondents to a series of site features on an e-commerce site. The sign test was used to see if image ratings significantly differed when comparing ratings before and after visiting the site. Results of the study suggest that only females significantly changed their attitudes towards the company's image after evaluating features of the company's shopping site. As a result, these researchers provided some evidence for a lack of generalizability in shopping site performance judgments across genders.

Fink and Laupase (2000) sought to assess the generalizability of performance judgments across cultures through gathering input from respondents of Australia and Malaysia. They used a Mann-Whitney U-Test, a type of significance test, to identify that the performance judgments of some attributes of shopping sites can be generalized across cultures. However, the performance judgments of other shopping site attributes cannot be generalized across cultures. Specifically, the Mann-Whitney U-Test found that significant differences across cultures were not found for attributes relating to atmospherics, signs (e.g., web appearance and logos), and the impact of atmospheric effectiveness. In contrast, significant differences across cultures were identified for features relating to news stories, products and services, and the impact of product and services on effectiveness. These findings point to mixed evidence to support the generalizability of performance judgments of shopping site features across cultures.

As was present within the shopping site attribute performance literature, the shopping site attribute importance literature also contains a large amount of research concerning the generalizability of importance judgments across a variety of domains. Zhang and von Dran (2002) took a qualitative approach to assessing the generalizability of importance judgments across web site types. The types of web sites considered in this study were related to finance, e-commerce, entertainment, education, government, medicine/health, and news. Each respondent in this study was required to list, in rank order, the five most important site features for each of the six domains. Results of this study point to mixed support for the generalizability of importance judgments of shopping site features across web site types. This finding was evidenced by some web site features being important for only specific web site types while other web site features were commonly reported among all web site types.

Papatla (2011) used a regression analysis to provide evidence for a lack of generalizability in importance ratings of shopping site features across six shopping styles. The six shopping styles considered in this study include: those who know where they wish to shop, those who know what kind of brands they wish to buy, those who use search engines to locate vendors to buy from, those who buy primarily through vendors they have bought from in the past, those who browse online casually, and those that seek out specific portals and directories for shopping online and buying guidance. Importance dimensions that significantly differed across shopping styles were related to post-purchase service (consisting of attributes of billing process, emails about orders, email about order status, email about shipment, speed of shipping, email about tracking order), efficiency (consisting of attributes of quickness, navigation, amount of links, site map, search function, easy to compare products, easy to order, clarity of prices), and shopping experience and familiarity (consisting of attributes of graphics, uniqueness, one-click options, and purchase history).

Hwang, Jung and Salvendy (2006) were concerned with testing the generalizability of general importance ratings attributes of e-commerce sites across cultures. The countries that were examined in this study were Korea, Turkey, and the United States. A series of t-tests were used to identify where significant differences in importance ratings of shopping site features existed among these three cultural groups. The results reveal that these countries significantly differed in importance ratings for web site features of information accuracy, security, and product comparison. Due to these differences across cultures, these researchers provided some evidence for a lack of generalizability of importance ratings across cultures.

Liao, Proctor and Salvendy (2009) were also interested in investigating the generalizability of shopping site attribute importance judgments across cultures. Data

were gathered from Chinese and American respondents for this study. A series of t-tests were used to assess significant differences across cultures regarding importance ratings of shopping site features. The results of this study provided mixed support for the generalizability of shopping site attribute importance judgments across cultures. Of 25 shopping web site attributes analyzed in this study, 13 were rated significantly different across cultures. The features that were rated significantly different across cultures include: personal information privacy, how to contact representatives of the retailer, transaction security, product safety features, post-sales service, warranties, cost-effectiveness, product performance, product value-retention capability, product price, skills utilized in manufacturing the product, technology used in products, and the country in which the products were made.

Zhang, von Dran, Blake and Pipithsuksant (2001) conducted a study to assess the generalizability of web site importance judgments across web site types. The web site types considered in this study were related to finance, e-commerce, entertainment, education, government, and medicine. Like Zhang and von Dran (2002), this study took a qualitative approach to assessing generalizability. Specifically, respondents in this study were asked to list, in rank order, the five most important web site attributes for each of the web site types. The attributes listed by participants were generated by the participants themselves. The attributes were not selected from a finite list. The results of this study provide mixed evidence for the generalizability of importance judgments across web site types. While some web site features were perceived as equally important among different domains, some web site features were regarded as extremely important for one domain and extremely unimportant for another domain.

Lightner (2003) looked at the generalizability of importance judgments of shopping web site features across demographic variables. A series of t-tests were used

to identify where significant differences in important judgments existed among demographic variables. The results of the study showed that significant differences existed among the demographic variables of age, education, and income. Yen (2005) also compared mean importance ratings with the use of ANOVA in assessing the generalizability of importance judgments of shopping site attributes across internet-based self service technology user types. The user types examined in this study were explorers, pioneers, and skeptics. The results of the study show that importance judgments of shopping site attributes differed significantly across user types for site features related to efficiency, ease of use, performance, perceived control, and convenience. As a result, this study provided evidence for a lack generalizability of importance judgments across internet-based self service technology user types.

McCabe and Nowlis (2003) focused on testing the generalizability of importance judgments among the online and offline domains. With the use of logistic regression, they found that products with primarily material properties, such as clothing, are more likely to be preferred in shopping environments that allow physical inspection than in those environments that do not. However, they also found that no difference in preference for the online and offline environments is apparent for products with primarily geometric properties, such as packaged goods, for which vision is diagnostic. In addition, features of web sites, such as detailed product descriptions and product pictures, can help to reduce the differences in preferences for purchasing in the offline and online environments. These results provide an interesting look at the role of web site features in providing generalizability of purchase environment preferences from the offline to the online environment.

1.6 Justification for Present Research

A variety of research designs have been used to investigate the generalizability of either performance or importance judgments across domains (e.g., product classes, shopping styles, demographic traits, cultures, etc.). Some studies in this area used a between subjects research design (Fink & Laupase, 2000; Hwang et al., 2006; Kuzic et al., 2007; Liao et al., 2009; Lightner, 2003; McCabe & Nowlis, 2003; Papatla, 2011; Seock & Chen-yu, 2007; Yen, 2005). An example of a between subjects approach to assessing generalizability across domains would be the situation where one group of respondents rates the performance of shopping site attributes for an online bookstore while a different group of respondents rates the performance of shopping site attributes for a consumer electronics e-tailer. Other studies used a within subjects research design (Barnes & Vigden, 2001; Zhang & von Dran, 2002; Zhang et al. 2001). An example of a within subjects approach to assessing generalizability across domains would be the situation where one group of respondents rates the performance of shopping site attributes for an online bookstore and this same group of respondents also rates the performance of shopping site attributes for a consumer electronics e-tailer. In another set of studies, it was difficult to determine whether a between subjects or within subjects approach was used since a team of expert judges assessed each web site (Griffith & Krampf, 1998; Huang, et al. 2006; Huizingh, 2000; Musante et al., 2008).

This paper argues in favor of the within subjects research design. The primary issue with the between subjects approach is the potential confusion that may arise when trying to determine if respondent sample differences or domain differences are contributing to the generalizability findings. In the case of a between subjects research design, one sample of respondents rates attribute performance or importance in one domain (e.g., product class) while a separate sample rates attribute performance

or importance in a different domain. Since two different samples are used to rate each of the domains, it is hard to determine whether characteristics of each sample or characteristics of the actual domain attributes are being rated for are contributing to the generalizability findings. In contrast, when a within subjects research design is used, the same sample rates attribute performance or importance for each domain. As a result, the within subjects research design reduces the issue of trying to determine whether respondent sample differences or domain differences are contributing to the generalizability findings since the same sample rates all domains. To further support this argument, it is possible that people who shop for one product class (e.g., books) are not always the same people as those who shop for another product class (e.g., consumer electronics).

Another issue with extant literature that has assessed the generalizability of performance and/or importance of shopping site attributes across domains has to do with the relative lack of studies that have focused specifically on assessing generalizability across product classes. Of the literature reviewed for this study, only three studies looked at generalizing shopping site attribute performance ratings across product classes (Griffith & Krampf, 1998; Huang et al., 2006; Huizingh, 2000). Furthermore, only two studies investigated the generalizability of shopping site attribute importance ratings across product classes (Zhang & von Dran, 2002; Zhang et al., 2001).

Within the small sector of research that sought to understand the generalizability across product classes, two studies used what is known as a thematic analysis (Zhang & von Dran, 2002; Zhang et al., 2001). This approach asked respondents, in an open-ended format, to generate a list of the five most important shopping site attributes for a series of six product classes. Based on the lists generated

by the respondents, expert judges from the research team attempted to categorize attributes based a series of codes in order to enable comparison across product classes. This paper argues that this approach to understanding how performance and importance judgments generalize across product classes may yield equivocal conclusions. Specifically, during the coding process it is difficult for an expert judge to determine if what one respondent meant by attribute XX refers to what another respondent meant by attribute XX. Additionally, it is difficult for expert judges to determine whether attribute XX for one product class is the same for an alternative product class. Griffith and Krampf (1998) also used a coding technique rendering their results vulnerable to this same issue.

The remaining two studies that investigated the generalizability of shopping site attribute performance across product classes only conducted micro-level analyses. Micro-level analyses are those analyses that only provide evidence for generalizability of shopping site attributes across product classes at the attribute level (e.g., t-tests, ANOVAs, frequencies, relative frequencies, average ratings, correlations, chi square tests, etc.). In contrast, macro-level analyses are those analyses that provide evidence for generalizability at the underlying structural level (e.g., exploratory factor analysis, confirmatory factor analysis, structural equation modeling, etc.). Huang et al. (2006) and Huizingh (2000) were two studies that assessed generalizability with micro-level analyses. Huang et al. (2006) tabulated average performance ratings of attributes for each product class. Huizingh (2000) used a series of frequencies, relative frequencies, chi-square tests, and ANOVAs to assess attribute-level generalizability across product classes. While micro-level analyses help researchers understand how attribute ratings of performance and importance can be generalized across product classes at the attribute level, they do not indicate how underlying rating structures for the

performance and importance of shopping site attributes generalize across product classes at the underlying structural level.

1.7 Purpose of the Present Study

The purpose of the present research is to examine the generalizability of performance and importance ratings of shopping site attributes taken from the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010) across the consumer electronic and bookstore product classes. A within subjects research design will be used to overcome the potential confusion that may arise when trying to determine if respondent sample differences or domain differences are contributing to the generalizability findings. In other words, each participant in the study will rate the performance and importance of shopping site attributes for both the bookstore and the consumer electronic product classes. Five point attribute performance and importance rating scales were selected to be used in an online survey format to address the subjectivity that comes along with coding open-ended responses. To address the issue that only micro-level analytic approaches have been employed in past research in this area, generalizability will be assessed with both macro and micro level analyses. At the macro level, exploratory and confirmatory factor analysis techniques will be employed to identify, confirm, and assess the generalizability of consumers' attribute performance and importance rating structures across product classes. Micro level analyses of repeated measures MANOVA and correlations will be used to identify attribute level differences in how consumers rate the performance and importance of e-tailer site features across the consumer electronic and bookstore product classes. This study will add to the relatively slim amount of research in the area of assessing performance and importance ratings of shopping web site attributes across product classes.

CHAPTER II

METHODS

2.1 Survey Overview

Following the trend of most of the recent research in online shopping (Barnes & Vidgen, 2001; Blake, Hamilton, Neuendorf & Murcko, 2010; Cheung & Lee, 2005; Kukar-Kinney & Close, 2010; Levin, Levin & Weller, 2005; Liu & Arnett, 2000; Pan, Ratchford & Shankar, 2002; Seock & Norton, 2008; Szymanski & Hise, 2000; Yang, Lin, Chandlrees & Chao, 2009; Zviran, Glezer & Avni, 2006), a web-based survey was employed with the use of www.surveymonkey.com to gather data for this study. Some online shopping researchers have resorted to using paper-and-pencil based surveys (Belanger, Hiller & Smith, 2002; Guo & Salvendy, 2009; Levin et al., 2005). However, Edmonson's (1997) research revealed that people view online surveys as more important, interesting, and enjoyable than traditional paper-and-pencil surveys. Also, Szymanski and Hise (2000) point out that one of the key benefits of using web-based surveys in online shopping research is the consistency of context of the online shopping environment and the online survey environment. What this specifically means is that the stimuli that an online shopper and an online survey respondent are

exposed to are similar (e.g., both require operation and interaction of a computer). In contrast, the stimuli a paper-and-pencil survey respondent and an online shopper are exposed to differ to a greater extent than the former scenario. To further elaborate, interviews, as a data collection technique, tend to present quite a bit of variability with regard to voices of the interviewer. These voices are quite different than the stimuli provided in an online shopping environment.

Furthermore, web-based surveys with the use of www.surveymonkey.com enable researchers to download survey responses into a spreadsheet format that can easily be transferred to analysis software such as PASW Statistics. Intuitively, this computer-aided transfer is prone to less human error than the process of recording responses by hand into a spreadsheet within the PASW Statistics analysis software. Finally, web-based surveys are more beneficial than paper-and-pencil surveys in the following regards: the ability to quickly reach geographically isolated participants, the ability to quickly view data throughout the surveying process, and amount of paper consumption required.

The web-based survey used in this study consisted of 214 forced-choice items. Most of the participants were able to complete this survey within a 20 to 40 minute time frame. However, participants were provided with a one hour time frame to complete the survey. Fourteen items in the survey were related to demographic information, 52 items asked participants to rate the importance of web site attributes for the bookstore and consumer electronic product classes, 56 items asked participants to rate the performance of web site attributes for the www.Frys.com and www.Powells.com web sites, four items were related to familiarity with Fry's Electronics and Powell's Bookstores, four items gathered information about the nature of participants' browsing activities for the bookstore and consumer electronic product

classes, two items were used for the administrative purposes of gathering feedback from participants and granting participants a code related to their behavior during the survey, and the remainder of the 214 items were devoted to getting a better understanding of the nature of the participants' online shopping experiences which included 26 general attribute importance ratings. Two of the items found within the section devoted to gathering information about the participants browsing activities for the bookstore and consumer electronic product classes included one's level of familiarity with two dummy online stores called Barnacle Barns Books and Rockstar Electronics. Thirty-seven respondents were eliminated for either claiming to be familiar with both of these stores, or answering in a uniform manner across attribute performance and importance rating scales. Uniformity of answers was determined by "eye-balling" the data on a spreadsheet for each case. An example of a case that answered in a uniform manner would be a case that chose a five for all attribute performance and attribute importance rating scales. The 26 web site attributes that were rated for importance and performance of the bookstore and consumer electronic product classes were drafted from the 55 attributes found within the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010). An entire list of all of the 55 attributes that are found within VISA is provided in section B of the Appendices. Also, a portion of the Methods section of this paper is devoted to describing the specifics about VISA and how it was used in the present study.

An optional five to 10 minute break was offered to participants as they reached the half-way point in completing the survey. Snacks were provided for participants during this break. Artacho-Ramirez, Diego-Mas and Alcaide-Marzal (2008) advised that researchers allow participants time to rest during extensive questionnaires in order to minimize the effects of fatigue on the results. This was particularly important for

the survey used in this study which consisted of 214 items versus some of the surveys other researchers have used in the online shopping realm which were lengths of 63 items (Seock & Chen-Yu, 2007), 125 items (Torkzadeh & Dhillon, 2002), 42 items (Huang, 2005), and 36 items (Mukhopadhyay, Mahmood & Joseph, 2008). Galesic and Bosnjak (2009) provided evidence for the existence of an inverse relationship between survey length and quality of answers participants provide while taking a survey. Specifically, later items in a survey stated to take 30 minutes to complete were answered faster, shorter, and in a more uniform fashion than later items in a survey that was stated to take 10 minutes to complete. Dillman (1978) argues a social exchange perspective that people are more likely to complete a questionnaire if they expect that the costs to them of completing it are less than the expected rewards to themselves or groups with which they identify. Under this logic, one would have to weigh an infinite combination of variables to determine whether a given participant was providing responses that were valid and offered in the best interest of the research team. With this in mind, some of the more salient characteristics of the study that could have positively contributed to the appropriateness of participants' responses include the extra credit participants received for their respective psychology courses, the snacks offered during the mid-way point of the survey, the break offered at the mid-way point of the survey, and the general feeling that participating in an online shopping research study would contribute to the online shopping literature which ultimately assists in the betterment of future online shopping experiences of society at large.

Each participant in the study was randomly assigned to one of four parallel versions of the survey. The random assignment process involved hand-picking a strip of paper with a web site URL on it from a bag filled with web site URLs. The strips

of papers all contained a URL that linked respondents to one of the four online surveys available. An equal number of URLs for each of the four surveys and equal sizes of paper for each URL were available in the bag in order to allow each survey an equal opportunity of being picked. When participants arrived at the study, a member of the research team selected a strip of paper from the bag to give to each participant. The URL on the paper told the participant which web site to visit, and this was which of the four parallel versions of the survey each participant took.

The four version of the survey contained exactly the same items. However, the versions varied with regard to order in which attributes and product classes were listed in various portions of the survey. Within each version of the survey, participants were asked to rate the importance of 26 web site attributes for the bookstore product class, asked to rate the importance of 26 web site attribute for the consumer electronic product class, and asked to rate each of the 26 attributes regarding general importance. Also, each version prompted the participants to rate the performance of 26 web site attributes for the www.Powells.com web site for the bookstore product class and to rate the performance of 26 web site attributes for the www.Frys.com web site for the consumer electronic product class. Hence, five sections of 26 attributes were rated in each of the parallel versions of the survey. The 26 attributes in each of these five sections within each of the four versions of the survey were randomized with regard to order the attributes were listed. Additionally, in two of the parallel versions the bookstore product class was rated first and the consumer electronic product class was rated second. In the other two parallel versions, the consumer electronic product class was rated first and the bookstore product class was rated second.

A final portion of the parallel versions of the survey that varied across versions asked participants to indicate the three web site attributes that are the least

encouraging when shopping online. In this item, the 26 attributes were listed as response options in a random order across each of the four versions of the survey. By designing this portion of the surveys in this manner, an attempt was being made to minimize the biases related to item order such as primacy effects and recency effects (Dillman, Smyth & Christian, 2009). Primacy effects are apparent when survey participants tend to select response options found earlier in a response set than later in the response set. With regard to randomizing the attributes in the least encouraging item just described, attributes found earlier in the list of response options are more likely to be selected than attributes found later in the list of response options. In contrast, recency effects are characterized by survey respondents having a tendency to select response options found later in a response set than earlier in the response set. In the least encouraging item just described, this means that participants are more likely to select attributes found later in the list of attribute response options when determining the three least encouraging aspects of online shopping sites.

The survey was pilot tested prior to going live with the use of 29 online consumers that were acquaintances of the research team. According to one group of survey experts, “a pilot study refers to a mini-study in which the proposed questionnaire and all implementation procedures are tested on the survey population in an attempt to identify problems with the questionnaire and related implementation procedures” (Dillman et al., 2009, p. 228). Conducting pilot studies is commonly adopted by online shopping researchers using surveys as a device for collecting data (Demangeot & Broderick, 2010; Fink & Laupase, 2000; Guo & Salvendy, 2009; Huang, 2005; Kukar-Kinney & Close, 2010; Liu & Arnett, 2000; McCabe & Nowlis, 2003; Seock & Chen-yu, 2007; Voss, Spangenberg & Grohmann, 2003; Szymanski & Hise, 2000; Zhang & von Dran, 2002). Guo and Salvendy (2009) used a pilot-test in

order to assess the appropriateness of an English survey for a Chinese sample. Liu and Arnett (2000) pilot tested a survey to evaluate its readability and content. Szymanski and Hise (2000) thought a focus group would provide good feedback for their survey. Dillman et al. (2009) mentioned that pilot testing a survey has utility in determining how long the survey takes, understanding the relevancy of topics involved in the survey, and proofreading spelling errors in order to enhance the readability of the survey. The utility specifically realized through the pilot testing used in the present study enabled the research team to delete redundant items, troubleshoot technological issues, correct spelling errors, and get a better understanding of the time frame it would take to participate in the survey. Following the pilot test, recruitments for the study were processed and the survey went live. The final survey data were gathered between late fall 2009 through early spring 2011. For further specifics about the survey, please reference section A of the Appendices which contains an entire copy of one of the four parallel forms of the survey administered in this study.

2.2 Attribute Performance and Importance Rating Scales

Throughout the online survey, participants were asked to rate 26 attributes that were taken from VISA (Blake et al., 2010) for shopping sites related to bookstore importance, bookstore performance (www.Powells.com), consumer electronic importance, consumer electronic performance (www.Frys.com), and general importance. The same 26 attributes were rated in all five of these domains. These 26 attributes that were rated in each of these five domains were related to grammar, advertisements, photos, feedback, animations, interactivity, links, color, ease of finding things on the site, how reasonable the prices are, credit card security, security seals, whether friends are happy with the site, product/service selection, interesting

graphics, ability to compare products/services, how unusual the site is, entertaining graphics, the opinion of friends about the site, the return policy, how enjoyable the site is to use, price incentives offered, the benefits and drawbacks of products, the ability to instant message the company, photographs of real people, and the ease of using the order process. This section of the paper is devoted to explaining how data were gathered for each of these five domains by displaying examples of the rating scales used within each domain. For further specifics on the data gathering instrument used in this study, section A of the Appendices contains an entire version of one of the parallel forms of the online survey that was used to gather data.

In the bookstore importance section of the survey, participants were provided with the following instructions: “Suppose you are looking for a book you would like to give someone as a gift or for yourself, so you go online to different BOOKSTORES to find a good book to get. Think about the kind of online BOOKSTORE you would like to shop at. Then indicate how strongly, if at all, a web site having a particular feature encourages you to shop at that BOOKSTORE web site rather than going to another online BOOKSTORE web site.” Following these instructions, participants were asked to rate the importance of 26 attributes related to the importance of bookstore shopping sites. An example of this type of item is seen below.

There is a guarantee that my credit card information would be safely and securely protected.

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

For the bookstore performance section of the survey, participants were asked to visit and explore www.Powells.com. Then, they were presented with the following

instructions: “How good is Powell’s Books web site compared to other bookstore shopping sites you know? Rate the following attributes from 1 (not good at all) to 5 (very, very good).” Then, participants were asked to rate the performance of each of the 26 attributes relative to www.Powells.com. An example of one of these bookstore performance items is seen below.

Providing a guarantee that my credit card information would be safely and securely protected

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Also, participants were asked to rate consumer electronic importance. Within this section of the survey, the instructions read as: “Now we are going to focus on CONSUMER ELECTRONICS web sites. Suppose you are looking for a netbook you would like to give someone as a gift or for yourself, so you go online to different consumer electronic stores to find a good netbook to get. Think about the kind of consumer electronics web site you would like to shop at. Then indicate how strongly, if at all, a web site having a particular feature encourages you to shop at that CONSUMER ELECTRONICS web site rather than going to another CONSUMER ELECTRONICS web site.” Following these instructions, participants were asked to rate the importance of 26 attributes related to the importance of consumer electronic shopping sites. An example of this type of item is seen below.

There is a guarantee that my credit card information would be safely and securely protected.

- 1 (Does Not At All Encourage Me)
- 2
- 3

- 4
- 5 (Strongly Encourages Me)

Within the consumer electronic performance portion of the survey, participants were asked to visit and explore the www.Frys.com web site. Then, the participants were provided with the following instructions: “How good is Fry’s Electronics web site compared to other consumer electronics web sites you know? Rate the following attributes from 1 (not good at all) to 5 (very, very good). Use only one number for each attribute.” Next, participants were asked to rate the performance of the 26 attributes relative to www.Frys.com. An example of one of these consumer electronic performance items is seen below.

Providing a guarantee that my credit card information would be safely and securely protected.

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Finally, within the general importance section of the survey, respondents were provided with the following instructions: “Compared to other features of shopping web sites, how strongly, if at all do the following features encourages you to shop at a particular site? For example, consider the features ‘there is a guarantee that my credit card information would be safely and securely protected.’ If this is not important to your browsing to shop at a particular site, rate it as a ‘1’ or a ‘2.’ Choose one answer for each item.” An example of one of these general importance items is seen below.

It is free of grammatical and typographical errors

- 1 (Does not encourage me at all)

- 2
- 3
- 4
- 5 (Strongly encourages me)

The online shopping literature indicates that a wide variety of importance and performance rating scales have been used to gather data in the past. Most often the type of rating scale selected by the researchers is a function of the survey item stem and the goal of the given research. Regarding *performance* rating scales, some researchers have used seven-point scales (Cheung & Lee, 2005; Huang, Le, Li & Gandha, 2006; Kim & Stoel, 2004; Loiacono, Watson & Goodhue, 2007). Other researchers used five-point scales (Oppenheim & Ward 2006; Zhao, Truell & Alexander 2006). Another set of researchers thought a four point scale was best (Musante, Bojanic & Zhang, 2008; Seock & Norton, 2008). Less common formats include developing a coding sheet to rate web site performance based on the results of a strategic objective developmental process (Griffith & Krampf, 1998), creating a software to measure a web site's performance on features like load time, size, and content (Goi, 2010), and using a bi-polar rating scale (Huang, 2005).

Furthermore, the performance rating scales used tended to vary with regard to response option anchors. As stated earlier, this was probably a function of the survey item stems used for the particular study. Some researchers used anchors of “strongly disagree” and “strongly agree” when rating performance of web site attributes (Cheung & Lee, 2005; Kim & Stoel, 2004; Loiacono et al., 2007; Seock & Norton, 2008). Other researchers have used a performance rating scale that contained anchors of “not present,” “feature present but averagely,” and “feature used excellently” (Huang et al., 2006). Oppenheim and Ward (2006) used anchors of “very poor,”

“poor,” “average,” “good,” and “very good.” “Poor,” “fair,” “good,” and “excellent” were anchors used by another set of researchers (Musante et al., 2008).

The variability for *importance* rating scales is just as extensive as that found in the performance rating scales in the online shopping literature. Many researchers used a seven-point scale (Blake et al., 2010; Fink & Laupase, 2000; Guo & Salvendy, 2009; Hasan 2009; Hwang, Jung & Salvendy, 2006; Liao, Proctor & Salvendy, 2009; Lightner, 2003; Liu & Arnett, 2000; McCabe & Nowlis, 2003). Five-point scales were also commonly cited in the literature (Belanger, Hiller & Smith, 2002; Levin, Levin et al., 2005; Mukhopadhyay, Mahmood & Joseph, 2008; Papatla, 2011). Less commonly cited formats for arriving at importance ratings of web site attributes include a six-point rating scale (Yang & Lester, 2005), a 10-point rating scale (Kuzic, Giannatos & Vignjevic, 2010), and a free response technique that asked participants to list the five most important web site attributes for a specific product class (Zhang & von Dran, 2002; Zhang, von Dran, Blake & Pipithsukmant, 2001).

Like the performance rating scales used in the past literature, the importance rating scales used in past literature tended to vary with regard to response option anchors. The most commonly used anchors used ranged from “strongly disagree” to “strongly agree” (Guo & Salvendy, 2009; Hasan, 2009; Liao et al., 2009; Mukhopadhyay et al., 2008; Yang & Lester, 2005) or some variation of “strongly disagree” to “strongly agree” (Lightner, 2003; Papatla, 2011). Some experts used scales that ranged from “completely unimportant” to “completely important” (Liu & Arnett, 2000), and other researchers modified this importance scale to include a range of anchors of “not at all important” to “extremely important” (Levin et al., 2005). A final set of researchers used a set of anchors that ranged from “does not encourage me at all” to “strongly encourages me” (Blake et al., 2010).

The five performance and importance rating scales assessed in the present study consisted of five-point numerical scales. The performance rating scales contained anchors that ranged from “not good at all” to “very, very good.” On the other hand, the importance rating scales contained anchors that ranged from “does not at all encourage me” to “strongly encourages me.” Justification for the use of these five-point scales coupled with their respective anchors was directly supported by survey experts (Dillman, Smyth, & Christian, 2009). These experts developed a series of guidelines to assist researchers in crafting useful surveys. One guideline argued that scales should be limited to four or five categories. The key argument here is that having too many response options will lead to category ambiguity. Also, participants can hold only a limited number of categories in their head at once. Hence, offering too many categories results in a cognitive overload for the participants of the survey. On the other hand, having less than four response options makes it difficult to run multivariate statistical analyses that often require interval or ratio data inputs. Both the performance and the importance rating scales in the present study contained five-point numerical response sets. This aligns perfectly with the guideline just described. Furthermore, as described earlier, the five-point numerical scale approach was used commonly in past research to rate the importance and performance of attributes of shopping web sites (Belanger et al., 2003; Levin et al., 2005; Mukhopadhyay et al., 2008; Oppenheim & Ward, 2008; Papatla, 2011; Zhao et al., 2006). In addition, the anchors used in importance rating scale in the present study mirrored the importance rating scale anchors employed by Blake et al. (2010). Finally, the anchors used for both the importance and performance rating scales in the present study were appropriately worded considering the survey item stems and the goals of the study. For more information about the rating scales used in the survey as well as other

specifics concerning the data gathering instrument, please view the section A of the Appendices of this paper which provides an entire version of the survey used to gather data from the sample in this study.

2.3 VISA

The Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010) is a comprehensive list of 55 attributes of shopping web sites that were used as a point of comparison in the present study. Blake et al. (2010) conducted a factor analysis on these 55 web site attributes, and identified an 11 dimension underlying structure that consumers use in order to make preference/importance judgments about shopping sites. Table I, seen below, lists and defines each of the 11 dimensions identified by Blake et al. (2010).

Table I. *11 Factor Preference Structure Identified from 55 VISA Items (Blake et al., 2010)*

Dimension Name	Description of Dimension
Security Transactions and Privacy	A nine-item dimension indicating desire for features providing security of personal, financial, and transactional information.
Near Ideal	An eight-feature set appealing to many shoppers. Individuals scoring high want features that yield good and inexpensive products quickly, easily, and reliably.
Visual and Auditory Richness	Persons scoring high on this six-attribute set desire sensory experience with visual and auditory stimulation and personalized recognition.
Web Site Functionality	These six features pertain to a site's operating clearly and efficiently, without errors in text or operation.
Product Comparison	These five attributes provide the shopper the opportunity to compare and evaluate products.
New and Different	Persons scoring high on these four items are interested in recently introduced and original sites.
Uniquely entertaining	These four features indicate attraction to sites that are distinctive, entertaining, fun to discuss with others.
True to Its Word	These five items – including receipt of a best site award, prominent display of its privacy policy, and assurance that products dependably arrive when promised – indicate features of a credible, trustworthy site.
Human Touch	Persons scoring high on this three item dimension opt to see real people in real settings; even animated animals are

	anthropomorphized.
Product Information	High scores on this three-item set indicate greater interest in sites that describe the product, and indicate what other people think about it.
Others' Recommendation	Two features reflect the desire to use sites recommended by others, whether gleaned from media sources or from one's circle of friends and family.
<i>Notes.</i> 1) These factors together explained 61.39% of the total variance	

Consistent with the aforementioned factor analysis, this study selected 26 attributes from each of the 11 dimensions shown above in order to allow for adequate coverage of VISA. The intention in the present study was not to replicate the 11 factor attribute importance solution (Blake et al., 2010), but to cover at least to some extent all 11 attribute importance dimensions found within VISA (Blake et al., 2010). All 55 attributes that make up VISA were not used in the present study order to minimize respondent fatigue. In the case where respondents were required to rate all 55 attributes for each of the five attribute performance and importance domains, it is possible that respondents would become cognitively fatigued. As a result, data that misrepresents true customer attitudes regarding each of the domains might be provided by respondents. Hence, only 26 attributes were chosen to represent each of the 11 dimensions of VISA in order to minimize respondent fatigue.

The attribute selection process was conducted with the use of three consumer research experts consisting of two graduate-level psychology students and one consumer research professor. The team of experts considered personal experiences with web sites from the book and consumer electronic product classes (Guo & Salvendy, 2009; Griffith & Krampf, 1998), and the 11 dimensions identified in the factor analysis described above (Blake et al., 2010) when selecting the 26 web site attributes to be rated for the present study. These are the 26 web site attributes that

were rated on importance and performance for the online bookstore and online consumer electronic store product classes. The importance ratings were made about the features of the web sites for the bookstore and consumer electronic product classes in general. On the other hand, the bookstore web site attribute performance ratings were based on the www.Powells.com web site. For the consumer electronic web site attribute performance ratings, the www.Frys.com web site was used.

A complete list of the 26 attributes rated in the present study along with which of the 11 VISA (Blake et al., 2010) dimension the attributes were selected from is displayed in Table II seen below. Note that at least one web site attribute was selected for each of the 11 attribute importance dimensions revealed in Blake et al. (2010). This was done purposefully to provide adequate coverage for the feature set used in the present study. In other words, the attribute selection process was intended to cover the gamut of the 11 factors arrived at in the VISA article (Blake et al., 2010). For more information about VISA and a complete list of the 55 attributes found within VISA, please view section B of the Appendices.

Table II. *The Selection of Shopping Site Attributes from the 11 Importance Dimensions Identified in Blake et al. (2010)*

VISA Dimension	Attributes Included in the Present Study
Security Transaction and Privacy	There is a guarantee that my credit card information will be safely and securely protected; it has seals of companies stating that my information on the site is secure
Near Ideal	The things I am looking for are easy to find on the site; it has reasonable prices; it has a wide selection of products on the site
Visual and Auditory Richness	It has interesting, attractive color; it has entertaining, attractive graphics

Web site Functionality	It is free of grammatical and typographical errors; the Internet links on the site are working properly; it has entertaining graphics and displays; it provides price incentives; it has a return policy that is easy to understand and use
Product Comparison	It has photos of products; Products on the web site can be easily compared with each other; the site presents both benefits and drawbacks of the products/services
New and Different	It has an interactive web design; it is quite different from the usual sites for the type of product involved
Uniquely Entertaining	My friends and family let me know their opinions of the site; it is enjoyable to use
True to It's Word	It allows instant messaging with the company or a company representative
Human Touch	It has one or more animated characters that move or speak; it has photos of real people using products/services
Product Information	Provides customer feedback; the order process is easy to use
Others' Recommendation	I hear about it on the radio, television, or newspapers; my friends and family have been happy when they have shopped there
<i>Notes:</i> 1) Each attribute within the "Attributes Included in the Present Study" column is separated by a semi-colon.	

2.4 Consumer Electronics and the Fry's Electronics Web Site

Of all of the product classes available in e-commerce, the consumer electronic product class was chosen for evaluation in the present study due to its widespread use throughout the online shopping literature (Crowley, Spangenberg & Hughes, 1992; Elliot & Fowell, 2000; Huang, 2005; Huang, Le, Li & Gandha, 2006; Huizingh, 2000; Jiang & Rosenbloom, 2005; Levin et al., 2005; Liao et al., 2009; Pan et al., 2002; Yang & Lester, 2005; Zhao et al., 2006). Through the use of observation, the research team in the present study was able to determine that the consumer electronic product class was particularly relevant to the predominantly college student sample. Browsing

around campus enables one to identify numerous computer labs as well as study areas filled with students using personal laptops. On top of that, the majority of university students appear to have cellular phones as an important mode of communication. Liao et al. (2009) justified the use of the consumer electronic product class in an investigation of the importance of attributes for shopping web sites due to the prevalence of consumer electronic products in today's society and the number of brands available in the consumer electronic product class. Further, Elliot and Fowell (2000) sampled respondents from five countries and identified that roughly 14% of all online shopping financial transactions occur within the technological domain.

Fry's Electronics was the company that was selected to represent the consumer electronic product class for this study. Fry's resembles a typical consumer electronic site like Best Buy or Circuit City. The site offers a wide array of consumer electronic products like computers, televisions, mp3 players, appliances, netbooks, and other technologically-related gadgets. Also, Fry's Electronics is a company that members of the sample had a tendency to be unfamiliar with, because its physical stores are found predominantly in western and southern United States and the present study was conducted in the northeastern United States. Two experts in the field of e-commerce recommend online shopping researchers gather data about less known web sites in order to minimize the confounding effects of brand name and company reputation on the examined relationships among variables (Cyr & Bonanni, 2005). In addition, Bruner and Kumar (2002) point out that, by using less known sites, participant attitudes are developed primarily through the actual experience one has with the web site versus attitudes one developed through external factors. Of those sampled in the present study, 95% are from areas outside of southern and western United States. Additionally, data from the survey indicates that 87.5% of the sample has never heard

of the Fry's Electronics. Further, 95.2% of those sampled state that they have never been to the Fry's Electronics web site (www.Frys.com). This was an important factor in minimizing a potential halo effect. A halo effect is a general impression bias whereby a rater's overall evaluation or impression of something leads the rater to evaluate all aspects of that thing in a manner consistent with this general evaluation or impression (Balzer & Sulsky, 1992). In the current study, if participants are familiar with a consumer electronics site such as Best Buy, these participants might rate attributes of Best Buy's web site very high or very low based on their past experiences with Best Buy regardless of actually considering what the attribute items were referring to. Hence, Fry's Electronics was chosen to represent the consumer electronic product class instead of a commonly known company like Best Buy for this study. For more information about Fry's Electronic, readers can visit www.Frys.com or view section C of the Appendices of this paper which provides some screen shots of the site.

2.5 Bookstores and the Powell's Bookstore Web Site

Like the consumer electronic product class, the bookstore product class was chosen for assessment in the present study as a result of its prominence within the online shopping literature (Barnes & Vigden, 2001; Belanger et al., 2002; Elliot & Fowell, 2000; Huang, 2005; Levin et al., 2005; Loiacono et al., 2007; Pan et al., 2002; Yang & Lester, 2005). To illustrate the presence of bookstores in the e-commerce literature, one article noted that the number of e-book sales through Barnes & Noble's web site (www.BarnesandNoble.com) has risen five percent within a short three month time frame (Milliot, 2010). Milliot (2010) also revealed that Barnes & Noble's CEO Steve Riggio plans to transition Barnes & Noble from a brick-and-mortar retailer into an e-commerce retailer due to recent profit losses of 5.5% for the quarter ending

in January 30, 2010. Also, Elliot and Fowell (2000) sampled respondents from five countries and estimated that roughly 29% of all online shopping financial transactions occur within the bookstore domain. Another reason for selecting the bookstore product class for evaluation in the present study is the fact that respondents used in the present study were students at universities. Students at universities are usually required to purchase textbooks for the courses they are enrolled in. Often times, students resort to purchasing their textbooks online in order to find better deals than those that are offered at the university's bookstore. Further, it is assumed that individuals with the ambition to attend a university would be prone to read in their free time.

Powell's Books was the company that was selected to represent the bookstore product class for this study. Powell's resembles a typical bookstore site like Barnes & Noble or Borders. The site offers a wide array of books and book-related products including: textbooks, e-books, used books, and children's books. Powell's Books is a company that members of the sample of focus for this study tended to be unfamiliar with, because its physical stores are found predominantly in the western United States and the present study was conducted in the northeastern United States. As noted earlier, two experts in the field of e-commerce recommend online shopping researchers gather data about less known web sites in order to minimize the compounding effects of brand name and company reputation on the examined relationships among variables (Cyr & Bonanni, 2005). Bruner and Kumar (2002) point out that, by using less known sites, participant attitudes are developed primarily through the actual experience one has with the web site versus external factors. Of those sampled in the present study, 97% were not residing in far western states of the United States. Additionally, data from the survey indicates that 88% of those sampled

have not previously heard of Powell's Books. Further, 95% of those sampled state that they have not previously been to Powell's Books web site (www.Powells.com). This is an important factor in minimizing a potential halo effect. Recall, one set of experts defined halo effect as a general impression bias whereby a rater's overall evaluation or impression of something leads the rater to evaluate all aspects of that thing in a manner consistent with this general evaluation or impression (Balzer & Sulsky, 1992). In the current study, if participants are familiar with a bookstore site such as Barnes & Noble, these participants might rate attributes of Barnes & Noble web site very high or very low based on their past experiences with Barnes & Noble regardless of actually considering what the attribute items are actually referring to. Hence, Powell's Books was chosen to represent the bookstore product class instead of a commonly known company like Barnes & Noble for this study. For more information about Powell's Books, readers can visit www.Powell's.com or view section D of the Appendices of this paper which provides some screen shots of the site.

2.6 Sample

Data were gathered from two sources. The majority of the sampled respondents ($n = 326$) were psychology students at Cleveland State University. These students received extra credit for their participation in the research for their respective courses. A smaller portion of the sampled respondents ($n = 26$) were obtained with the use of a snowball technique that involved gathering data from close friends and family members of the research team. After combining the data from these two sources, the sample size amounted to 352.

Three criteria were used in order to filter out bad data provided by participants. One of the criteria referenced in this filtration process was the code found at the end of the survey. At the end of the survey, participants were asked to get a code from the

survey administrator. The code was always a four digit number. The first digit was the most important number of the code. If the first digit of this four digit code was one, the participant likely provided good data. If the first digit of the four digit number was two, the participants likely provided questionable data. If the first digit of the four digit number was three, the participant likely provided bad data. The judgment on what code to give a participant was based solely on observation of the participants as they took the survey. Participants that seemed to be responding too quickly, seemed to be inattentive, and that finished the entire survey too quickly were most often given a three as the first digit of their four digit code. In contrast, participants that seemed highly attentive, asked questions during the survey about items, and took an appropriate amount of time to complete the survey were most often given a one for the first digit of their four digit code. Those participants that behaved in a manner somewhere between those just described were given a two. Those receiving a three as the first digit of their four digit code were immediately deleted from the sampled data.

It is worth noting that this coding procedure has not typically been used in past research in e-commerce that has used online surveys as a method of data collection. Some individuals reading this paper might view such a procedure as highly subjective. However, to reduce the subjectivity of such a procedure it is important to understand that a great deal of face-to-face interaction occurred among respondents and the research team throughout the data collection process. This level of involvement allowed for close observation of the behavior of respondents and may have played a role in enhancing the level of care respondents might have for providing reliable and valid data. Furthermore, the surveying procedure involved gathering data from respondents in a small group setting in order to provide a non-distracting environment

for both respondents taking the survey and the research team observing the behavior of respondents during data collection.

The next criteria referenced when filtering out bad cases was a response to two dummy items. Two items were placed in the survey that asked about a respondent's familiarity with two companies that do not exist. One of these companies was Barnacle Barns Books, and the other company was Rockstar Electronics. Participants that affirmed they were familiar with both of these companies were eliminated from the final sample. However, if participants only stated that they were familiar with one of these companies they remained in the sampled data.

“Eye-balling” the data was a final criterion used to filter out participants providing bad data. Participants that provided the same response for every rating scale were deleted from the final sample. For example, a participant that provided four responses on all performance and preference five-point rating scales was eliminated. It is highly unlikely that a participant that is taking a survey seriously will answer in this sort of uniform manner. After considering these three criteria, the final sample amounted to 313. Of the 313 respondents, 26 were gathered with the use of the snowball technique and 287 were gathered from undergraduate psychology students at Cleveland State University.

The final, filtered sample consisted of 231 males and 82 females. Although the gender breakdown was noticeably lopsided, this situation is not uncommon for studies sampling university students in online shopping related research (Hwang et al., 2006; Lightner, 2003; Seock & Norton, 2008; Zhang et al., 2001; Zhao et al., 2006). These past studies did not indicate that a lop-sided sample regarding gender provided problems with their findings. However, some studies have found that online browsing and purchasing behaviors significantly differ across genders (Park, Yoon &

Lee, 2009; Seock & Bailey, 2008; Valentine & Powers, 2009). The racial breakdown of the sample was as follows: 69.6% White, 15.3% Black, 5.1% Hispanic, 3.5% Asian, and 6.4% responded as other. The mean and standard deviation for the age of participants were 25 and nine, respectively. Eighty four percent of the sample was single, and only 16% was married. The entire sample had at least a high school education. Seventy-seven percent of those sampled had at least some university or community college experience as students, and 3.2% had experience as students at the graduate school level. Sixty-eight percent of those sampled reside in Ohio, and only 3.4% of the sampled participants have a permanent residence in southern or western states like Florida and California. Fifty-four percent of those sampled have jobs. On the other hand, 46% of those who participated were full-time students, were retired, or are homemakers/housewives; are thus unemployed. The median household income of those sampled was between \$30,001 and \$40,000. However, household incomes of those sampled ranged from less than \$10,000 all the way up to greater than \$100,000. Finally, on average, those sampled had three people living with them in their place of residence.

Regarding Internet usage and online shopping experience, the sample fared rather well. Ninety-nine percent of participants reported to have been using the Internet for at least four years prior to participation in the study. Furthermore, 66% of participants claim to have been using the Internet for at least 10 years. Eighty-two percent of participants use the Internet at least 11 hours per week. However, only 5% of respondents use the Internet more than 50 hours per week. Additionally, at least once per month, 87% of those sampled go online to look for information about products or services without buying anything during the particular visit. In contrast, only two percent of participants just about never go online to look for this sort of

information. Forty-four percent of the respondents make at least one online purchase per month. On the other hand, only 10% of respondents just about never make online purchases.

More importantly, the majority of respondents appeared to be familiar with online shopping in the bookstore and consumer electronic product classes. Eighty-three percent of those sampled have browsed or made a purchase at an online bookstore, and 74% have browsed or made a purchase at an online consumer electronic store. Of those sampled, 57% have browsed or made a purchase at the Borders online bookstore, and 74% have browsed or made a purchase at the Bestbuy online consumer electronics store. These numbers are particularly relevant considering the www.Frys.com and www.Powells.com web sites were selected to represent these types of stores for the consumer electronic and bookstore product classes. Still further, 46% claim to have looked for information about products/services at online bookstores (with a mean of 1.11 days and a standard deviation of 1.897) and 58% claim to have looked for information about products/services at consumer electronic e-tailers (with a mean of 1.66 days and a standard deviation of 2.273) at least one day within a two week period prior to taking the survey. More interestingly, 15% of respondents claim to have made a purchase at an online consumer electronic e-tailer (with a mean of 0.39 days and a standard deviation of 1.047) and 20% claim to have made a purchase at an online bookstore (with a mean of 0.19 days and a standard deviation of 0.552) at least one day within a two week period prior to taking the survey. For further specifics about the sample, please reference Table III seen below.

Table III. *Characteristics of the Sample (n = 313)*

Variables	Description	Frequency (Relative Freq.)
Gender	Male	231 (74%)
	Female	82 (26%)
Race/Ethnicity	White	218 (70%)
	Black	48 (15%)
	Hispanic	16 (5%)
	Asian	11 (4%)
	Other	20 (6%)
Age	18 to 22	173 (55%)
	23 to 30	94 (30%)
	> 30	46 (15%)
Current Education Level	Some high school	0 (0%)
	High school	70 (22%)
	Community college/Technical school training	19 (6%)
	Some University or 4 year college	179 (58%)
	College/university graduate	35 (11%)
	Graduate or professional school	10 (3%)
Residency	Ohio	231 (68%)
	Other	82 (32%)
Marital Status	Single, never married	263 (84%)
	Married	36 (11%)
	Separated/divorced	12 (4%)
	Widowed	2 (1%)
Employment	Employed full-time	46 (15%)
	Employed part-time	117 (37%)
	Self employed	5 (2%)
	Temporarily unemployed	11 (4%)

	Full time student	126 (40%)
	Homemaker/housewife	4 (1%)
	Retired	4 (1%)
Annual Household Income	\$10,000 or less	66 (21%)
	\$10,001 to \$20,000	47 (15%)
	\$20,001 to \$30,000	25 (8%)
	\$30,001 to \$40,000	30 (10%)
	\$40,001 to \$50,000	36 (12%)
	\$50,001 to \$75,000	44 (13%)
	\$75,001 to \$100,000	34 (11%)
> \$100,000	31 (10%)	
Number of household inhabitants	2 or less	108 (35%)
	3 to 5	186 (60%)
	> 5	19 (5%)
Amount of years using Internet	< 3 years	4 (1%)
	4-6 years	30 (10%)
	7-9 years	73 (23%)
	10-12 years	107 (34%)
	12 ore more years	99 (32%)
Hours of Internet use per week	< 11 hours	56 (18%)
	11-20 hours	100 (32%)
	21-30 hours	77 (25%)
	31-40 hours	45 (14%)
	41-50 hours	19 (6%)
	Over 50 hours	16 (5%)
Go online to look for information about products or services without buying anything during the particular visit	Just about never	7 (2%)
	< 1 time a month	34 (11%)
	1-5 times a month	114 (36%)
	6-10 times a month	77 (25%)
	11-15 times a month	42 (13%)
Over 15 times a month	39 (13%)	
Go online and make a purchase online	Just about never	32 (10%)
	< 1 time a month	142 (45%)

	1-5 times a month	127 (41%)
	6-10 times a month	11 (4%)
	11-15 times a month	0 (0%)
	Over 15 times a month	1 (< 1%)
# of days in the past 2 weeks that the respondents have searched for information about books/magazines	0 days	168 (27%)
	1 day	64 (10%)
	2 days	39 (6%)
	3 days	15 (2%)
	4 days	13 (2%)
	5 days	5 (1%)
	7 days	2 (< 1%)
	8 days	2 (< 1%)
	10 days	4 (1%)
	14 days	1 (< 1%)
# of days in the past 2 weeks that the respondents have searched for information about consumer electronics	0 days	130 (21%)
	1 day	52 (8%)
	2 days	59 (9%)
	3 days	30 (5%)
	4 days	17 (3%)
	5 days	6 (1%)
	6 days	2 (< 1%)
	7 days	5 (1%)
	8 days	6 (1%)
	9 days	2 (< 1%)
	10 days	1 (< 1%)
	12 days	1 (< 1%)
	14 days	2 (< 1%)
# of days in the past 2 weeks that the respondents have made purchases of products from the book product class	0 days	247 (39%)
	1 day	39 (6%)
	2 days	16 (3%)
	3 days	6 (1%)
	4 days	2 (< 1%)
	6 days	1 (< 1%)
	8 days	1 (< 1%)
	10 days	1 (< 1%)
# of days in the past 2 weeks that the respondents have made purchases of	0 days	267 (43%)
	1 day	36 (6%)
	2 days	7 (1%)

products from the consumer electronic product class	3 days	2 (< 1%)
	5 days	1 (< 1%)
Have you ever browsed or made a purchase at an online bookstore?	No	52 (17%)
	Yes	261 (83%)
Have you ever browsed or made a purchase at an online consumer electronic store?	No	81 (26%)
	Yes	232 (74%)

Notes. 1) Some relative frequencies were rounded to enable them summate to 100% for a particular item.

CHAPTER III

ANALYSIS AND RESULTS

3.1 EFA for Consumer Electronic Attribute Performance

An exploratory factor analysis (EFA) was used in order to search for and define the fundamental dimensions assumed to underlie the performance of shopping web site attributes for the consumer electronic product class based on participants' ratings of attribute performance for the www.Frys.com web site. Each dimension identified in a factor analysis consists of variables that are related and thus assumedly measure similar things.

Prior to running the EFA, a few parameters were assessed to determine the appropriateness of the analysis. First, the researcher must judge that an underlying structure actually exists among the variables in the analysis (Hair, Black, Babin & Anderson, 2010). Evidence from past studies indicates that a performance structure does exist (Guo & Salvendy, 2009; Seock & Norton, 2008; Seock & Chen-Yu, 2007; Kim & Stoel, 2004; Liu & Arnett, 2000). Hair et al. (2010) also suggest that the sample should be homogenous in size with regard to each respondent characteristic in order to perform an EFA. A sample that lacks homogeneity in size across respondent

characteristics is supposed to prompt researchers to run separate EFAs for each subgroup within the sample. For example, a sample with a racial breakdown of 70% Hispanic and 30% white should indicate that the researchers should run a separate EFA for each race since this racial breakdown is not representative of online consumers in America. In the present study, the sample was not homogenous in size with regard to gender (e.g., not 50% male and 50% female). However, it was decided to not run separate EFAs for males and females. Justification for this decision is based on past research in e-commerce containing heterogeneous samples with regard to gender that did not consider running separate EFAs for each gender (Blake et al., 2010; Ergolu, Machleit & Davis, 2003; Seock & Chen-Yu, 2007; Seock & Norton, 2008).

The next parameter was related to the adequacy of the sample size. In order to run an EFA, a sample size of at least 300 is recommended (Comrey & Lee, 1992). The sample size for the present study was 313. Hence, this requirement is satisfied. Also, it is advised that the case to variable ratio exceed three to one (Williams, Onsman & Brown, 2010). In the present study, the case to variable ratio is 313 to 26. As a result, this sample need is satisfied.

The final parameter that needed to be assessed was related to the sufficiency of the multicollinearity that exists among the web site attribute performance variables. Partial correlations, anti-image correlations, and Bartlett's test of sphericity were used to determine the sufficiency of multicollinearity. Tabachnick and Fidell (2007) argue that a sufficient level of multicollinearity is evidenced by partial correlations between 0.30 and 0.70. For readers who are interested, the correlations among each of the 26 attribute performance ratings for Fry's Electronics and Powell's Books are provided in sections F and G of the Appendices, accordingly. With the performance ratings of

attributes for the consumer electronic product class in the present study, the partial correlations were all below 0.70. However, 10 variables had partial correlations below 0.30. Low partial correlations were to be expected considering attributes selected for the present study came from the 11 attribute importance dimensions identified with the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010), and the present EFA is correlating the attribute ratings for performance not importance. The diagonal on the anti-image matrix indicates that all values are at least 0.80. According to Hair et al. (2010), the diagonal values need to exceed 0.50 to provide sampling adequacy. Finally, a p-value of less than 0.05 on Bartlett's test of sphericity indicates an appropriate amount of correlation exists among the variables in the analysis (Hair et al., 2010). The p-value in Bartlett's test of sphericity for the present analysis is less than 0.001. Considering the assessment of each of these parameters led to the decision that it was appropriate to run an EFA for the performance ratings of shopping web sites for the consumer electronic product class based on the www.Frys.com web site.

A principal component analysis accompanied by a PROMAX rotation technique was employed in the EFA to identify the web site attribute performance structure. Within the e-commerce literature, the principal component analysis extraction technique is commonly used (Artacho-Ramirez et al., 2008; Blake et al., 2010; Guo & Savendy, 2009; Huang, 2005; Hwang et al., 2006; Kim & Stoel, 2004; Liao et al., 2009; Pan et al., 2002; Papatla, 2011; Seock & Norton, 2008; Seock & Chen-yu, 2007). Principal component analysis is known to be useful in the following situations: when the primary objective of the research is to identify latent dimensions or constructs represented in the original set of variables, when researchers have a lack of knowledge about the amount of specific and error variance, and when the research

is geared toward theoretical implications (Hair et al., 2010). Each of these uses align with the circumstances that surrounding the present study.

The VARIMAX orthogonal rotation technique is the most commonly cited rotation technique in the e-commerce literature where EFAs were conducted (Artacho-Ramirez et al., 2008; Batra & Ahtola, 1990; Blake et al., 2010; Crowley et al., 1992; Huang, 2005; Hwang et al., 2006; Kim & Stoel, 2004; Liao et al., 2009; Papatla, 2011; Seock & Norton, 2008; Seock & Chen-yu, 2007). Less commonly the EQUIMAX orthogonal rotation technique (Pan et al., 2002) and the PROMAX oblique rotation technique (Liu & Arnett, 2000) were cited in the e-commerce literature. One set of statistical experts claim that “no specific rules have been developed to guide the researcher in selecting a particular orthogonal or oblique rotation method” (Hair et al., 2010, p. 116). However, Liu and Arnett (2000) concluded that the PROMAX rotation technique provided a simple and meaningful solution. Guo and Salvendy (2009) identified that both orthogonal and oblique rotation methods produced equivalent factor loading patterns when they were running an EFA for a shopping web site attribute importance structure. Other researchers have demonstrated similarities in loading patterns when both orthogonal and oblique techniques were used to measure the hedonic and utilitarian dimensions of attitudes toward product categories (Batra & Ahtola, 1990; Crowley et al., 1992).

Probably the most significant reason for selecting the PROMAX rotation technique over the VARIMAX rotation technique has to do with the goals of the study relative to the nature of each of the rotation techniques. VARIMAX is an orthogonal rotation method. Orthogonal rotation methods require factor axes to be rotated at 90 degree angles. By being constrained to a rotation of 90 degrees, this method does not allow factors to be correlated. In contrast, PROMAX is an oblique rotation technique.

Oblique rotation methods enable factor axes to be rotated at angles other than 90 degrees. By enabling factor axes to be rotated at angles other than 90 degrees, this method allows factors to be correlated. It was the view of the research team that the shopping web site attribute performance structure would have a degree of correlation among factors. That is to say a potential factor related to the performance of a shopping web site's appearance might be related to a potential factor related to the performance of a shopping site's product information. A potential Halo Effect (Balzer & Sulsky, 1992) could have contributed to the correlation among attribute performance factors. For instance, respondents might feel that if a shopping web site is superior in one way (e.g., in regard to one factor) then it might be superior in other ways too (e.g., with regard to other factors of attributes for the site). Hence, the PROMAX rotation technique might provide a more accurate factor solution than the VARIMAX approach. It is worth noting that an oblique rotation technique such as OBLIMIN may have provided similar results to the results provided by a PROMAX rotation. However, the PROMAX rotation technique seemed to be used more often in the e-commerce literature than the OBLIMIN alternative. For these reasons, it was appropriate to run the EFA with the principal component extraction method coupled with the PROMAX rotation technique.

The Latent Root and Scree Test criteria were the primary considerations in determining the number of factors to extract in the EFA. The Latent Root criterion suggests that the number of factors to extract is determined by the number of factors with eigenvalues of at least 1.00 (Kaiser, 1960). In the present analysis, this criterion indicates that four factors should be extracted. The Scree Test criterion suggests that the number of factors to extract is determined by the point to which the Scree Plot elbow occurs. The elbow exists on the Scree Plot at the point at which the curve first

begins to straighten out (Catell, 1966). The Scree Test agrees with the Latent Root criterion in providing evidence that four factors should be extracted in the EFA.

A four factor solution contains considerably fewer factors than that the 11 factor solution identified in Blake et al. (2010). In the case of the existence of generalizability, one would intuitively think that the number of factors revealed in one study would be approximately the same as the number of factors identified in the next study. However, the discrepancy in number of factors extracted in Blake et al. (2010) versus the present analysis makes sense considering that Blake et al.'s (2010) solution was based on attribute importance ratings whereas the present analysis used attribute performance ratings as inputs into the EFA. Also, the importance solution considered attribute importance ratings of all 55 VISA (Blake et al., 2010) attributes. In contrast, the present analysis considered attribute performance ratings of only 26 attributes from VISA (Blake et al., 2010).

The final EFA solution for the performance ratings of shopping web site attributes for the consumer electronic product class contained four factors and consisted of 22 attributes. The total variance explained by this solution was 59.79%. The amount of variance explained resembles past research in e-commerce where the total amount of variance explained has ranged from 54% to 77.3% (Blake et al., 2010; Huang, 2005; Guo & Salvendy, 2009; Kim & Stoel, 2004; Liao et al., 2009; Papatla, 2011; Seock & Norton, 2008; Seock & Chen-yu, 2007; Torkzadeh & Dhillon, 2002; Yen, 2005). A purification process eliminated four of the 26 items from the original analysis. The purification process involved eliminating items that loaded onto more than one factor, eliminating items that loaded onto a factor with less than three items on the factor for reasons of stability, and eliminating items that loaded onto no factors. A greater than or equal to 0.30 cut-off was used in determining the significance of

factor loadings. Cudeck and O'Dell (1994) recommend that to use the 0.30 factor loading cut-off requires a sample size of 350. This 0.30 cut-off for a sample size of 350 is also supported by another set of other multivariate statistic experts (Hair et al., 2010). The present study only has a sample size of 313. However, only three of 22 items used in the final solution had factor loadings below 0.40. Most studies in e-commerce have followed the 0.50 cut-off rule (Hwang et al., 2006; Liao et al., 2009; Seock & Norton, 2008). However, some researchers in e-commerce have abided by the 0.35 cut-off rule (Liu & Arnett, 2000). Table IV summarizes the results of the EFA. Factor correlation matrices are provided in section H of the Appendices.

Table IV: *Factor Analysis Results for the Consumer Electronic Product Class based on Performance of Web site Attribute Ratings for Fry's Electronic (www.Frys.com)*

Performance Dimensions	Item	Factor Loadings	Communalities	Eigen Value	Var. Exp. (%)
F1: Functionality/ Logistical	It has reasonable prices	0.528	0.455	7.893	35.88
	The things I am looking for are easy to find on the site	0.566	0.468		
	It has a wide selection and variety of things on the site	0.619	0.553		
	The internet links on the site are working properly	0.75	0.486		
	It has photos of products	0.52	0.422		
	The order process is easy to use	0.61	0.419		
	It is free of grammatical and typographical errors	0.632	0.347		
	It is enjoyable to use	0.348	0.527		
	F2: Organic Influence	My friends and family let me know their opinion of the	0.787	0.614	2.724

	site				
	It has one or more animated characters that move or speak	0.318	0.335		
	I hear about it on the radio, television, or newspaper	0.644	0.61		
	My friends or family have been happy when they have shopped there	1.018	0.866		
F3: Product Information	It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)	0.501	0.318	1.508	6.85
	The site presents both benefits and drawbacks of the products/services	0.789	0.605		
	The products on the web site can be easily compared with each other	0.694	0.542		
	It is quite different from the usual sites for the products of the type involved	0.304	0.315		
	It has an interactive web design (e.g., design/customize your products/services)	0.556	0.52		
	It allows instant messaging with the company or company representatives	0.461	0.439		
	Provides customer feedback (i.e., the site provides a place for you to learn about the other customers' evaluations of the product)	0.683	0.537		

F4: Visual Aesthetics	It has interesting, attractive color (e.g., in fonts, background, and border)	0.832	0.663	1.028	4.68
	It has interesting, attractive graphics (e.g., not too complicated, not too simple)	0.945	0.86		
	It has entertaining graphics and displays	0.569	0.57		

Notes. 1) Solution is based on an oblique PROMAX rotation technique; 2) A cut-off value of 0.30 was used in determining significant factor loadings for each dimension of web site attribute performance; 3) Total variance explained by the solution is 59.79%

As one can see, factor one was called Functionality/Logistical. This is an eight item factor that explains 35.88% of the total variance. Items within this dimension include: it has reasonable prices, the things I am looking for are easy to find on the site, it has a wide selection and variety of things on the site, the internet links on the site are working properly, it has photos of products, the order process is easy to use, it is free of grammatical and typographical errors, and it is enjoyable to use. The factor loadings for this dimension ranged from 0.348 to 0.75. No web site attribute performance researchers reviewed for this study discussed a factor like the Functionality/Logistical factor identified in the present study.

The second factor is a four item factor called Organic Influence. This factor explained 12.38% of the total variance. Items found in this performance dimension include: my friends and family let me know their opinion of the site, it has one or more animated characters that move or speak, I hear about it on the radio, television, or the newspaper, and my friends or family have been happy when they have shopped there. The factor loadings for this dimension ranged from 0.318 to 1.018. Having a factor loading that exceeds 1.00 is referred to as a Heywood case (Dillon, Kumar &

Mulani, 1987). This sort of case is sometimes used as an indicator of problems with the factor solution. No web site attribute performance researchers reviewed for this study discussed a factor like the Organic Influence factor identified in the present study.

Product Information was the name of the third factor. This factor consists of seven items which explain 6.85% of the total variance. The items found in this performance dimension are: it provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.), the site presents both benefits and drawbacks of the products/services, the products on the web site can be easily compared with each other, it is quite different from the usual sites for the products of the type involved, it has an interactive web design (e.g., design/customize your products/services), it allows instant messaging with the company or company representative, and provides customer feedback (i.e., the site provides a place for you to learn about the other customers' evaluations of the product). The factor loadings for this dimension ranged from 0.304 to 0.789. A factor called Product Information was also identified by Seock and Norton (2008) for the performance of attributes in the clothing web site product class. Their Product Information factor contained the following items: it shows all the colors available for each product, it shows all the sizes available for each product, it tells the prices of products, it gives up-to-date information about products, it has good quality photos of products, it truthfully shows the colors of the products. Also, Kim and Stoel (2004) arrived at a similar factor called Information Fit-to-Task when running a factor analysis on the performance of web site attributes for apparel e-tailers. This factor was related to items like: I can interact with the web site in order to get information tailored to my specific needs, the web site has interactive features which help me accomplish my task, the web site

allows me to interact with it to receive tailored information, and the web site adequately meets my information needs.

The final factor was called Visual Aesthetics. This factor consists of three items, and explained 4.68% of the total variance. The items that make up this dimension include: it has interesting, attractive color (e.g., in fonts, background, and border, it has interesting, attractive graphics (e.g., not too complicated, not too simple), and it has entertaining graphics and displays. Factor loadings for this performance dimension ranged from 0.569 to 0.832. Kim and Stoel (2004) identified a similar factor in their EFA for performance of web site attributes for apparel e-tailers called Web Appearance. Web Appearance was made up of the following items in their study: the web site displays visually pleasing design, the web site is visually pleasing, the web site is visually appealing, it would be easy for me to become skillful at using the web site, learning to operate the web site is easy for me, the display pages within the web site are easy to read.

The communalities for each item also appear in Table IV. Communalities enable one to understand the level with which each item is accounted for by the factor solution (Hair et al., 2010). The communalities in the present solution ranged from 0.315 to 0.866. The following items were the smallest contributors to the final EFA solution based on communalities: it is free of grammatical and typographical errors, it has one or more animated characters that move or speak, it provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.), and it is quite different from the usual sites for the products of the type involved. Items that made the largest contributions to the final solution include: my friends and family let me know their opinion of the site, it has interesting, attractive graphics (e.g., not too complicated, not too simple), it has interesting, attractive color (e.g., in fonts,

background, and border), and my friends or family have been happy when they have shopped there.

3.2 CFA for Consumer Electronic Attribute Performance

The purpose of a confirmatory factor analysis (CFA) is to test how well measured variables represent a set of constructs. In other words, a CFA enables researchers to either confirm or reject a preconceived theory such as the theory that a performance structure exists for attributes of shopping web sites. The measured variables used in the present analysis were the 22 performance of shopping web site attribute ratings based on the www.Frys.com web site. The constructs used in the analysis were the four dimensions identified in the EFA for the performance of shopping web site attribute ratings based on the www.Frys.com web site. The dimensions identified in the performance EFA include: Functional/Logistical, Organic Influence, Product Information, and Visual Aesthetics.

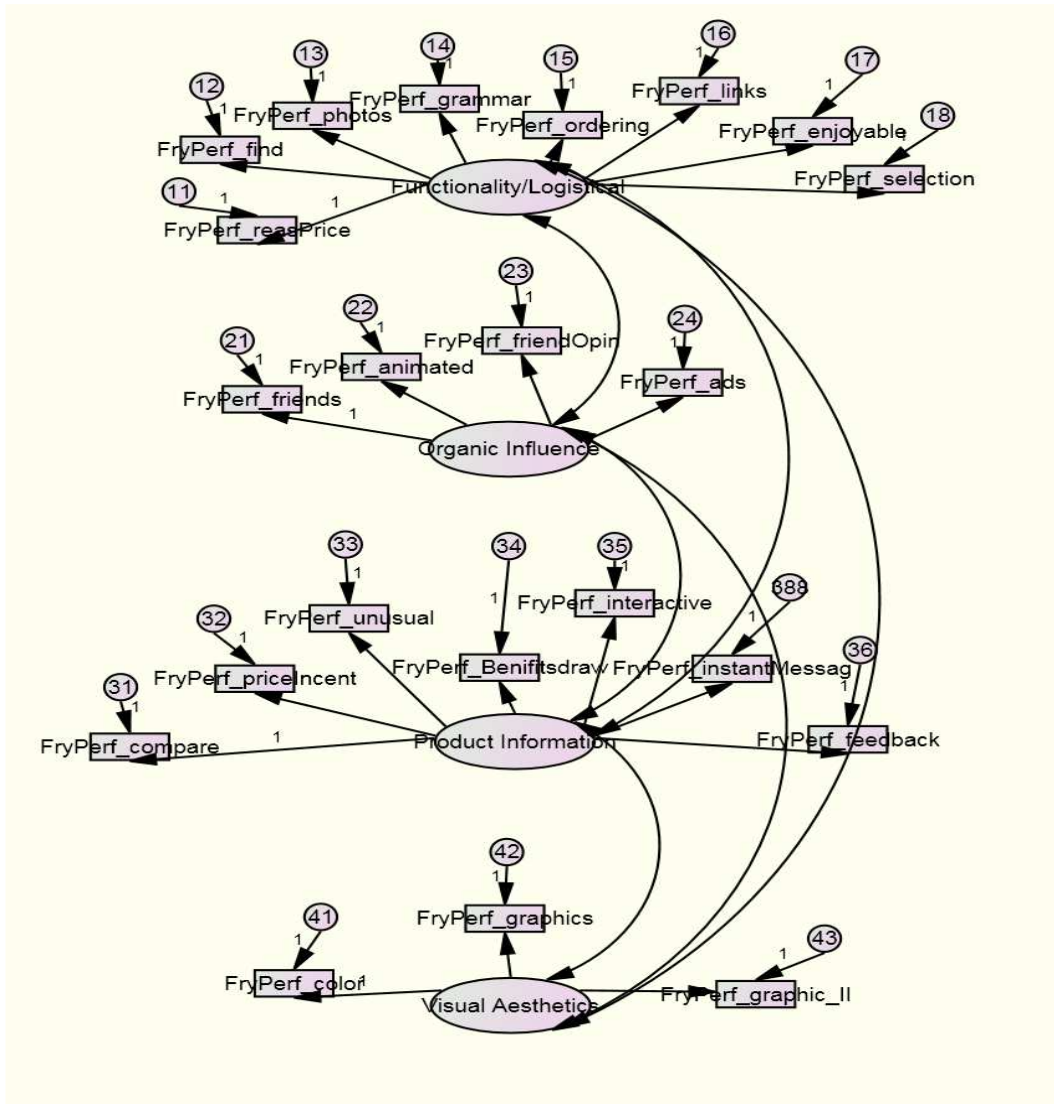
AMOS 18.0 was the software package used to conduct the CFA. Figure 1 illustrates how the measurement model was specified. Measured variables are indicated by the following format: FryPerf_ variable name. FryPerf indicates that the measured variable came from the rating of the performance of attributes for the www.Frys.com web site. The variable names refer to each of the attributes measured in the study. For instance, the measured variable called FryPerf_grammar refers to the variable “it is free of grammatical and typographical errors” as rated by the sample for the www.Frys.com web site.

As one can see, The Functional/Logistical dimension was operationalized to include the following variables: it has reasonable prices (FryPerf_reasPrice), the things I am looking for are easy to find on the site (FryPerf_find), it has a wide selection and variety of things on the site (FryPerf_selection), the internet links on the

site are working properly (FryPerf_links), it has photos of products (FryPerf_photos), the order process is easy to use (FryPerf_ordering), it is free of grammatical and typographical errors (FryPerf_grammar), and it is enjoyable to use (FryPerf_enjoyable). The Organic Influence dimension was operationalized to contain the following measured variables: my friends and family let me know their opinion of the site (FryPerf_friendOpin), it has one or more animated characters that move or speak (FryPerf_animated), I hear about it on the radio, television, or newspaper (FryPerf_ads), and my friends or family have been happy when they have shopped there (FryPerf_friends). Next, the Product Information dimension was operationalized to include: it provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.) (FryPerf_priceIncent), the site presents both benefits and drawbacks of the products/services (FryPerf_benefitsDraw), the products on the web site can be easily compared with each other (FryPerf_compare), it is quite different from the usual sites for the products of the type involved (FryPerf_unusual), it has an interactive web design (e.g., design/customize your products/services) (FryPerf_interactive), it allows instant messaging with the company or company representatives (FryPerf_instantMessag), and provides customer feedback (i.e., the site provides a place for you to learn about the other customers' evaluations of the product) (FryPerf_feedback). Finally, the Visual Aesthetics dimension was operationalized to consist of the following measured variables: it has interesting, attractive color (e.g., in fonts, background, and border) (FryPerf_color), it has interesting, attractive graphics (e.g., not too complicated, not too simple) (FryPerf_graphics), and it has entertaining graphics and displays (FryPerf_graphics_II). Based on how the measurement model was specified, one can

see that the three indicator rule (Bollen, 1989) was followed in order to ensure an adequate level of identification was realized by the CFA solution.

Figure 1. *Specification of the shopping web site attribute performance structure*



As state earlier, the ultimate goal of the CFA is to obtain an answer as to whether a given measurement model is valid. For the present analysis, the measurement model is related to web site attribute performance for the consumer electronic product class. In order to determine the validity of the measurement model, one must consider a combination of fit indices and the construct validity for the model. Fit indices include statistics like chi-square, degrees of freedom, statistical

significance of chi-square, the goodness-of-fit index (GFI), the Root Mean Square Error of Approximation (RMSEA), the Root Mean Square Residual (RMR), the Normed Fit Index (NFI), the Tucker Lewis Index (TLI), the Comparative Fit Index (CFI), and the Adjusted Goodness of Fit Index (AGFI). Furthermore, construct validity is comprised of convergent validity, discriminant validity, nomological validity and face validity.

The results of the CFA are summarized in Table V and Table VI shown below. The validation sample size was 313. Hair et al. (2010) suggest that a sample size of at least 300 is necessary for measurement models with fewer than seven constructs and in the cases where communalities are present that are below 0.45. Both of these circumstances surround the present analysis. Hence, a sample size of 313 has utility for the research team.

Absolute fit indices provide direct measures of how well the model specified by the researcher reproduces the observed data (Hair et al., 2010). The most commonly referenced absolute fit indices include: chi-square, degrees of freedom, the chi-square p-value, RMSEA, RMR, and GFI. The CFA in the present analysis provided a chi-square value of 639.222, a degrees of freedom value of 203, a chi-square p-value of 0.00, a RMSEA of 0.083, a RMR of 0.101, and a GFI of 0.837. The chi-square value indicates the amount of difference that exists between the expected and actual covariance matrices for the data. The closer the chi-square value is to zero, the more similar the two matrices are. The chi-square value of 639.222 is far from zero. However, the chi-square statistic is sensitive to sample size, and the sample size in the present analysis amounted to 313. The chi-square p-value is inversely related to the chi-square statistic. In other words, as the value of the chi-square nears zero, the

value of the p-value increases. As a result, it was to be expected that a small chi-square p-value would accompany a relatively large chi-square statistic.

The degrees of freedom are related to the identification of the model. When degrees of freedom exceed 0 in value, this is known as overidentification.

Overidentification indicates that enough information exists in the model to identify a solution from a set of structural equations. More specifically, overidentification occurs when a model has more unique covariances and variance terms than parameters to be estimated. It is ideal to have overidentification when running a CFA. In the present analysis, the degrees of freedom equal 203. Thus, the model is overidentified. This was to be expected considering the analysis followed the three indicator rule (Hair et al., 2010) of having at least three measured variables per construct.

Furthermore, the chi-square to degrees of freedom ratio is 639.222 to 203. Hair et al. (2010) suggest that a chi-square to degrees of freedom ratio of at least two or three suggest an acceptable fit for the measurement model. The ratio for the present analysis has a value of more than three.

RMSEA is probably the most popular absolute fit index. The general rule when looking at an RMSEA value is that the lower the RMSEA value the better the fit. Hence, an RMSEA value of 0.06 indicates better fit than an RMSEA value of 0.08. One of the key benefits of RMSEA versus other fit indices is that it is useful in trying to understand how well a model fits a population, not just the sample used for estimation. RMSEA tries to correct for both model complexity and sample size, and both are included in its statistical computation (Hair et al., 2010). The RMSEA value for the present analysis was 0.083. Hu and Bentler (1998; 1999) classify a RMSEA value of 0.083 as represents a measurement model with mediocre fit. Another set of

CFA experts point out that many researchers seek to meet the 0.05 and 0.08 maximum cut-off values when assessing fit with RMSEA (Hair et al., 2010).

Table V. CFA results for the attribute performance measurement model

Construct	Measured Variable	Standard. Factor Loadings	Error	Const. Rel.	AVE
Functionality/Logistical	Reasonable Price	0.68	0.54	0.85	0.41
	Find Photos	0.74	0.46		
	Grammar	0.62	0.62		
	Ordering	0.47	0.78		
	Links	0.64	0.59		
	Enjoyable	0.61	0.66		
	Selection	0.65	0.58		
		0.69	0.53		
Organic Influence	Friends	0.90	0.19	0.84	0.58
	Animated Friend	0.49	0.76		
	Opinion	0.81	0.35		
	Ads	0.77	0.41		
Product Information	Compare Price	0.74	0.45	0.84	0.44
	Incentive	0.53	0.73		
	Unusual Benefits/	0.54	0.71		
	Drawbacks	0.77	0.41		
	Interactive	0.70	0.51		
	Instant				
	Messaging	0.63	0.61		
	Feedback	0.68	0.53		
Visual Aesthetics	Color	0.83	0.31	0.85	0.65
	Graphics	0.91	0.17		
	Graphics II	0.66	0.56		
Goodness-of-Fit Summary					
n	313		CFI	0.863	
Chi-Square	639.222		IFI	0.864	
D.F.	203		TLI	0.844	
P	0.00		GFI	0.837	
RMSEA	0.083		NFI	0.813	
RMR	0.101		AGFI	0.797	

Notes. 1) All factor loadings were significant with p-values of less than 0.001.

Bollen (1984) concluded that the evaluation of fit indices should be based primarily on fit statistics to be found within previous research in a given area. This conclusion will guide the argument of whether the current measurement model provides an acceptable level of fit for the majority of the following fit indices assessed. Huang (2005) developed a measurement model for the investigating the performance of shopping web sites and indicated a marginal model fit with an RMSEA of 0.10. This value is noticeably higher than the RMSEA identified by the present performance model. However, one set of researchers claimed to have an excellent fit for their Gestalt-oriented model of evaluating online shopping environments with a RMSEA of 0.052 (Demangeot & Broderick, 2010). The RMSEA value of 0.083 seems to find itself in the middle of the road when it comes to assessing fit for measurement models in the online shopping literature. For this reason along with the expert-suggested cut-offs, the RMSEA value of 0.083 provides satisfactory fit for the performance measurement model.

RMR is another absolute fit index. This fit index is considered a measure of overall residual value. Hence, it is a measure of fit whereby lower values indicate a measurement model that is better fitting. Nunnally and Bernstein (1994) and Hair et al. (2010) stipulate that a RMR that exceeds an absolute value of four indicates a model with poor fit. In the present analysis, RMR was 0.101. Since the absolute value of 0.101 is well below the absolute value of four, the RMR indicates that the model fits well.

The final absolute fit index that was looked at was GFI. Larger GFI values indicate better fit than smaller ones. Hu and Bentler (1998; 1999) argue that GFI

needs to be at least 0.95 to indicate the measurement model has an acceptable level of fit. Huang (2005) arrived at marginal fit with a GFI of 0.88 with the development of a web site performance scale. Kim and Stoel, (2004) indicated their measurement model for the performance of online apparel retailers had satisfactory fit with a GFI of 0.85. On the other hand, Yen (2005) required a GFI of 0.96 for good fit for her six factor attribute-based model of quality satisfaction for Internet self-service technology. The GFI identified in the present analysis for the attribute performance measurement model was 0.837. Based on past research, this value for GFI is determined to be at a satisfactory level.

Incremental indices assess how well a specified model fits relative to some alternative baseline model which is usually a model specifying that all variables are unrelated to each other (Hair et al, 2010). The most commonly referenced incremental indices include: CFI, TLI, and NFI. The CFI for the present CFA was 0.863. While Hu and Bentler (1998; 1999) support that CFI needs to be at least 0.95 to indicate a measurement model has an acceptable level of fit, Hair et al. (2010) suggest that higher CFI values indicate better fit than lower CFI values. The CFI is widely used primarily due to its insensitivity to model complexity. A relatively complex model is found in the present CFA which contains four constructs and 22 measurement variables. Other online shopping researchers testing the fit of their web site performance models have achieved CFIs of 0.97 (Yen, 2005), 0.92 (Kim & Stoel, 2004), 0.93 (Huang, 2005), 0.99 (Ergolu et al., 2003), and 0.97 (Demangeot & Broderick, 2010). These CFIs dwarf the CFI of 0.863 identified in the present study. Based on the CFIs identified in the past research for the performance of online shopping web site attribute performance models coupled with the steep cut-off

provided by Hu and Bentler (1998; 1999) of 0.95, the CFI in the present study indicates marginal fit at best.

TLI is another incremental fit index whereby larger values indicate better fit. Values for TLI can range from zero to one. The closer the TLI value is to one, the better the fit. Like CFI, Hu and Bentler (1998; 1999) have developed a strict cut-off for TLI of at least 0.95 to indicate a measurement model has an acceptable level of fit. Russell (2002) agrees with the 0.95 cut-off for TLI. To the contrary, King, King, Erikson, Huang, Sharkansky and Wolfe (2009) support a more relaxed cut-off of 0.90 for TLI. The TLI in the present analysis has a value of 0.844. This value does not meet the strict 0.95 cut-off. One expert related a TLI value of 0.93 to having a good model fit for her measurement model of online shopping attribute performance (Yen, 2005). Since the TLI of 0.844 is below both the cut-off of 0.95 and the value for TLI of 0.93 associated with acceptable fit in the online shopping literature, TLI does not illustrate acceptable fit in the present CFA.

NFI was the final incremental fit index used in assessing the fit of the attribute performance measurement model. NFI values can range from zero to one. An NFI of one indicates a perfect fit for the measurement model. In the present CFA, the NFI was 0.813. A value for NFI of 0.813 is concerning considering Huang (2005) arrived at an NFI of 0.91 and only proclaimed marginal fit for her measurement model. Jiang and Rosenbloom (2005) and Demangeot and Broderick (2010) also arrived at NFIs that exceeded 0.90 in order to argue good fit for their measurement models. While the NFI in the present study was less than that of research of the past, no commonly agreed upon value for NFI exists to indicate an acceptable level of model fit. In fact, McDonald and Marsh (1990) proclaim that traditional cut-off values amount to little more than rules of thumb based largely on intuition with very little statistical

justification. Hence, an NFI of 0.813 provides a satisfactory level of fit for the present measurement model.

The final fit index used to assess fit in the present CFA is a parsimony fit index. Parsimony fit indices are measures that are improved by either a better fit or a simpler model. In other words, parsimony fit indices favor less complex models (Hair et al., 2010). AGFI was the parsimony fit index assessed in this CFA. The value for AGFI was 0.797. This number is not very high. Like the GFI index, the larger the AGFI the better the measurement model fits. While the AGFI is relatively low at 0.797, it is worth noting that a measurement model with four factors and 22 attributes is moderately complex. The complexity of this model may have contributed to some extent to the low AGFI that the CFA calculated for this measurement model.

As stated earlier, construct validity of the attribute performance measurement model requires one to assess convergent, discriminant, nomological, and face validity of the model. Assessment of convergent validity involves looking at the factor loadings of each measured variable onto each construct. Also, convergent validity is assessed by looking at the average variance extracted (AVE) for each construct in the model. Hair et al. (2010) argue that standardized factor loadings of 0.50 or higher indicate that the model has an acceptable level of convergent validity. As Table V illustrates, all variables have standardized factor loadings of at least 0.50 except the grammar variable and the animated variable. The grammar variable loads onto the Functionality/Logistical construct, and the animated variable loads onto the Organic Influence construct. Hair et al. (2010) also indicate that factor loadings in a CFA that exceed 0.70 illustrate an ideal level of convergent validity. As Table V indicates, eight variables have standardized factor loadings that exceed 0.70.

Another determinant of convergent validity in a CFA is the AVEs. AVEs indicate the average percent of variation explained among the items in a construct. Ideally, the AVE's should exceed 0.50 to indicate an acceptable level of convergent validity (Huang, 2005). The AVEs were 0.41, 0.58, 0.44, and 0.65 for the constructs Functionality/Logistical, Organic Influence, Product Information, and Visual Aesthetics, respectively. Following Huang's (2005) cut-off, only the Organic Influence and the Visual Aesthetics constructs provide an adequate level of convergent validity. The factor loadings coupled with the AVEs for the measurement model indicate marginal support for the presence of convergent validity in the measurement model.

The discriminant validity of the model was evaluated by comparing the square correlation estimates of any two constructs with the AVEs of the respective constructs. Evidence for discriminant validity in a measurement model is provided when the AVEs are greater than the squared correlation estimates among constructs. This approach to assessing discriminant validity of a measurement model has been popularized and used by many statisticians (Fornell & Larcker; Hair et al., 2010). It has also been used to by many online shopping researchers to assess discriminant validity of online shopping measurement models (Demangeot & Broderick, 2010; Huang, 2005; Jiang & Rosenbloom, 2005). The logic behind this approach is that each latent construct should explain more of the variance in its items than it shares with another construct. Discriminant validity should exist with regard to the measurement model since different dimensions of the model are supposed to be measuring different things. Table VI provides the values for each of the AVEs as well as each of the squared correlation estimates among each construct. As one can see, evidence for discriminant validity is provided for three of six cases based on this

approach. One of the cases where discriminant validity is not supported is apparent when looking at the squared correlation between the Organic Influence and Product Information constructs. The squared correlation value among these constructs is 0.48. This value exceeds the AVE for the Product Information construct which has a value of 0.44. Another case where the discriminant validity is not supported is found with the squared correlation between the constructs Functionality/Logistical and Product Information. The squared correlation here is 0.47. This 0.47 value exceeds the AVEs for both the Functionality/Logistical and the Product Information constructs which had AVEs of 0.41 and 0.44, accordingly. These assessments provide mixed support for the presence of discriminant validity in the current attribute performance measurement model.

One potential explanation for the mixed support for the presence of discriminant validity in the current attribute performance measurement model could be the presence of a halo effect. Recall, a Halo effect is a general impression bias whereby a rater's overall evaluation or impression of something leads the rater to evaluate all aspects of that thing in a manner consistent with this general evaluation or impression (Balzer & Sulsky, 1992). In the present situation, it is possible that a respondent might feel that if a web site is performing well regarding one construct that it must be performing well on all constructs. This sort of halo effect would contribute to higher square correlation estimates among construct which would in turn act against identifying the presence of discriminant validity in the measurement model.

Table VI. *Evidence for Discriminant Validity among Constructs*

Construct	AVE
Functionality/Logistical	0.41
Organic Influence	0.58
Product Information	0.44

Construct Pair	Squared Correlation estimate between the Construct Pair
Visual Aesthetics	0.65
Functionality/Logistical: Organic Influence	0.13
Functionality/Logistical: Product Information	0.47
Functionality/Logistical: Visual Aesthetics	0.33
Organic Influence: Product Information	0.48
Organic Influence: Visual Aesthetics	0.16
Product Information: Visual Aesthetics	0.28

Notes. 1) Values in this table were derived from AMOS 18.0 output.

Nomological validity is a test of validity that examines whether the correlations between the constructs in the measurement model make sense. In order to determine whether the correlations make sense, the construct correlations need to be examined (Hair et al., 2010). Table VII seen below presents each of the construct correlations from the analysis. As one can see, the highest construct correlation was between the Organic Influence and the Product Information constructs. Intuitively, it was to be expected that Organic Influence variables associated with friends, friend opinions, the presence of animated characters and a web site's advertisements would be related to Product Information variables associated with the ability to compare products, the offering of pricing incentives, the unusual aspects of the site, the information about benefits and drawbacks of products, the interactivity of the site, the ability to instant message employees of the site, and the availability of customer feedback for products on a site.

To the contrary, the lowest construct correlation was between the Functionality/Logistical and the Organic Influence constructs. Intuitively, it is to be expected that a low construct correlation would be present among Functionality/Logistical variables like offering reasonable prices for products, making it easy to find products, the presence of photos of product, using proper grammar in the text of the site, having an easy to use ordering process, having links that work, having a site that is enjoyable to use, and offering a wide selection of products and the construct of Organic Influence which consists of variables associated with the influence of friends, the opinion of friends, the presence of animated characters on the site, and the influence of advertisements for the site. Through intuition and the reference of findings from past literature, it is evident that at least a marginal level of nomological validity is provided in the attribute performance scale for the CFA.

Table VII. *Attribute Performance Construct Correlations*

Construct A	Construct B	Correlation of Construct A and B
Functionality/Logistical	Organic Influence	0.366
Functionality/Logistical	Product Information	0.686
Functionality/Logistical	Visual Aesthetics	0.579
Organic Influence	Product Information	0.696
Organic Influence	Visual Aesthetics	0.41
Product Information	Visual Aesthetics	0.538

Notes. 1) Correlations were computed with AMOS 18.0

The final assessment that needs to be made in order to make the decision of whether or not to confirm the attribute performance theory involves the face validity

of the measurement model. Face Validity is the extent to which the content of the items is consistent with the construct definition, based solely on the researcher's judgment (Hair et al., 2010). Face validity is present in the current attribute performance measurement model for three reasons. First, the variables selected for evaluating the attribute performance of the consumer electronic product class were drawn from the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010). This set of attributes has been shown to possess an underlying attribute importance structure based on past research (Blake et al., 2010). Thus, it is to be expected that some sort of performance structure exists among these sorts of attributes. Second, the EFA identified a four factor, 22 item solution that was easy to interpret. A less interpretable solution would provide less evidence for face validity of a solution. Finally, past researchers have identified similar attribute performance dimensions. For example, one set of researchers identified three attribute performance dimensions called web appearance, informational fit-to-task, and transaction capability (Kim & Stoel, 2004). These dimensions mirror the Visual Aesthetics, Product Information, and Functionality/Logistical attribute performance dimensions used in the present study. Also, another set of researchers confirmed an attribute performance structure with constructs that included Visual Impact and Site Architecture (Demangeot & Broderick, 2010). These two dimensions possess a considerable overlap with the attribute performance dimensions of Visual Aesthetics and Functionality/Logistical assessed in the present study. Furthermore, another set of researchers confirmed an attribute performance structure containing indicators of ease of ordering, product information, product selection, on-time delivery, and customer support (Jiang & Rosenbloom, 2005). Each of these indicators can be found throughout the present attribute performance measurement model.

Taken together, it was determined that the attribute performance measurement model theory was accepted. Goodness-of-fit parameters like the chi-square, the chi-square p-value, the degrees of freedom, the RMSEA, the RMR, the GFI, the CFI, and the NFI provided marginal to strong evidence that the theory should be upheld. On the other hand, the TLI and the AGFI provided some evidence that the measurement model did not fit well. In looking at construct validity, a marginally acceptable level of convergent validity was evidenced with the use of indicator-construct factor loadings and AVE estimates for each construct. Mixed support was provided for an acceptable level of discriminant validity as evidenced by comparisons of AVEs to squared correlation estimates among constructs. However, a halo effect may have contributed to this mixed support. Nomological validity was marginal, and face validity was excellent for the measurement model.

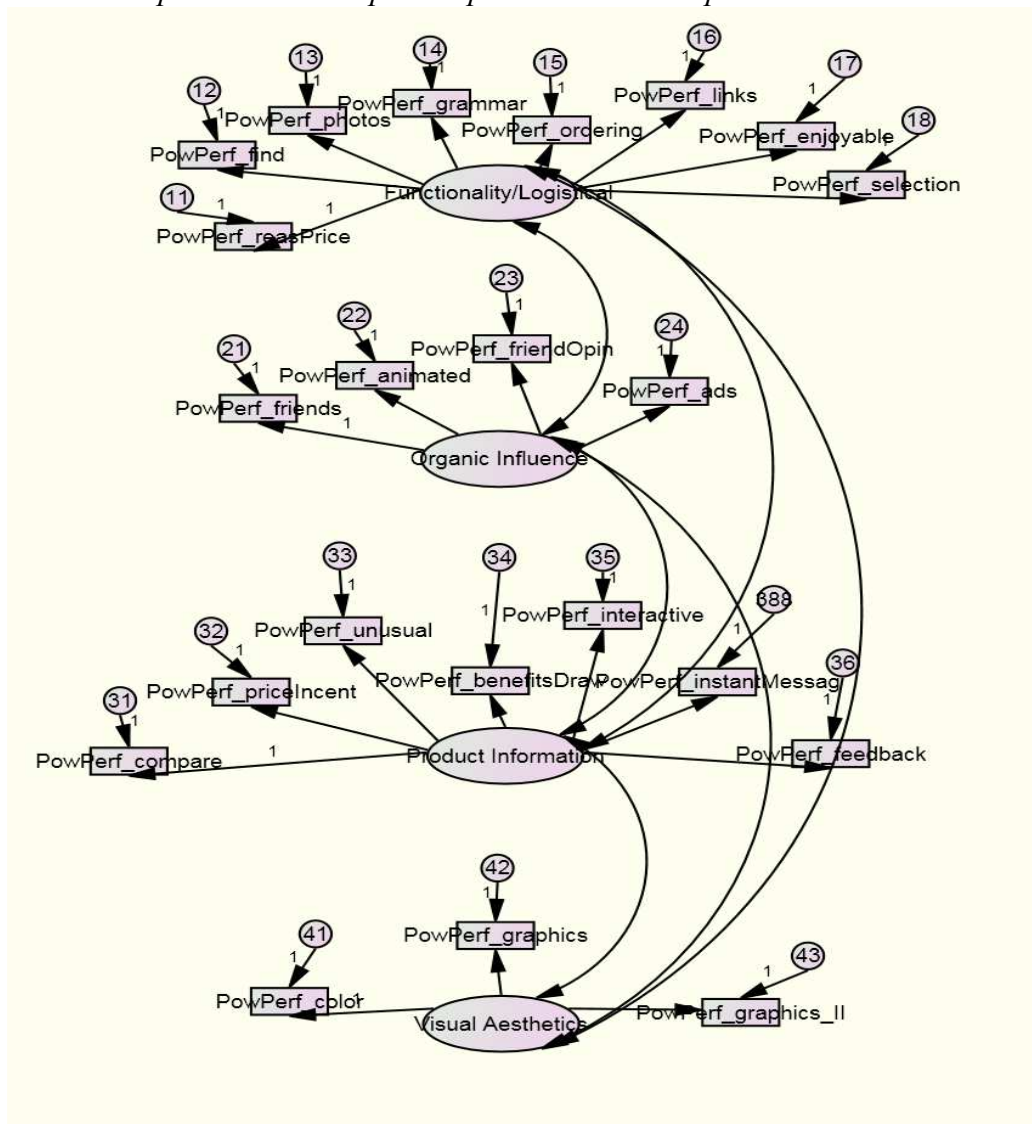
3.3 Generalizing the Performance Structure across Web Sites

Now that an attribute performance structure has been confirmed based on the attribute performance ratings of the www.Frys.com web site for the consumer electronic product class, the generalizability of this structure across product classes can be assessed. In order to assess the generalizability across product classes, a CFA was run. The CFA involved replacing the performance ratings for the consumer electronic product class based on www.Frys.com with the performance ratings of the same attributes gathered for the bookstore product class based on www.Powells.com while operationalizing constructs in the manner confirmed in the CFA established for the performance of the consumer electronic product class. If imposing the structure established for the consumer electronic product class provides an adequate level of fit and construct validity for the bookstore product class, this provides evidence that the attribute performance structure can be generalized across product classes. On the

other hand, if fit and construct validity are not adequate then a lack of generalizability across product classes is evidenced.

To clarify how the model was specified, please take a look at Figure 2. As far as constructs and measured variables are concerned, the measurement model here precisely matches the structure confirmed in the consumer electronic product class. The only distinction among the two specifications is that the consumer electronic product class contained measured variables for attribute performance ratings based on the www.Frys.com web site. Whereas, the measurement model illustrated in Figure 2 contains measured variables of the same attributes rated for the bookstore product class with the use of www.Powells.com web site. To reiterate, if the model confirmed for the consumer electronic product class provides acceptable levels of fit for the bookstore product class then evidence has been provided that the attribute performance structure generalizes across product classes.

Figure 2. Specification of the attribute performance structure for consumer electronic product class imposed upon the bookstore product class.



As was done for confirming the attribute performance structure for the consumer electronic product class, this CFA will be presented by examining each of the fit indices and the construct validity of the measurement model. Following the examination of these parameters, a conclusion will be made about whether the attribute performance structure can be generalized across product classes.

The results of the CFA testing the generalizability of the attribute performance structure across product classes is summarized in Table VIII seen below. As one can

see, the goodness-of-fit indices seen at the bottom of the table provide evidence of acceptable fit in some but not all cases. The chi-square to degrees of freedom ratio exceeds three which provides some evidence of fit (Hair et al., 2010). The degrees of freedom exceed 0 indicating the measurement model is overidentified which is good (Bollen, 1989). The RMSEA of 0.083 falls between 0.080 and 0.1 which indicates the model has a mediocre level of fit (Hu & Bentler, 1998; 1999). The value for RMR has an absolute magnitude of less than four which also indicates no problems with the fit (Nunnally & Bernstein, 1994). However, the CFI, TLI, GFI, NFI, IFI, and AGFI fail to meet the strict 0.95 cut-off established by some CFA experts (Hu & Bentler, 1998;1999). Taken together, these fit indices provide evidence of only a marginal level of fit at best for the measurement model.

Table VIII: *CFA results for imposing Fry's attribute performance structure onto Powell's attribute performance ratings*

Construct	Measured Variable	Standard. Factor Loadings	Error	Const. Rel.	AVE
Functionality/Logistical	Reasonable Price	0.60	0.64	0.87	0.44
	Find Photos	0.72	0.48		
	Grammar	0.64	0.59		
	Ordering	0.58	0.67		
	Links	0.68	0.54		
	Enjoyable	0.72	0.48		
	Selection	0.68	0.53		
		0.69	0.52		
Organic Influence	Friends	0.80	0.37	0.77	0.47
	Animated Friend	0.45	0.80		
	Opinion	0.80	0.36		
	Ads	0.64	0.59		
Product Information	Compare	0.73	0.47	0.8	0.37

	Price Incentive	0.48	0.77		
	Unusual Benefits/ Drawbacks	0.52	0.73		
	Interactive Instant Messaging	0.76	0.43		
	Feedback	0.61	0.63		
		0.52	0.73		
		0.57	0.68		
Visual Aesthetics				0.88	0.69
	Color	0.87	0.24		
	Graphics	0.91	0.17		
	Graphics II	0.69	0.48		
Goodness-of-Fit Summary					
n	313			CFI	0.853
Chi-Square	634.506			IFI	0.854
D.F.	203			TLI	0.832
P	0.00			GFI	0.842
RMSEA	0.083			NFI	0.799
RMR	0.091			AGFI	0.804

Notes. 1) All factor loadings were significant with p-values of less than 0.001.

In looking at the construct validity of the measurement model, the standardized factor loading estimates and the AVEs provide mixed evidence for the presence of convergent validity. Recall, the rule-of-thumb is that standardized factor loadings should exceed 0.50 to indicate the presence of convergent validity (Hair et al., 2010). As Table VIII displays, all but two measurement variables have standardized factor loadings that meet this 0.5 criteria. The measured variables that do not meet the criteria are animated with a factor loading of 0.466 and price incentive with a factor loading of 0.482. An acceptable level of convergent validity is also evidenced when the AVEs for each construct in the measurement model exceed 0.50 (Hair et al., 2010). Within Table VIII, the AVEs are 0.44, 0.47, 0.37, and 0.69 for the constructs Functionality/Logistical, Organic Influence, Product Information, and Visual

Aesthetics, respectively. Here it is apparent that only one of the four constructs of the measurement model provide an acceptable level of evidence for convergent validity.

Discriminant validity for the measurement model was evaluated by comparing the square correlation estimates of any two constructs with the AVEs of the respective constructs. The case where AVEs of the respective constructs exceed the squared correlation estimates provides evidence for discriminant validity of the measurement model. In contrast, the case where AVEs of the respective constructs are less than the squared correlation estimates provides evidence against the discriminant validity of the measurement model. The logic behind this assessment is that each latent construct should explain more of the variance in its items than it shares with another construct. This approach to assessing discriminant validity was popularized by one set of CFA experts (Hair et al., 2010). Table IX provides the values for each of the AVEs as well as each of the squared correlation estimates among each construct.

Many situations arise from the table which support the discriminant validity of the model. However, three situations also point to a lack of discriminant validity for the measurement model. The first situation where discriminant validity is not supported is seen when comparing the squared correlation among the Functional/Logistical and the Product Information constructs with their respective AVEs. Here the squared correlation of 0.42 exceeds the AVE for the Product Information construct which has a value of 0.37. The second and third situations where discriminant validity of the model is not evidenced surround the squared correlation among the Organic Influence and Product Information constructs. Specifically the squared correlation value of 0.52 exceeds both the AVE for the Organic Influence construct with a value of 0.47 and the AVE for the Product Information construct with a value of 0.37. The remainder of the comparisons of

squared correlations among constructs to associated AVEs provide evidence that point toward the existence of discriminant validity of the measurement model.

Table IX. *Evidence for Discriminant Validity among Constructs*

Construct	AVE
Functionality/Logistical	0.44
Organic Influence	0.47
Product Information	0.37
Visual Aesthetics	0.69
Construct Pair	Squared Correlation estimate among the Construct Pair
Functionality/Logistical: Organic Influence	0.07
Functionality/Logistical: Product Information	0.42
Functionality/Logistical: Visual Aesthetics	0.33
Organic Influence: Product Information	0.52
Organic Influence: Visual Aesthetics	0.08
Product Information: Visual Aesthetics	0.21

Notes. 1) Values in this table were derived from AMOS 18.0 output.

For reasons similar to the CFA run for the consumer electronic attribute performance structure, this measurement model also contains a marginal level of nomological validity and an high level of face validity. Nomological validity is the test of validity that examines whether the correlations between the constructs in the measurement theory make sense (Hair et al, 2010). The correlations among constructs are highlighted in Table X seen below. As was described in the CFA run for the consumer electronic attribute performance structure, these correlations make sense.

Table X. *Attribute Performance Construct Correlations*

Construct A	Construct B	Correlation of Construct A and B
Functionality/Logistical	Organic Influence	0.262
Functionality/Logistical	Product Information	0.650
Functionality/Logistical	Visual Aesthetics	0.571
Organic Influence	Product Information	0.721
Organic Influence	Visual Aesthetics	0.280
Product Information	Visual Aesthetics	0.467

Notes. 1) Correlations were computed with AMOS 18.0

Finally, face validity is the extent to which the content of the items is consistent with the construct definition, based solely on the researcher's judgment (Hair et al., 2010). Face validity is present in the current attribute performance measurement model for three reasons. First, the attributes were selected from VISA which is a formal model (Blake et al., 2010). Second, the factor solution was easy to interpret. Third, other researchers have identified similar performance dimensions in the past (Demangeot & Broderick, 2010; Jiang & Rosenbloom, 2005; Kim & Stoel, 2004).

Although a seemingly minimal amount of evidence has been provided to support the fit and construct validity of the measurement model, the evidence should not be overlooked. The chi-square to degrees of freedom ratio, the RMSEA, and the RMR fit indices provided evidence for an acceptable level of fit. However, the CFI, NFI, IFI, and AGFI fell short of reaching acceptable levels. In looking at the construct validity of the measurement model, mixed notions of support were provided

for the convergent validity as evidenced by promising factor loadings but inadequate AVEs for each factor. The discriminant validity of the model was also only moderately supported. Three comparisons of AVEs to squared construct correlations contradicted support for the discriminant validity of the model. In contrast, the remainder of the comparisons indicated support for the discriminant validity. Nomological validity was marginally supported based on inter-construct correlations and past e-commerce literature. Finally, strong evidence for face validity of the measurement model was provided with the use of the ease of interpretation of the model and past e-commerce literature. These results indicate that the measurement model that sought to generalize performance ratings across product classes fits less well than the measurement model that was used to confirm the performance structure for the consumer electronic product class. As a result, a minimum level of generalizability is expected for the performance of shopping site features across product classes.

3.4 Attribute Level Differences in Performance

Macro-level analyses were conducted to identify and confirm the attribute performance structure for the consumer electronic product class. Also, a macro-level analysis was performed to test the generalizability of the attribute performance structure across product classes. The attention of the results section will now shift to some micro-level analyses that will identify attribute level differences in performance ratings across product classes—as indicated by attribute performance ratings of typical web sites for the bookstore (the www.Powells.com web site) and consumer electronic (the www.Frys.com web site) product classes. These micro-level analyses include a within subjects repeated measures MANOVA and a series of correlations for each attribute performance rating among product classes.

The purpose of the within subjects repeated measures MANOVA was to identify significant differences in mean attribute performance ratings across product classes—as indicated by attribute performance ratings for the two web sites (www.Powells.com and www.Frys.com). The analysis involves a within subjects research model since all subjects rated attribute performance rating for both the consumer electronic product class and the bookstore web sites. The independent variable in this analysis was related to group membership. The groups for this variable were those that rated the attribute for the web site representing the consumer electronic product class and those that rated the same attribute for the web site representing the bookstore product class. The dependent variables were each of the 22 performance attributes that were rated for the consumer electronic and bookstore product classes. The equal group size assumption was satisfied since both groups were rated by 313 people. An adequate sample size was used in the analysis since the number of cases per group of 313 exceeds the number of dependent variables which was 22. With the use of only two levels of the repeated factor, sphericity was assumed.

The results of the within subjects repeated measures MANOVA analysis are presented in Table XI seen below. The multivariate tests assess whether overall there is a difference between the groups in the dependent variables as a set. All four of the leading multivariate tests here indicate a rejection of the null hypothesis, and thus the conclusion is that overall there is a significant difference between the respondents' ratings of attribute performance for www.Powells.com web site and the www.Frys.com web site. Recall, these two web sites were strategically selected to represent typical bookstores and typical consumer electronic stores, respectively.

Hence, this finding provides useful insights into the investigation of generalizability of attribute performance ratings across product classes.

The Univariate Tests portion of Table XI provides specific instances where attribute performance ratings were significantly different across the www.Powells.com and www.Frys.com web sites. Significant differences in attribute performance were identified for 16 of 22 web site attributes. The attributes with mean ratings that did not significantly differ across product classes were: 1) the internet links on the site are working properly; 2) it has photos of products; 3) it is free of grammatical and typographical errors; 4) my friends and family let me know their opinion of the site; 5) I hear about it on the radio, television, and newspaper, and 6) my friends and family have been happy when they have shopped there. For all of the web site attributes that were rated significantly different across the two web sites as indicated by mean performance ratings, attributes had higher mean performance ratings for the bookstore product class than the consumer electronic product class. The fact that significant differences were identified for 16 of the 22 attributes points to mixed support for the similarity in mean performance ratings across the www.Frys.com and www.Powells.com web sites which respectively represent the consumer electronic and bookstore product classes.

Table XI. *Within Subjects Repeated Measures MANOVA Results for Attribute Performance Ratings across Product Classes*

Multivariate Tests					
Test of Group Differences	Value	F	p-value		
Pillai's Trace	0.36	7.57	0.00		
Wilks' Lambda	0.64	7.57	0.00		

Hotelling's Trace	0.57	7.57	0.00		
Roy's Largest Root	0.57	7.57	0.00		

Univariate Tests

Attribute	F-Statistic	DF	p-value	Mean Performance Rating for Consumer Electronics	Mean Performance Rating for Bookstores
It has reasonable prices	46.81	1.00	0.00	3.48	3.98
The things I am looking for are easy to find on the site	26.06	1.00	0.00	3.66	4.04
It has a wide selection and variety of things on the site	26.06	1.00	0.00	3.54	3.93
The internet links on the site are working properly	3.31	1.00	0.07	3.83	3.95
It has photos of products	0.17	1.00	0.68	3.87	3.90
The order process is easy to use	7.84	1.00	0.01	3.50	3.80
It is free of grammatic. and typo. errors	3.67	1.00	0.06	3.76	3.88
It is enjoyable to use	46.84	1.00	0.00	2.85	3.34
My friends and family let me know their opinion of the site	0.93	1.00	0.34	2.28	2.34
It has one or more animated characters that move or speak	8.31	1.00	0.00	1.65	1.80

I hear about it on the radio, television, or newspaper	0.01	1.00	0.91	1.72	1.73
My friends or family have been happy when they have shopped there	0.16	1.00	0.69	2.18	2.20
It provides price incentives	9.83	1.00	0.00	3.12	3.37
The site presents both benefits and drawbacks of the products/services	15.22	1.00	0.00	2.70	2.98
The products on the web site can be easily compared with each other	9.65	1.00	0.00	2.89	3.11
It is quite different from the usual sites for the products of the type involved	11.60	1.00	0.00	2.62	2.84
It has an interactive web design	13.69	1.00	0.00	2.72	2.99
It allows instant messaging with the company or company reps.	4.13	1.00	0.04	2.17	2.28
Provides customer feedback	75.62	1.00	0.00	2.59	3.37
It has interesting, attractive color	33.48	1.00	0.00	2.57	3.00
It has interesting, attractive graphics	27.12	1.00	0.00	2.58	2.96

It has entertaining graphics and displays	18.93	1.00	0.00	2.31	2.60
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Notes. 1) Performance ratings for consumer electronic product class were based on www.Frys.com. 2) Performance ratings for the bookstore product class were based on www.Powells.com. 3) The sample size for the analysis was 313. 4) Sphericity was assumed since the independent variable consisted of only 2 groups.

Pearson Correlation coefficients were run in order to determine the relationship between an attribute performance rating for the consumer electronic product class (based on ratings of www.Frys.com) relative to the rating of the same attribute rated for the bookstore product class (based on ratings of www.Powells.com). Table XII provides the results for the correlation analysis. Since none of the correlation coefficients exceeded 0.56, none of the attributes were rated in a manner that provided a strong relationship across the two web sites. Correlation coefficients between 0.10 to 0.20 were produced for the attributes related to customer feedback, finding products on the site, reasonable prices, and price incentives. Attributes related to unusual aspects of site, selection of products, use of graphics, use of color, and the ordering process had correlation coefficients between 0.21 and 0.30. Correlation coefficients between 0.31 and 0.40 were found for attributes related to interactivity of site, the presence of product comparison, the benefits and drawbacks of products, links, how enjoyable the site is to use, and the photos provided on the site. The strongest relationships were seen for attributes related to animated characters, advertisements, consideration of friend and family opinions, grammatical and typographical errors, consideration of friend and family happiness, and the instant messaging capabilities of a site. The correlation coefficients for these attributes ranged from 0.41 to 0.56. Also, notice that the mean and median correlations of attribute performance ratings across the two web sites were 0.342 and 0.315, respectively. As will be discussed later in

this paper, these values for the mean and median correlations are significantly higher than those seen for the correlations of attribute importance ratings across product classes where values of 0.18 and 0.18 were found, respectively.

Table XII. *Correlations of Attribute Performance Ratings across Web Sites*

Web site Attribute	r	sig.
Feedback	0.13	< 0.05
Find	0.15	< 0.05
Reasonable Price	0.19	< 0.01
Price Incentives	0.2	< 0.01
Unusual	0.23	< 0.01
Selection	0.27	< 0.01
Graphics	0.28	< 0.01
Color	0.28	< 0.01
Graphics II	0.29	< 0.01
Ordering	0.30	< 0.01
Interactive	0.31	< 0.01
Compare	0.32	< 0.01
Benefits and Drawbacks	0.34	< 0.01
Links	0.35	< 0.01
Enjoyable	0.35	< 0.01
Photos	0.38	< 0.01
Animated	0.45	< 0.01
Ads	0.51	< 0.01
Friend Opinion	0.53	< 0.01
Grammar	0.54	<0.01
Friends Happy	0.56	<0.01
Instant Messaging	0.56	<0.01

Notes. 1) r = Pearson Correlation Coefficient for relationship between Attribute Performance Ratings for the Consumer Electronic Product Class and the Bookstore Product Class.

2) Median correlation = 0.315

3) Mean correlation = 0.342

3.5 EFA for Attribute Importance

An exploratory factor analysis (EFA) was also used in order to search for and define the fundamental dimensions assumed to underlie the importance of shopping web site attributes for the consumer electronic product class based on respondents'

ratings of the importance of attributes. In an EFA, each dimension identified consists of variables that are related and thus are assumed to measure similar things. Many of the points discussed in this section of the paper are the exact same points that were previously covered in the section about the EFA for consumer electronic shopping site attribute performance.

Prior to running the EFA, several parameters were assessed to determine the appropriateness of the analysis. First, the researcher must judge that an underlying structure actually exists among the variables in the analysis (Hair et al, 2010). Evidence from past studies indicate that an importance structure does exist (Blake et al., 2010; Guo & Salvendy, 2009; Hwang et al., 2006; Liao et al., 2009; Liu & Arnett, 2000; Papatla, 2011). Hair et al. (2010) also suggest that the sample needs to be homogenous in order to perform an EFA. A sample that lacks homogeneity is supposed to prompt researchers to run separate EFAs for each sub-group within the sample. In the present study, the sample was not homogenous with regard to gender. However, it was decided to not run separate EFAs for males and females. Justification for this decision is based on past research in e-commerce containing heterogeneous samples with regard to gender that did not consider running separate EFAs for each gender (Blake et al., 2010; Ergolu et al., 2003; Seock & Chen-Yu, 2007; Seock & Norton, 2008). The next parameter was related to the adequacy of the sample size. In order to run an EFA, a sample size of at least 300 is recommended (Comrey & Lee, 1992). The sample size for the present study was 313. Hence, this requirement is satisfied. Also, it is advised that the case to variable ratio exceed three to one (Williams et al., 2010). In the present study, the case to variable ratio is 313 to 26. As a result, this sample need is satisfied. Further, content validity was provided for the analysis since the attribute importance ratings were made on attributes that

were selected from the 11 importance dimensions identified by Blake et al., (2010). This is important since one justification for the appropriateness of running an exploratory factor analysis is the presence of an *a priori* theory (Hair et al., 2010). For a review on what items were selected from each of these 11 dimensions for the present study, please see Table 2 within the “Variegated Inventory of Site Attributes (VISA)” section of this paper.

The final parameter that needed to be assessed was related to the sufficiency of the multicollinearity that exists among the web site attribute importance variables. Partial correlations, anti-image correlations, and Bartlett’s test of sphericity were used to determine the sufficiency of multicollinearity. Tabachnick & Fidell (2007) argue that a sufficient level of multicollinearity is evidenced by partial correlations between 0.30 and 0.70. With the importance ratings of attributes for the consumer electronic product class in the present study, only one partial correlation exceeded 0.70. However, roughly 80% of the partial correlations were below 0.30. The diagonal on the anti-image matrix indicates that six values fall below the at least 0.50 cut-off commonly used in determining sampling adequacy (Hair et al., 2010). Finally, a significance value below 0.05 on Bartlett’s test of sphericity indicates an appropriate amount of correlation exists among the variables in the analysis (Hair et al., 2010). For the importance ratings the significance value computed was 0.000. Considering the assessment of each of these parameters, it was judged that an EFA was appropriate to run for the attribute importance ratings.

A PROMAX rotation technique was employed to identify the attribute importance structure. The PROMAX rotation technique can provide a more accurate factor solution than the VARIMAX approach when it is assumed that factors will be correlated (Hair et al., 2010). The principal component extraction method was

selected since it is known to be useful when researchers have a lack of knowledge about the amount of specific and error variance, and the research goal was to provide theoretical implications (Hair et al., 2010).

Some evidence for the inappropriateness of the running the EFA for the attribute importance ratings was provided by the criteria for determining the number of factors to extract in the factor solution. The Latent Root criterion suggests that the number of factors to extract is determined by the number of factors with eigenvalues of at least 1.00 in value (Kaiser, 1960). According to this criterion, the attribute importance EFA solution should contain five factors. The Scree Test criterion suggests that the number of factors to extract is determined by the point to which the Scree Plot elbow occurs. The elbow exists on the Scree Plot at the point at which the curve begins to straighten out (Catell, 1966). According to this criterion, the EFA solution should extract three factors. Also, the percentage of variance criterion suggests that the amount of factors to extract is determined when the last factor accounts for less than five percent of the variance (Horn, 1965). Based on this criterion, the attribute importance EFA should extract 18 factors. It is difficult to judge how many factors to extract due to each criterion suggesting the extraction of a different number of factors.

A five factor solution was analyzed first. The Latent Root criterion was referenced when extracting five factors. This EFA solution for the importance ratings of shopping web site attributes for the consumer electronic product class consisted of 26 attributes. The total variance explained by this solution was 53.49%. This amount of variance explained was slightly less than the 54% to 77.3% identified in by other e-commerce researchers (Blake et al., 2010; Guo & Salvendy, 2009; Huang, 2005; Kim

& Stoel, 2004; Liao et al., 2009; Papatla, 2011; Seock & Norton, 2008; Seock & Chen-yu, 2007; Yen, 2005; Torkzadeh & Dhillon, 2002).

As the pattern matrix in Figure 3 illustrates, four issues arose from the five factor solution. First, only two attributes loaded onto factors three and five. This presents a problem for identification in the process of confirming the structure (Bollen, 1989). Second, the factor solution lacked interpretability. For example, factor five consisted of an advertisement attribute and an enjoyable attribute. Factor four consisted of attributes related to benefits and drawbacks, unusual aspects of the site, grammar used on the site, reasonable prices, and the ease of finding things on the site. It is hard to make sense of these dimensions. Third, the attributes related to unusual aspects of the web site, grammar used on the site, and reasonable prices offered double loaded—loaded onto more than one factor. Finally, four attributes did not load onto any factors. These four attributes were related to instant messaging services offered on the site, the ordering process, the use of entertaining graphics, and the ability to compare products/services on the site.

Beyond the pattern matrix, communalities for the five factor solution provided a noticeable amount of variability. Recall, communalities enable one to understand the level with which each item is accounted for by the factor solution (Hair et al., 2010). The communalities in the present solution ranged from 0.173 to 0.773. Communalities values near 0.173 indicate that some attributes contribute very little to the final factor solution. In contrast, communalities near 0.773 contribute quite a lot to the final factor solution.

In the initial five factor solution, four attributes did not load onto any factors. Thus, a follow-up five factor analysis was run after deleting these items as inputs. However, the solution was still plagued with issues. To elaborate, issues included:

two of the five factors still only had two attributes loaded onto them, the solution was difficult to interpret, and two attributes cross-loaded.

Figure 3. *Pattern Matrix for Consumer Electronic Attribute Importance EFA illustrating a lack of structure*

Pattern Matrix^a

	Factor				
	1	2	3	4	5
ConsElectPref_enjoyable It is enjoyable to use					.686
ConsElectPref_ads I hear about it on the radio. television. or in the newspaper					.740
ConsElectPref_photos It has photos of products	.565				
ConsElectPref_feedback Provides customer feedback (i.e.. the site provides a place for you to learn about other customers' evaluations of the product)	.805				
ConsElectPref_animated It has one or more animated characters that move or speak	.606				
ConsElectPref_interactive It has interactive web design (e.g.. design/customize your products/services)		.843			
ConsElectPref_links The Internet links on the site are working properly		.851			
ConsElectPref_color It has interesting. attractive color (e.g.. in fonts. background. and borders)	.527				

ConsElectPref_priceIncent It provides price incentives (e.g.. coupons. future sale items. frequent shopper programs. etc.)	.491			
ConsElectPref_find The things I am looking for are easy to find on the site			.319	
ConsElectPref_reasPrice It has reasonable prices	.346		.630	
ConsElectPref_grammar It is free of grammatical and typographical errors	.474		.473	
ConsElectPref_creditSecure There is a guarantee that my credit card information would be safely and securely protected	.516			
ConsElectPref_secSeals It has seals of companies stating that my information on the site is secure (e.g.. Verisign)		.405		
ConsElectPref_friends My friends and family have been happy when they have shopped there		.415		
ConsElectPref_selection It has a wide selection and variety of products on the site		.792		
ConsElectPref_graphics It has interesting. attractive graphics (e.g.. not too complicated. not too simple)			.745	
ConsElectPref_compare Products on the web site can be easily compared with each other				
ConsElectPref_unusual It is quite different from the usual sites for products of the type involved		.355	.383	

ConsElectPref_friendOpin My friends or family let me know their opinions of the site		.591			
ConsElectPref_returns It has a return policy that is easy to understand and use	.448				
ConsElectPref_benefitsDra w The site presents both benefits and drawbacks of the products/services				.314	
ConsElectPref_instantMess ag It allows instant messaging with the company or company representative					
ConsElectPref_realPeople It has photos of real people using products/services			1.015		
ConsElectPref_ordering The order process is easy to use					
ConsElectPref_graphic_II It has entertaining graphics and displays					

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Recall, the Scree Test suggested a three factor solution. This solution was also run to provide additional evidence of an inability to arrive at a stable attribute importance structure. The primary issues with the three factor solution were five attributes double loaded, communalities were weak ranging from 0.150 to 0.721, and the solution lacked interpretability. Furthermore, the 18 factor solution suggested by the percentage of variance extracted test also provided evidence for a lack of a stable importance structure. The 18 factor solution failed to converge after 25 iterations. With a lack of convergence, it was difficult to interpret the factors. Surprisingly, the

communalities for the 18 factor solution improved from those seen in the five factor solution with values ranging from 0.427 to 0.947.

An attribute importance structure was also explored with the use of bookstore attribute importance ratings and general attribute importance ratings. The results of these analyses are highlighted in section E of the Appendices of this paper. The exploration of both of these EFA solutions provided somewhat interpretable attribute importance structures. However, the solutions had issues regarding the following: partial correlations, double-loadings of attributes onto factors, communalities, and under-identification.

The majority of the evidence outlined in this section suggests that a stable attribute importance structure does not exist based on the data gathered in the present study. The appropriateness of an EFA based on the data gathered in this study was lacking. Although past literature indicated that attribute importance structures exist, mixed support was provided for the adequacy of the sample and the multicollinearity within the present data. Further, each technique for figuring out the number of variables to extract in the EFA hinted at a different number of factors to extract. One piece of evidence to support the EFA with the present data was provided based on the amount of variance extracted by a five factor solution. However, four significant pieces of evidence helped the research team determine that the factor solution lacked stability. These four pieces of significant evidence include: two violations of the three indicator rule, the inability to interpret the solution, one attribute with cross-loading properties, and unacceptably low communalities for almost half of the 22 attributes in the analysis. Additionally, the three factor and 18 factor solutions did not provide adequate solutions either. Further, the general importance and bookstore importance solutions did not provide adequate results either.

Since a stable attribute importance structure could not be identified with an EFA, a confirmatory factor analysis (CFA) to confirm the fit and construct validity of the structure was not appropriate. By not being able to confirm an importance structure, it was difficult to test the generalizability of importance ratings across product classes.

To further illustrate the lack of generalizability of the importance structure, one can look at Blake et al. (2010). The Blake et al. (2010) study arrived at an 11 factor attribute importance structure. However, attempts to arrive at a structure in the present study pointed to a five factor attribute importance structure. Intuitively, one would think that if an attribute importance structure had any kind of generalizability that the amount of factors would bare a degree of resemblance such as an 11 factor in Blake et al. (2010) and a approximately an 11 factor solution in the present study. This was not the case with the three, five, and 18 factor solutions explored in the present study versus the 11 factor solution revealed in Blake et al. (2010).

3.6 Attribute Level Differences in Importance

As was done for the attribute performance ratings, the attribute importance ratings were analyzed at a micro-level too. The micro-level analyses involved conducting a within subjects repeated measures MANOVA and a series of bivariate correlations. These analyses were used to identify attribute level differences in importance ratings across the consumer electronic and bookstore product classes.

The purpose of the within subjects repeated measures MANOVA was to identify significant differences in mean attribute importance ratings across product classes. Unlike the MANOVA conducted for attribute performance presented earlier in this paper, this particular MANOVA analysis involves a within subjects research model with three levels of the independent variable. Each respondent rated attribute

importance for general importance, bookstore importance, and consumer electronic importance. The dependent variables were each of the 22 importance attributes rated across each of these three domains. The equal group size assumption was satisfied since all groups were rated by 313 people. An adequate sample size was used in the analysis due to the amount of cases per group of 313 exceeds the number of dependent variables which was 22.

Maulchy's Test of Sphericity indicated that sphericity could not be assumed. When sphericity is not assumed, this means that variances of the differences between all combinations of related groups are not equal. A Greenhouse-Geisser correction was chosen as an approach to reduce the issues associated with the violation of the sphericity assumption. Vonesh & Chinchilli (1997) suggest that the Greenhouse-Geisser correction can lead to more reliable and valid F statistics which can reduce the occurrence of Type I Errors—the case where one incorrectly rejects a true null hypothesis. Hence, the p-values associated with the Univariate Tests in Table XIII are the result of a Greenhouse-Geisser correction.

The results of the within subjects repeated measures MANOVA analysis are presented in Table XIII seen below. All four of the leading multivariate tests provided significant results. The multivariate tests assess whether overall there is a difference between the groups in the dependent variables as a set. Since all four multivariate tests indicate a rejection of the null hypothesis, it is concluded that overall there is a significant difference between the respondents' ratings of attribute importance across the bookstore product class, the consumer electronic product class, and the general importance domains.

The Univariate Tests portion of Table XIII provides specific instances where attribute importance ratings were significantly different across each of the three

domains (books, electronics, and general importance). Significant differences in attribute importance were identified for 21 of 22 web site attributes. The only web site attribute with mean ratings that did not significantly differ across these three domains was “it allows instant messaging with company or company representatives.”

Table XIV provides the mean ratings for each attribute for the general importance, bookstore importance, and consumer electronic importance groups. The web site attributes where importance ratings had the highest mean for general importance include: 1) my friends or family have been happy when they have shopped there, and 2) it has an interactive web design.

The web site attributes where importance ratings had the highest mean for bookstore importance include: 1) it has reasonable prices, 2) the things I am looking for are easy to find, 3) it has a wide selection and variety of things on the site, 4) the internet links on the site are working properly, 5) the order process is easy to use, 6) it is enjoyable to use, 7) my friends and family let me know their opinions of the site, 8) the products can be easily compared with each other, and 9) it is quite different from the usual sites for the products of the type involved.

The web site attributes where importance ratings had the highest mean for consumer electronic importance include: 1) it is free of grammatical errors and typographical errors, 2) it has one or more animated characters that move or speak, 3) I hear about it on the radio, television, or newspaper, 4) it provides price incentives, 5) the site presents both benefits and drawbacks of products or services, 6) provides customer feedback, 7) it has interesting attractive color, 8) it has interesting attractive graphics, 9) it has entertaining graphics and displays, 10) it has photos of products, and 11) it allows instant messaging with the company or company representatives. The fact that significant differences in importance ratings were revealed for 21 of the

22 web site attributes points to a lot of dissimilarity in mean importance ratings across product classes.

Table XIII. *Within Subjects Repeated Measures MANOVA Results for Attribute Importance Ratings across the Bookstore, Consumer Electronic, and General Importance Domains*

Multivariate Tests			
Test of Group Differences	Value	F-statistic	p-value
Pillai's Trace	1.145	36.804	0.00
Wilks' Lambda	0.095	61.65	0.00
Hotelling's Trace	7.022	96.068	0.00
Roy's Largest Root	6.64	182.287	0.00
Univariate Tests			
Attribute	F	DF	p-Value
It has reasonable prices	50.09	1.70	0.00
The things I am looking for are easy to find on the site	24.31	1.75	0.00
It has a wide selection and variety of things on the site	311.85	1.82	0.00
The internet links on the site are working properly	71.19	1.25	0.00
It has photos of products	24.04	1.88	0.00
The order process is easy to use	57.16	1.73	0.00
It is free of grammatic.and typo. errors	46.51	1.79	0.00

It is enjoyable to use	130.28	1.85	0.00
My friends and family let me know their opinion of the site	420.13	1.85	0.00
It has one or more animated characters that move or speak	1289.88	1.87	0.00
I hear about it on the radio, television, or newspaper	305.29	1.71	0.00
My friends or family have been happy when they have shopped there	41.97	1.71	0.00
It provides price incentives	25.97	1.69	0.00
The site presents both benefits and drawbacks of the products/services	48.93	1.97	0.00
The products on the web site can be easily compared with each other	49.87	1.95	0.00
It is quite different from the usual sites for the products of the type involved	4.60	1.83	0.01
It has an interactive web design	4.66	1.93	0.01

It allows instant messaging with the company or company reps.	2.39	1.74	0.10
Provides customer feedback	40.06	1.83	0.00
It has interesting, attractive color	424.35	1.86	0.00
It has interesting, attractive graphics	56.99	1.94	0.00
It has entertaining graphics and displays	342.80	531.63	0.00

Notes. 1) The sample size of the analysis was 313. 2) The Greenhouse-Geisser approach was used to correct for a violation of the Sphericity Assumed assumption.

The multivariate MANOVA tests identified differences in the set of attributes rated for consumer electronic importance, bookstore importance, and the general importance domains. Additionally, the univariate tests showed that 21 of the 22 attributes are rated significantly differently among these three domains. In order to pinpoint specifically which means significantly differ among which groups for a given attribute, Fisher's LSD Test was used as a POST HOC test. In other words, Fisher's LSD Test tells one which means differ for each attribute among the mean attribute ratings for general importance, book importance, and electronic importance. P-values for Fisher's LSD Test below 0.05 indicate a significant result. Significant results suggest that the mean ratings significantly differed among each respective group pairing. The results of these POST HOC tests are summarized in Table XIV seen below.

To illustrate, look at the “it has reasonable prices” attribute. As one can see, p-values for the groups of book importance and consumer electronic importance as well as for consumer electronic importance and general importance have p-values of less than 0.05. As a result, the means significantly differed across both of these group pairings. On the other hand, the p-value between the book importance and general importance ratings exceeded 0.05 with a value of 0.55. The 0.55 p-value indicates that the mean ratings did not significantly differ among these two groups for the “it has reasonable prices” attribute. This sort of interpretation of the POST HOC results can be done for each of the web site attributes. The mean ratings for each of the three importance rating groups are also provided in Table XIV.

Table XIV. *POST HOC Tests (Fisher LSD Tests) for Attribute Importance Ratings across the Bookstore, Consumer Electronic, and General Importance Domains*

Attribute	p-value for Book and Cons.Elec.	p-value for Book and General	p-value for Cons. Elec. and General	Mean Imp. Rating for Cons. Elec.	Mean Imp. Rating for Books	Mean Imp. Rating for Gen. Imp.
It has reasonable prices	0.00	0.55	0.00	4.09	4.60	4.55
The things I am looking for are easy to find on the site	0.09	0.65	0.00	4.07	4.49	4.34
It has a wide selection and variety of things on the site	0.00	0.23	0.00	2.51	4.20	3.87
The internet links on the site are working properly	0.01	0.98	0.00	2.67	4.24	4.21
It has photos of products	0.01	0.03	0.06	4.58	4.19	4.47

The order process is easy to use	0.14	0.60	0.00	3.68	4.38	4.19
It is free of grammatic.and typo. errors	0.00	0.42	0.00	4.10	3.34	3.43
It is enjoyable to use	0.03	0.15	0.00	3.58	3.82	3.55
My friends and family let me know their opinion of the site	0.00	0.02	0.00	1.61	3.35	3.32
It has one or more animated characters that move or speak	0.00	0.38	0.00	4.29	1.60	1.45
I hear about it on the radio, television, or newspaper	0.00	0.45	0.00	4.33	2.77	2.81
My friends or family have been happy when they have shopped there	0.00	0.48	0.00	3.09	3.60	3.75
It provides price incentives	0.01	0.69	0.00	4.42	3.99	3.93
The site presents both benefits and drawbacks of the products/services	0.00	0.34	0.00	4.27	3.65	3.73
The products on the web site can be easily compared with each other	0.13	0.64	0.00	3.05	3.81	3.64
It is quite different from the usual sites for the products of the type involved	0.33	0.80	0.04	2.56	2.78	2.75
It has an interactive web design	0.73	0.27	0.02	2.65	2.69	2.86

It allows instant messaging with the company or company reps.	0.25	0.50	0.17	2.96	2.77	2.82
Provides customer feedback	0.00	0.04	0.00	4.49	4.01	4.01
It has interesting, attractive color	0.00	0.77	0.00	4.29	2.64	2.51
It has interesting, attractive graphics	0.01	0.23	0.00	3.79	2.37	3.01
It has entertaining graphics and displays	0.00	0.74	0.00	3.41	2.58	2.25

Notes. 1) Three means were compared in this Fisher LSD Test. One of the means was for consumer electronic attribute importance, one of the means was for bookstore attribute importance, and one was for general attribute importance.

Pearson correlation coefficient were run in order to determine the relationship between an attribute importance rating for the consumer electronic product class relative to the rating of the same attribute rated for the bookstore product class, the relationship between an attribute importance rating for the consumer electronic product class relative to general attribute importance ratings, and the bookstore product class relative to the general attribute importance ratings. Table XV provides the results of the correlation analysis.

Seventeen of 22 correlations were significant between the attribute importance ratings for bookstores relative to consumer electronic stores. The mean and median correlations between these two domains were 0.18 and 0.18, respectively. These mean and median values are noticeably weaker than those shown earlier in this paper for the correlation of attribute performance ratings across product classes where values of 0.315 and 0.342 were identified, accordingly. Also, the correlations among

attribute importance ratings for the bookstore and consumer electronic product classes ranged in strength from 0.07 to 0.37.

Furthermore, all of the correlations were significant between the bookstore importance and general importance domains. In this situation, the correlations ranged in strength from 0.17 to 0.67. The mean and median correlations were 0.47 and 0.435, respectively. As is apparent in Table XIV, the attribute importance correlations were highest between these two domains when compared with the other two domain pairs.

Finally, 15 of 22 correlations were significant between the consumer electronic importance and general importance domains. The strength of these correlations ranged from 0.03 to 0.28. Mean and median correlations between these two domains were 0.14 and 0.15, accordingly.

Table XV. *Correlations between Attribute Importance Ratings across Domains*

Web site Attribute	r among Book & Cons.Elec.	r among Book & General	r among Cons. Elec. & General
Animated	-0.07	0.34**	-0.05
Color	0.08	0.55**	0.18**
Selection	0.08	0.38**	0.04
Friend	0.09	0.58**	0.17**
Opinion			
Instant	0.09	0.56**	0.03
Messaging			
Friends	0.13*	0.56**	0.15**
Happy			
Enjoyable	0.13*	0.56**	0.16*
Price	0.14*	0.67**	0.08
Incentives			
Ads	0.16*	0.64**	0.06
Find	0.16*	0.39**	0.16**
Reasonable	0.17**	0.44**	0.14*
Price			
Unusual	0.19**	0.33**	0.15*
Links	0.19**	0.17**	0.03
Feedback	0.21**	0.62**	0.12*

Compare	0.22**	0.29**	0.28**
Graphics	0.24**	0.41**	0.24**
Benefits	0.24**	0.41**	0.26**
and			
Drawbacks			
Ordering	0.24**	0.43**	0.14*
Photos	0.24**	0.43**	0.06
Grammar	0.26**	0.65**	0.21**
Graphics II	0.31**	0.57**	0.21**
Interactive	0.37**	0.41**	0.23**

Notes. 1) r = Pearson Correlation Coefficient for relationship among each set of domains indicated in column titles. 2) * indicates significant according to the 0.05 rule. 3) ** indicates significant according to the 0.01 rule. 4) no asterisk indicates a p-value greater than 0.05

CHAPTER IV

DISCUSSION

4.1 Conclusion

The overarching purpose of this study was to examine the generalizability of performance and importance ratings of shopping web site attributes, taken from VISA (Blake et al., 2010), across the consumer electronic and bookstore product classes. An exploratory factor analysis identified a four factor, 22 web site attribute performance structure for the consumer electronic product class based on ratings of the www.Frys.com web site. The factors revealed by this analysis were Functionality/Logistical, Organic Influence, Product Information, and Visual Aesthetics. A confirmatory factor analysis provided evidence for the fit and construct validity of this four factor, 22 attribute performance measurement model. Then, the generalizability of this model was assessed by using confirmatory factor analysis to impose the confirmed attribute performance structure for the consumer electronic product class onto attribute performance ratings for the bookstore product class based on ratings of the www.Powells.com web site. A marginal level of fit and construct validity resulted from this imposition. In other words, the bookstore attribute

performance ratings fit into the consumer electronic attribute performance structure. As a result, this study found that at the underlying structural level some evidence exists for the generalizability of shopping site attribute performance ratings across product classes.

In looking at the attribute importance ratings for the consumer electronic product class, a stable attribute importance structure was not identified with an exploratory factor analysis. Attempts to identify an importance structure were made for the consumer electronic ratings, the bookstore ratings, and the general importance ratings. Regarding the consumer electronic ratings, attempts were made to find an adequate solution for a three factor, a five factor, and an 18 factor solutions. Each of these attempts failed to yield stable factor solutions. Some of the key issues that were encountered when trying to arrive at a stable solution were related to interpretability, double loadings, underidentification (e.g., less than three attributes per factor), inappropriate communalities, and inappropriate multicollinearity as evidenced by partial correlations. Despite the complications that arose when trying to identify a stable attribute importance structure, it is worth noting that that bookstore importance and general importance structures were probably the easiest to interpret. Since the EFA failed to yield a stable structure, a confirmatory factor analysis to confirm the fit and construct validity of the structure was not appropriate. By not being able to confirm the importance structure, it was not possible to assess the generalizability of the importance rating structure across product classes as one done for the performance structure.

A repeated measures MANOVA analysis was used to identify specific attributes that were rated significantly differently across the bookstore and consumer electronic product classes for both attribute performance ratings and attribute

importance ratings. In the case of attribute performance, these ratings were based on the www.Powells.com and www.Frys.com web sites for the bookstore and consumer electronic product classes, respectively. For attribute performance, the multivariate tests revealed that overall there is a significant difference between respondents' ratings of attribute performance of www.Powells.com web site compared to the www.Frys.com web site. Univariate tests indicate that 16 of 22 web site attributes were rated significantly differently across the two web sites for attribute performance ratings. Surprisingly, all of the attributes that were rated as performing significantly different across the two web sites were rated higher for the bookstore product than the consumer electronic product class as indicated by mean performance ratings.

The repeated measures MANOVA analysis that was used to assess the generalizability of attribute importance ratings across product classes referenced three importance ratings that included: attribute importance for the bookstore product class, attribute importance for the consumer electronic product class, and general importance. The multivariate tests for this MANOVA indicate that overall there is a significant difference between respondents' ratings of attribute importance across the bookstore product class, the consumer electronic product class, and the general importance domain. A Greenhouse-Geisser correction was used to reduce the issues associated with a violation of the sphericity assumed assumption that presented itself with Mauchly's Test of Sphericity. Nonetheless, the univariate tests found that 21 of 22 attributes were rated significantly differently across the three domains involved in the analysis.

The correlation analysis was used to identify the relationship between an attribute rated for the consumer electronic product class and the same attribute rated for the bookstore product class. These relationships were calculated for both attribute

performance and attribute importance. In the case of attribute performance, these ratings were based on the www.Powells.com and www.Frys.com web sites for the bookstore and consumer electronic product classes, respectively. One of the key findings here was that the correlations for attribute performance ratings were noticeably higher across product classes than the correlations for attribute importance ratings across product classes. For attribute performance ratings, the mean correlation was 0.342 and the median correlation was 0.315. In contrast, the mean correlation for attribute importance was 0.18 and the median attribute importance correlation was 0.18. Furthermore, the attribute performance correlations ranged from 0.13 to 0.56. On the other hand, the attribute importance correlations ranged from 0.08 to 0.37.

A set of additional correlation analyses were run to identify the relationships among attributes rated for the general attribute importance domain and the bookstore attribute importance domain as well as for the general attribute importance domain and the consumer electronic attribute importance domain. Interestingly, the correlations between bookstore attribute importance and general attribute importance tended to be even stronger than those identified between the bookstore attribute performance and consumer electronic performance domains with a mean and median correlation of 0.47 and 0.44, accordingly. On the other hand, the correlations between the consumer electronic attribute importance domain and general attribute importance domain provided a mean and median correlation of 0.14 and 0.15, respectively. These finding suggests that perhaps attribute importance ratings are rated similarly across some domains, yet not others.

In drawing meaning from the attribute performance findings for the repeated measures MANOVA and the correlation analyses, it is important to understand that these findings were based on attribute performance ratings of only two web sites. The

two web sites do in fact represent two typical web sites for the consumer electronic and bookstore product classes. However, the findings of these attribute performance analyses in the present study merely investigate the generalizability of attribute performance ratings between the web sites with URLs of www.Powels.com and www.Frys.com. By using only two web sites as proxies for the entire bookstore and consumer electronic product classes, it is urged that readers of this paper use caution when deriving meaning from the findings in regard to generalizability of attribute performance ratings across product classes. The similarities and differences identified between the two product classes could have merely been differences and similarities between these two web sites in particular and not the product classes at large.

4.2 Practical and Theoretical Implications

Understanding consumer attitudes toward the performance and importance of shopping site attributes can benefit both consumers and organizations. From a practical perspective, understanding what web site features consumers view as important can influence which site attributes web site designers emphasize when developing an e-tailer web site. Through engineering web sites in a manner that tries to meet consumer expectation, as evidenced by what site attributes customers feel are important, organizations can provide a shopping experience that yields more satisfaction for consumers. The present study failed to arrive at a stable attribute importance structure. Thus, the generalizability of an underlying attribute importance structure across product classes was not possible. The practical implication here is that some attributes may be highly important in one product class. On the other hand, a different set of attributes may be important in an alternative product class. This tells web designers for e-tailer sites that they need to understand what is important for a

particular product class before designing a web site that can meet the needs of consumers of the product class.

From a theoretical perspective, this study provided some evidence for the generalizability of an underlying attribute performance structure across product classes. This finding suggests that it might be possible to evaluate the performance of attributes with a single attribute performance scale regardless of product class. The same scale can be used to rate attribute performance for the bookstore product class, the consumer electronic product class, the destination travel product class, and any other product class that an e-commerce researcher may be interested in. The results of the present study should be cross-validated to ensure that this sort of implication is accurate.

Like all technological advancements, web sites have the capacity to evolve over time. What was once a black and white television evolved into today's HD, 3-D color television. Mirroring this evolving phenomenon, shopping web sites have changed with regard to expression of attributes such as customer feedback. Early on, customer feedback was non-existent on e-tailer web sites. Recently, customer feedback has evolved to include mechanisms like ratings scales for various characteristics of products (i.e., durability, etc.), customer video footage reviewing the product, and text media like a forum for particular products. It is important that e-commerce researchers consider the ever-changing nature of the online shopping environment when evaluating online shopping web sites. Zhang and von Dran (2002, p. 9) built empirical support for the notion that "customers' quality expectations [of shopping sites] change over time, and thus no single quality checklist [for shopping web site attributes] will be good for very long." Iteratively, attribute performance and

attribute importance structures might require modification by e-commerce researchers to accommodate the advancements in online shopping environments.

4.3 Future Research

Future e-commerce researchers can take one of at least seven paths based on the results of this study. One path relates to the finding of marginal support for the generalizability of the underlying structure for attribute performance ratings across product classes. Due to the marginal support for this finding, future researchers should replicate the present study to cross-validate the findings. Once the results of this study are cross-validated, future researchers can assess the generalizability of attribute performance ratings for other product classes beyond the consumer electronic and bookstore product classes. A second path e-commerce researchers can take relates to the MANOVA results for attribute performance and importance ratings. The MANOVA analyses that were run in the present study pointed to some similarity and some dissimilarity among attribute performance and importance ratings across product classes. The mixed levels of similarity across product classes was indicated by 16 of 22 attribute performance ratings and 21 of 22 attribute importance ratings being rated significantly differently across product classes. Perhaps these findings suggest that attribute importance ratings can be generalized across some product classes, but not others. This avenue must be explored further. This same phenomenon might be present when looking at attribute performance ratings. It could be possible that attribute performance ratings can be generalized across some product classes but not other product classes. For example, attribute performance ratings might be generalizable across bookstore and consumer electronic stores. However, attribute performance ratings might not be generalizable across the bookstore and destination travel product classes.

A third path that future researchers could take relates to the quality of products offered at a particular web site such as luxurious versus economical. Musante et al. (2008) point out that attribute performance ratings can significantly differ across e-tailer web sites of the same product class, namely hotels, differing in quality ranging from one star through five star hotels. Perhaps it is possible that generalizability of attribute performance and importance ratings across product classes is affected by the level of quality of products offered at the particular web site. For instance, maybe attribute performance ratings can be generalized across product classes when luxurious products are involved. On the other hand, attribute performance ratings might not be generalizable across product classes when economical products are involved. Future researchers need to consider the quality of products being sold at a particular site when attempting to understand the generalizability of attribute performance ratings.

A fourth path that future researchers could take relates to the survey procedure. In the present study, respondents to the survey were never asked to fully complete a purchase on the www.Powells.com or the www.Frys.com web sites. However, some features contained within VISA (Blake et al., 2010) relate to aspects of the shopping process that can only be fully evaluated after a purchase is made on a web site such as “the order process is easy to use” and “it has a return policy that is easy to use and understand.” Further, Levin et al. (2005) made the distinction between online shoppers versus online information searchers. The online shoppers are those that actually make the purchase of products through e-tailer web sites. In contrast, the online information searchers learn about products through e-tailer web sites, but ultimately make their purchases at offline brick-and-mortar retailers. It is possible that the respondents in the present study might have a perspective that aligns more

with the online information searchers rather than the online shoppers, since no purchase was made in the present study. These ideas suggest that perhaps future researchers should implement a survey procedure that requires participants to actually make a purchase on an e-tailer's web site prior to evaluating attribute performance ratings.

A fifth path future researchers can take involves online shopper orientations and shopping styles. Seock and Chen-yu (2007) found a lack of generalizability of online shopping attribute performance ratings across consumer shopper orientations. Also, Papatla (2011) found a lack of generalizability of shopping site attribute importance ratings across six shopping styles. It is possible that the results of the present study may have provided completely different results if shopping orientations and styles were considered. Perhaps generalizability of attribute performance ratings applies to certain shopping styles yet not to others. The composition of shopping styles found within the sample used in the present study is unknown. These studies and ideas indicate that perhaps future researchers need to consider the orientations and shopping styles of individuals when trying to understand how online shopping site attribute performance and importance ratings generalize across product classes.

Sixth, the identification of a stable attribute importance structure should be explored further. Despite statistical reasoning for not deeming the attribute importance structures for bookstore importance and general importance as appropriate in the present study, it is important for readers to understand that these two domains provided the most interpretable EFA solutions. As a result, it is advised that future researchers seek to identify stable attribute importance structures for general importance, book importance, or importance for an alternative product class. It is possible that an attribute importance structures does in fact exist.

The final path future researchers can take relates to the CFA analyses conducted in the present study. In the present study, very few modifications were made to the measurement models to arrive at improvements with regard to fit indices and construct validities of the models. Future researchers might want to investigate whether or not fit and construct validity can be improved through modifying the models. Modifications of the model can be made based on the guidance of modification indices and other parameters of the AMOS 18.0 CFA output. These modifications could be considered for both attribute performance and attribute importance measurement models.

4.4 Limitations

Four limitations need to be considered when drawing meaning from the results of this study. First, this study gathered data from respondents over the time frame of 1.5 years. During a time frame of this length, shopping web sites can potentially change with regard to the expression of web site features. Although no major changes in the web sites were apparent to the research team, the potential for changes to have occurred should not be ignored. Second, the extensive length of the survey may have had an effect on the data gathered. The survey took each participant between 20 minutes and one hour to complete. Galesic and Bosnjak (2009) concluded that survey length was inversely related to quality of answers. To minimize the effects of fatigue a five to 10 minute break and snacks were offered to participants at the mid-way point of taking the survey. Third, the majority of respondents that participated in this study were university students. The attitudes of students as a proxy for actual online consumers can yield potentially misrepresentative results. Other issues associated with student samples in this study stem from the role of incentive in respondent participation and the level of expertise each respondent has with a particular product

class. Fourth, this study did not consider quality level of products/services when examining the generalizability of attribute performance judgments across product classes. Musante et al. (2008) found that shopping site attribute performance ratings can significantly differ from one quality level to the next such as in the case of three-star, four-star, and five-star hotel web sites. Perhaps different findings regarding generalizability of performance attributes may have been revealed if luxurious or economical product quality-oriented web sites were considered.

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APPENDICES

A. One Parallel Form of the Survey Used in Data Collection

Yellow Metal 2

1. Internet and Shopping

1. Remember that your answers are anonymous. Please be as frank and as conscientious as you can. No response is required in the text box below.

*** 2. About how long have you been using the Internet?**

Less than 3 years

4-6 years

7-9 years

10-12 years

12 or more years

*** 3. On average, how many hours per week, if any, do you use the Internet?**

Under 11 hours

11-20

21-30

31-40

41-50

Over 50 hours

*** 4. About what percentage of all people you personally know (i.e., friends, acquaintances, family) would you guess use the Internet at least once a week?**

None

1-20%

21-40%

41-60%

61-80%

81-100%

Yellow Metal 2

*** 5. Compared to shopping in traditional stores, how unusual or novel do you personally find online shopping to be?**

- 1 (Not At All Unusual)
- 2
- 3
- 4
- 5 (Very Unusual)

*** 6. How often, if ever, do you go online to look for information about products or services without buying anything during the particular visit?**

- Just about never
- Less than once a month
- 1-5 times a month
- 6-10 times a month
- 11-15 times a month
- Over 15 times a month

*** 7. How often, if ever, do you go online and make a purchase online?**

- Just about never
- Less than once a month
- 1-5 times a month
- 6-10 times a month
- 11-15 times a month
- Over 15 times a month

Yellow Metal 2

*** 8. As far as you know, how many years has online shopping been available to people in the United States? (if not sure, make your best guess)**

- Less than 1 year
- 1-3 years
- 4-6 years
- 7-9 years
- 10-12 years
- 13-15 years
- More than 15 years

*** 9. What was the first year that people in Ohio could find products of interest to them for sale through the Internet?**

- 1993 or earlier
- 1994-96
- 1997-99
- 2000-02
- 2003-05
- 2006
- 2007

*** 10. On average, about how long ago did your friends, family, or neighbors learn that they could shop for products through the Internet?**

- 16 years ago or more
- 13 to 15 years ago
- 10 to 12 years ago
- 7 to 9 years ago
- 4 to 6 years ago
- 1 to 3 years ago
- In the last 12 months

Yellow Metal 2

*** 11. About what percentage of your own friends, relatives, and acquaintances buy things online?**

- None
- 10-20%
- 21-40%
- 41-60%
- 61-80%
- 81-100%

Yellow Metal 2

2. Features of Shopping Sites

*** 1. How strongly, if at all do the following aspects of a website encourage you to shop at a particular site? Be sure to scroll down to see all items before you make your choice. Read through the entire list then click on the THREE LEAST ENCOURAGING aspects.**

- It is free of grammatical and typographical errors
- I hear about it on the radio, television, or in the newspaper
- It has photos of products
- Provides customer feedback (i.e., the site provides a place for you to learn about other customers' evaluations of the product)
- It has one or more animated characters that move or speak
- it has interactive web design (e.g., design/customize your products/services)
- The Internet links on the site are working properly
- It has interesting, attractive color (e.g., in fonts, background, and borders)
- The things I am looking for are easy to find on the site
- It has reasonable prices
- There is a guarantee that my credit card information would be safely and securely protected
- It has seals of companies stating that my information on the site is secure (e.g., Verisign)
- My friends and family have been happy when they have shopped there
- It has a wide selection and variety of products on the site
- It has interesting, attractive graphics (e.g., not too complicated, not too simple)
- Products on the website can be easily compared with each other
- It is quite different from the usual sites for products of the type involved
- It has entertaining graphics and displays
- My friends or family let me know their opinions of the site
- It has a return policy that is easy to understand and use
- It is enjoyable to use
- There is a guarantee that my credit card information would be safely and securely protected
- It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)
- The site presents both benefits and drawbacks of the products/services
- It allows instant messaging with the company or company representative
-

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It has photos of real people using products/services

The order process is easy to use

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3. Features and Shopping Sites (Continued)

Compared to other features of shopping websites, how strongly, if at all do the following features encourage you to shop at a particular site that has that feature? For example, consider the feature "there is a guarantee that my credit card information would be safely and securely protected." If this is not important to your browsing to shop at a particular site rate it as "1" or "2." Choose one number to answer each item.

*** 1. It is free of grammatical and typographical errors**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 2. I hear about it on the radio, television, or in the newspaper**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 3. It has photos of products**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 4. Provides customer feedback (i.e., the site provides a place for you to learn about other customers' evaluations of the product)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 5. It has one or more animated characters that move or speak**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 6. It has interactive web design (e.g., design/customize your products/services)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 7. The Internet links on the site are working properly**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 8. It has interesting, attractive color (e.g., in fonts, background, and borders)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 9. The things I am looking for are easy to find on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 10. It has reasonable prices**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 11. There is a guarantee that my credit card information would be safely and securely protected**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 12. It has seals of companies stating that my information on the site is secure (e.g., Verisign)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 13. My friends and family have been happy when they have stopped there**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 14. It has a wide selection and variety of products on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 15. It has interesting, attractive graphics (e.g., not too complicated, not too simple)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 16. Products on the website can be easily compared with each other**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 17. It is quite different from the usual sites for products of the type involved**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 18. It has entertaining graphics and displays**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 19. My friends or family let me know their opinions of the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 20. It has a return policy that is easy to understand and use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 21. It is enjoyable to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 22. It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 23. Site presents both benefits and drawbacks of the products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

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*** 24. It allows instant messaging with the company or company representative**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 25. It has photos of real people using products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 26. The order process is easy to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

4. Shopping for Products/Services

*** 1. In general, how different is shopping online compared to shopping in traditional stores?**

- 1 (Not At All Different)
- 2
- 3
- 4
- 5 (Very Different)

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*** 2. On how many days in the last two weeks (including today), have you spent time ONLINE LOOKING FOR INFORMATION to help you make a decision about purchasing each type of product or service? For example, on how many different days in the last two weeks did you go online to get information on some articles of clothing or accessory you were thinking about getting? Suppose you spend 5 minutes one day looking online for a new jacket, 2 hours on another day checking out pairs of boots, and 1 hour of a third day looking some more for boots, your answer would be three days for "Clothing/Accessories."**

	Days
Clothing/Accessories	<input type="text" value="6"/>
Books/Magazines	<input type="text" value="6"/>
Travel Transportation (such as airlines, trains, buses, rental cars, highway hotels, etc)	<input type="text" value="6"/>
Travel Destinations (such as resorts, cruises, cities historical or religious sites)	<input type="text" value="6"/>
Health/Medical Products (such as vitamins, medicines, or dietary supplements)	<input type="text" value="6"/>
Financial Securities & Investments (such as stocks, bonds, car or life insurance)	<input type="text" value="6"/>
Consumer Electronics Equipment (such as TV, DVD player, home theatre, cellular phones, GPS, car stereo, MP3 player)	<input type="text" value="6"/>
Home Appliances (such as refrigerators, washing machines, coffee makers)	<input type="text" value="6"/>
Entertainment Events (such as cinema, theatres, concerts, festivals)	<input type="text" value="6"/>
Music/Movies (such as DVDs and CDs)	<input type="text" value="6"/>
Computer Hardware or Software	<input type="text" value="6"/>
Restaurants (such as take- out orders, browsing to eat there)	<input type="text" value="6"/>
Food/Beverage/Groceries for consumption at home	<input type="text" value="6"/>

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or elsewhere

*** 3. On how many days in the last two weeks, have you actually MADE A PURCHASE ONLINE (i.e., paid online) for each type of product or service? For example, if you purchased online concert tickets on one day and football tickets on a second day your answer would be two days for "Entertainment Events."**

	Days
Clothing/Accessories	<input type="text" value="6"/>
Books/Magazines	<input type="text" value="6"/>
Travel Transportation (such as airlines, trains, buses, rental cars, highway hotels, etc)	<input type="text" value="6"/>
Travel Destinations (such as resorts, cruises, cities historical or religious sites)	<input type="text" value="6"/>
Health/Medical Products (such as vitamins, medicines, or dietary supplements)	<input type="text" value="6"/>
Financial Securities & Investments (such as stocks, bonds, car or life insurance)	<input type="text" value="6"/>
Consumer Electronics Equipment (such as TV, DVD player, home theatre, cellular phones, GPS, car stereo, MP3 player)	<input type="text" value="6"/>
Home Appliances (such as refrigerators, washing machines, coffee makers)	<input type="text" value="6"/>
Entertainment Events (such as cinema, theatres, concerts, festivals)	<input type="text" value="6"/>
Music/Movies (such as DVDs and CDs)	<input type="text" value="6"/>
Computer Hardware or Software	<input type="text" value="6"/>
Restaurants (such as take- out orders, browsing to eat there)	<input type="text" value="6"/>
Food/Beverage/Groceries for consumption at home or elsewhere	<input type="text" value="6"/>

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*** 4. In general, how unique is shopping online compared to shopping in traditional stores?**

- 1 (Not At All Unique)
- 2
- 3
- 4
- 5 (Very Unique)

*** 5. On how many days in the last two weeks, have you spent time OFFLINE LOOKING FOR INFORMATION to help you make a decision about purchasing each type of product or service? Count times you spent talking to other people, reading articles, thinking about TV ads, visiting a store, etc. Suppose you see a TV advertisement for a coffee maker and look closely at the ad as you thought about possibly buying it. On another day you spoke with friends about purchasing a portable refrigerator. On another day you look at an article in the newspaper about a blender you considered buying. In this case your answer would be three days for "Home Appliances."**

	Days
Clothing/Accessories	6
Books/Magazines	6
Travel Transportation (such as airlines, trains, buses, rental cars, highway hotels, etc)	6
Travel Destinations (such as resorts, cruises, cities historical or religious sites)	6
Health/Medical Products (such as vitamins, medicines, or dietary supplements)	6
Financial Securities & Investments (such as stocks, bonds, car or life insurance)	6
Consumer Electronics Equipment (such as TV, DVD player, home theatre, cellular phones, GPS, car stereo, MP3 player)	6
Home Appliances (such as refrigerators, washing machines, coffee makers)	6

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Entertainment Events (such as cinema, theatres, concerts, festivals)	<input type="text" value="6"/>
Music/Movies (such as DVDs and CDs)	<input type="text" value="6"/>
Computer Hardware or Software	<input type="text" value="6"/>
Restaurants (such as take- out orders, browsing to eat there)	<input type="text" value="6"/>
Food/Beverage/Groceries for consumption at home or elsewhere	<input type="text" value="6"/>

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*** 6. On how many days, in the last two weeks, have you actually made a purchase OFFLINE of each type of product or service? Suppose you purchased a DVD from a store on one day and on the second day you bought a CD from a friend. Your answer would be 2 days for "Music/Movies."**

	Days
Clothing/Accessories	<input type="text" value="6"/>
Books/Magazines	<input type="text" value="6"/>
Travel Transportation (such as airlines, trains, buses, rental cars, highway hotels, etc)	<input type="text" value="6"/>
Travel Destinations (such as resorts, cruises, cities historical or religious sites)	<input type="text" value="6"/>
Health/Medical Products (such as vitamins, medicines, or dietary supplements)	<input type="text" value="6"/>
Financial Securities & Investments (such as stocks, bonds, car or life insurance)	<input type="text" value="6"/>
Consumer Electronics Equipment (such as TV, DVD player, home theatre, cellular phones, GPS, car stereo, MP3 player)	<input type="text" value="6"/>
Home Appliances (such as refrigerators, washing machines, coffee makers)	<input type="text" value="6"/>
Entertainment Events (such as cinema, theatres, concerts, festivals)	<input type="text" value="6"/>
Music/Movies (such as DVDs and CDs)	<input type="text" value="6"/>
Computer Hardware or Software	<input type="text" value="6"/>
Restaurants (such as take- out orders, browsing to eat there)	<input type="text" value="6"/>
Food/Beverage/Groceries for consumption at home or elsewhere	<input type="text" value="6"/>

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5. New Ways of Shopping

Think about the various ways that you can shop for products or services, for example: going online, going to a traditional store, using a catalog, door to door sales people, kiosks, as online auctions like eBay, Craigslist, etc. Please indicate your agreement or disagreement with the following:

*** 1. I am suspicious of new ways of shopping**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 2. I am reluctant to adopt new forms of shopping until I see them working for people around me**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 3. I rarely trust new means of shopping until I can see whether the vast majority of people around me accept them**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

Yellow Metal 2

*** 4. I am generally cautious about new ways of shopping**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 5. I must see other people using new means of shopping before I will consider them**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 6. I often find myself skeptical of new ways of shopping**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 7. I am aware that I am usually one of the last people in my group to accept new styles of shopping**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

Yellow Metal 2

*** 8. I tend to feel that the old ways of shopping are the best ways**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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6. Thoughts About Online Shopping

Next are some statements about looking for information and purchasing on Internet shopping sites. Please indicate your level of agreement or disagreement with each of the following statements:

*** 1. In general, I am among the last in my circle of friends to visit a shopping website when it appears**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 2. I intend to make one or more purchases online in the next month**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 3. If I heard a new website was available for online shopping, I would be interested enough to visit**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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*** 4. There is a good chance that in the next month I will browse sites to find products I might be interested in**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 5. Compared to my friends, I have visited few online shopping sites**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 6. It is highly likely that I would use my credit card to purchase or service online in the next month**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 7. I will visit an online shopping website even if I know practically nothing about it**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

Yellow Metal 2

*** 8. I know the names of new online shopping sites before other people do**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 9. In the next month, I intend to go online to search for information about products or services I am interested in**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 10. In general, I am the last person in my circle of friends to know about new shopping websites**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 11. In general, how innovative is shopping online compared to shopping in traditional stores?**

- 1 (Not At All Innovative)
- 2
- 3
- 4
- 5 (Very Innovative)

Yellow Metal 2

7. Beyond Online Shopping

Now let's talk about other aspects of your life, not counting Internet shopping. Please indicate your level of agreement or disagreement with the following:

*** 1. I am suspicious of new inventions and new ways of thinking**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 2. I am reluctant about adopting new ways of doing things until I see them working for people around me**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 3. I rarely trust new ideas until I can see whether the vast majority of people around me accept them**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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*** 4. I am generally cautious about accepting new ideas**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 5. I must see other people using new innovations before I will consider them**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 6. I often find myself skeptical of new ideas**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 7. I am aware that I am usually one of the last people in my group to accept something new**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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*** 8. I tend to feel that the old way of living and doing things is the best way**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 9. I consider myself to be creative and original in my thinking and behavior**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 10. I am an inventive kind of person**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 11. I seek out new ways to do things**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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*** 12. I enjoy trying out new ideas**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 13. I find it stimulating to be original in my thinking and behavior**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 14. I am receptive to new ideas**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 15. I frequently improvise methods for solving a problem when an answer is not apparent**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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*** 16. I feel that I am an influential member of my peer group**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 17. My peers often ask me for advice or information**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 18. I enjoy taking part in the leadership responsibilities of the group I belong to**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

*** 19. I am challenged by unanswered questions**

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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* 20. I am challenged by ambiguities and unsolved problems

- 1 (Strongly Disagree)
- 2
- 3 (Neither Agree Nor Disagree)
- 4
- 5 (Strongly Agree)

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8. Background Information

*** 1. What is your gender?**

- Male
 Female

*** 2. What is your race/ethnicity?**

- White
 Black
 Hispanic
 Asian
 Other

*** 3. How old were you on your last birthday? (type the number such as '16' if you are sixteen)**

*** 4. What is your marital status?**

- Single, never married
 Married
 Separated/Divorced
 Widowed

*** 5. Location**

In what state is your permanent address at this current time?

State

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*** 6. What is the last year of education you have completed?**

- Some high school
- High school
- Community college/Technical school training (such as mechanic)
- Some university or 4 year college
- College/university graduate
- Graduate or professional school

*** 7. What is your current employment?**

- Employed full-time
- Employed part-time
- Self employed
- Temporarily unemployed
- Full time student
- Homemaker/housewife
- Retired

*** 8. Please indicate which of the following categories best represents your annual family income before taxes?**

- \$10,000 or less
- \$10,001 to \$20,000
- \$20,001 to \$30,000
- \$30,001 to \$40,000
- \$40,001 to \$50,000
- \$50,001 to \$75,000
- \$75,001 to \$100,000
- More than \$100,000

*** 9. How many people live with you in your household, including yourself (please enter the number)?**

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*** 10. Please indicate whether you own each of the following items (indicate one response for each)**

	Ownership
Blu-Ray Disc Player (high quality movie player)	<input type="text" value="6"/>
A High-Definition TV (HDTV)	<input type="text" value="6"/>
Global Positioning System (GPS such as Garmin)	<input type="text" value="6"/>
Netbook (highly portable laptop)	<input type="text" value="6"/>
Portable wireless printer	<input type="text" value="6"/>
E-Book (Kindle)	<input type="text" value="6"/>

*** 11. Have you ever gone online to an auction style website like eBay where you can sell or buy items from other people?**

- Yes
 No
 Don't Know

*** 12. Frequency of Auction Style Websites**

	Days
How many days in the last month (i.e., 4 weeks) have you gone online to an auction style website like eBay where you can sell or buy items from other people?	<input type="text" value="6"/>

*** 13. Have you ever gone online to a site like Craigslist.com where you can sell or buy items without the use of auctions?**

- Yes
 No
 Don't Know

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* 14. Frequency of Non-Auction Style Websites

Days

How many days in the last month (i.e., 4 weeks) have you gone to a site like Craigslist.com where you can buy or sell items without the use of auctions?

6

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9. Break Time

Congratulations!

You have completed the first phase of the survey. Feel free to take a five to ten minute break. Raise your hand, and ask the survey administrators about the availability of snacks.

Please continue on to the second phase of the survey after your break.

Yellow Metal 2

10. Introduction

Welcome back!

In this second half of the session, you will be asked about what features you want to find in a commercial website offering consumer electronics. Then you will visit a consumer electronics store and report what you think of that website. Next you will do the same for a bookstore website.

Yellow Metal 2

11. Importance of Features for Consumer Electronics

Previously you indicated how much you wanted each feature in regard to shopping websites in general. Now we are going to focus on CONSUMER ELECTRONICS websites. Suppose you are looking for a netbook you would like to give someone as a gift or for yourself, so you go online to different consumer electronic stores to find a good netbook to get. Think about the kind of CONSUMER ELECTRONICS website you would like to shop at. Then indicate how strongly, if at all, a website having a particular feature encourages you to shop at that CONSUMER ELECTRONICS website rather than going to another CONSUMER ELECTRONICS website.

*** 1. There is a guarantee that my credit card information would be safely and securely protected**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 2. It has seals of companies stating that my information on the site is secure (e.g., Verisign)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 3. It has reasonable prices**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 4. The things I am looking for are easy to find on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 5. It has a wide selection and variety of things on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 6. It has interesting, attractive color (e.g., in fonts, background, and borders)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 7. It has interesting, attractive graphics (e.g., not too complicated, not too simple)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 8. The Internet links on the site are working properly**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 9. It has a return policy that is easy to understand and use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 10. It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 11. The site presents both benefits and drawbacks of the products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 12. Products on the website can be easily compared with eachother**

- 1 (Does Not At All Encourage Me)
 2
 3
 4
 5 (Strongly Encourages Me)

*** 13. It has photos of products**

- 1 (Does Not At All Encourage Me)
 2
 3
 4
 5 (Strongly Encourages Me)

*** 14. It is quite different from the usual sites for products of the type involved**

- 1 (Does Not At All Encourage Me)
 2
 3
 4
 5 (Strongly Encourages Me)

*** 15. It has an interactive web design (e.g., design/customize your products/services)**

- 1 (Does Not At All Encourage Me)
 2
 3
 4
 5 (Strongly Encourages Me)

Yellow Metal 2

*** 16. It has entertaining graphics and displays**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 17. My friends or family let me know their opinions of the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 18. It allows instant messaging with the company or company representative**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 19. It has photos of real people using the products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 20. It has one or more animated characters that move or speak**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 21. The order process is easy to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 22. Provides customer feedback (i.e., the site provides a place for you to learn about other customers' evaluations of the product)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 23. I hear it on the radio, television, or in the newspaper**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 24. My friends and family have been happy when they have shopped there**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 25. It is free of grammatical and typographical errors**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 26. It is enjoyable to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

12. Browsing for Consumer Electronics

* 1. Have you ever browsed or made a purchase at an online consumer electronics store?

Yes

No

* 2. Have you ever browsed or made a purchase at the following online consumer electronics stores? Check yes or no for each

	Yes/No
Best Buy	<input type="checkbox"/> 6
Rockstar Electronics	<input type="checkbox"/> 6
Circuit City	<input type="checkbox"/> 6
Comp USA	<input type="checkbox"/> 6
Radio Shack	<input type="checkbox"/> 6
Fry's Electronics	<input type="checkbox"/> 6

13. Familiarity with Fry's Electronics

*** 1. How familiar are you with Fry's Electronics?**

- I have never heard of it
- I have heard of the name, but know practically nothing about it
- I know something, but not much about Fry's Electronics
- I know quite a lot about Fry's Electronics

*** 2. How familiar are you with Fry's Electronics website**

- I do not think I have ever been there
- I have been there once or twice
- I have been there more than once or twice
- I have been there many times

Yellow Metal 2

14. Performance of Features for Fry's Electronics

Now, please go to www.Frys.com and spend a few minutes getting a feel for the site. Then, choose a netbook as a gift or for yourself. Go through the steps of purchasing that netbook, but stop just short of actually buying it (i.e., abandon your shopping cart at the last chance). Spend a total of about five minutes looking around the site and making a purchase.

Feel free to refer back to www.Frys.com while answering the following questions.

Technology Tip: have two internet windows open. One for this survey and one for the website you are told to visit. You can either minimize one while interacting with the other. Or you can use a split-screen technique whereby each window takes up about half of the computer screen.

If you have any questions, please notify one of the survey administrators

*** 1. Compared to other consumer electronics websites, how much do you like or dislike the Fry's Electronics website as a place to shop?**

- I like Fry's Electronics much less than other consumer electronics websites
- I like Fry's Electronics somewhat less than other consumer electronics websites
- I like Fry's Electronics about as much as most other consumer electronics websites
- I like Fry's Electronics somewhat more than most other consumer electronics websites
- I like Fry's Electronics much more than most other bookstore

*** 2. Suppose in the future you are looking online to purchase a netbook as a gift for someone or for yourself. How likely is it that you will go to Fry's Electronics website to browse around or to make a purchase?**

- 1 (Not Likely At All)
- 2
- 3
- 4
- 5 (Highly Likely I will Go There)

Previously you indicated how much you wanted each of several website features. Now we are asking how good a particular website is on those features.

Now, how good is Fry's Electronics website compared to other consumer electronics websites you know? Rate the following features from 1 (not good at all) to 5 (very, very good). Use only one number for each features.

Remember: feel free to refer back to www.Frys.com while answering these questions

Yellow Metal 2

*** 3. Providing a guarantee that my credit card information would be safely and securely protected**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 4. It has seals of companies stating that my information on the site is secure (e.g., Verisign)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 5. Providing reasonable prices**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 6. Offers a wide selection and variety of things on the site**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 7. The site is set up so that the things I am looking for are easy to find**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 8. Using interesting, attractive colors (e.g., in fonts, background, and borders)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 9. Using interesting, attractive graphics (e.g., not too complicated, not too simple)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 10. How properly the Internet links on the site are working**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 11. 11. Having a return policy that is easy to understand and use**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 12. Providing price incentives (e.g., coupons, future sale items, frequent shopper programs etc.)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 13. How much the site presents both benefits and drawbacks of the products/services**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 14. How much products on the website can be easily compared with each other**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 15. How much it has photos of products**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 16. Being different from the usual sites for products of the type involved**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 17. The degree it is designed to let a shopper interact with the site (e.g., design your products/services)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 18. . How entertaining are its graphics and displays**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 19. How much friends or family let me know their opinions of the site**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 20. Whether it allows instant messaging with the company or company representatives**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 21. How much it has photos of real people using products/services**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 22. Having one or more animated characters that move or speak**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 23. Having an easy to use order process**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 24. How much it provides customer feedback (i.e., the site provides a place for you to learn about the customers' evaluations of the product)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 25. How much I hear about it on the radio, television, or in the newspaper**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 26. How much my friends and family have been happy when they have shopped there**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 27. How free it is of grammatical and typographical errors**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 28. How enjoyable it is to use**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

15. Importance of Features for Bookstore Websites

That's enough about online consumer electronics stores. Now let's talk about online BOOKSTORES. Suppose you are looking for a book you would like to give someone as a gift or for yourself, so you go online to different bookstores to find a good book to get. Think about the kind of online BOOKSTORE you would like to shop at. Then indicate how strongly if at all, a website having a particular feature encourages you to shop at that BOOKSTORE website rather than going to another online BOOKSTORE website.

*** 1. There is a guarantee that my credit card information would be safely and securely protected**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 2. It has seals of companies stating that my information on the site is secure (e.g. Verisign)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 3. It has reasonable prices**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 4. The things I am looking for are easy to find on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 5. It has a wide selection and variety of things on the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 6. It has interesting, attractive color (e.g., in fonts, background, and borders)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 7. It has interesting, attractive graphics (e.g., not too complicated, not too simple)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 8. The Internet links on the site are working properly**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 9. It has a return policy that is easy to understand and use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 10. It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 11. The site presents both benefits and drawbacks of the products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 12. Products on the website can be easily compared with each other**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 13. It has photos of products**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 14. It is quite different from the usual sites for the products of the type involved**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 15. It has an interactive web design (e.g., design/customize your products/services)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 16. It has entertaining graphics and displays**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 17. My friends and family let me know their opinions of the site**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 18. It allows instant messaging with the company or company representative**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 19. It has photos of real people using products/services**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 20. It has one or more animated characters that move or speak**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 21. The order process is easy to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 22. Provides customer feedback (i.e., the site provides a place for you to learn about other customers' evaluations of the product)**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 23. I hear it on the radio, television, or in the newspaper**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

*** 24. My friends and family have been happy when they have shopped there**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 25. It is free of grammatical and typographical errors**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

*** 26. It is enjoyable to use**

- 1 (Does Not At All Encourage Me)
- 2
- 3
- 4
- 5 (Strongly Encourages Me)

Yellow Metal 2

16. Browsing for Books and Other Reading Materials

* 1. . Have you ever browsed or made a purchase at an online bookstore?

Yes

No

* 2. Have you ever browsed or made a purchase at the following online bookstores?

Check yes or no for each

	Yes/No
Borders	<input type="checkbox"/> 6
Barnes & Noble	<input type="checkbox"/> 6
Books-A-Million	<input type="checkbox"/> 6
Barnacle Barn Books	<input type="checkbox"/> 6
Powell's Books	<input type="checkbox"/> 6
Books-Off-USA	<input type="checkbox"/> 6

17. Familiarity with Powell's Books

*** 1. How familiar are you with Powell's Books?**

- I have never heard of it
- I have heard the name, but know practically nothing about it
- I know something, but not much about Powell's Books
- I know quite a lot about Powell's Books

*** 2. How familiar are you with Powell's Books website?**

- I do not think I have ever been there
- I have been there once or twice
- I have been there more than once or twice
- I have been there many times

Yellow Metal 2

18. Performance of Features for Powell's Books

Now please go to www.Powells.com and spend a few minutes getting a feel for the site. Then, choose a book to buy as a gift for yourself. Go through the steps of purchasing that book, but stop just short of actually buying it (i.e., abandon your shopping cart at the last chance). Spend a total of about five minutes looking around the site and making a purchase.

Feel free to refer back to www.Powells.com while answering the following questions.

Technology Tip: have two internet windows open. One for this survey and one for the website you are told to visit. You can either minimize one while interacting with the other. Or you can use a split-screen technique whereby each window takes up about half of the computer screen.

If you have any questions, please notify one of the survey administrators.

*** 1. Compared to other online bookstore sites, how much do you like or dislike Powell's Books website as a place to shop?**

- I like Powell's Books much less than other bookstore websites
- I like Powell's Books somewhat less than other bookstore websites
- I like Powell's Books about as much as other bookstore websites
- I like Powell's Books much more than most other bookstore websites

*** 2. Suppose in the future you are looking online to purchase a book as a gift for someone or for yourself. How likely is it that you will go to Powell's Books website to browse around or make a purchase?**

- 1 (Not Likely At All)
- 2
- 3
- 4
- 5 (Highly Likely I will Go There)

Previously you indicated how much you wanted each of several website features. Now we are asking how good a particular site is on those features.

Now, how good is Powell's Books website compared to other shopping sites you know? Rate the following features from 1 (not good at all) to 5 (very, very good). Use only one number for each feature.

Remember: feel free to refer back to www.Powells.com while answering these questions.

Yellow Metal 2

*** 3. Providing a guarantee that my credit card information would be safely and securely protected**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 4. It has seals of companies stating that my information on the site is secure (e.g., Verisign)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 5. Providing reasonable prices**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 6. Offers a wide selection and variety of things on the site**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 7. The site is set up so that the things I am looking for are easy to find**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 8. Using interesting, attractive colors (e.g., in fonts, background, and borders)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 9. Using interesting, attractive graphics (e.g., not too complicated, not too simple)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 10. How properly the Internet links on the site are working**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 11. Having a return policy that is easy to understand and use**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 12. . Providing price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 13. How much the site presents both benefits and drawbacks of the products/services**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 14. How much products on the website can be easily compared with each other**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 15. How much it has photos of products**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 16. Being different from the usual sites for products of the type involved**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 17. The degree it is designed to let a shopper interact with the site (e.g., design your products/services)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 18. How entertaining are its graphics and displays**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 19. . How much friends or family let me know their opinions of the site**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 20. Whether it allows instant messaging with the company or company representative**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 21. How much it has photos of real people using products/services**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 22. Having one or more animated characters that move or speak**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 23. Having an easy to use order process**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 24. How much it provides customer feedback (i.e., the site provides a place for you to learn about the customers' evaluations of the product)**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 25. How much I hear about it on the radio, television, or in the newspaper**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 26. How much my friends and family have been happy when they have shopped there**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

*** 27. How free it is of grammatical and typographical errors**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

*** 28. How enjoyable it is to use**

- 1 (Not Good At All)
- 2
- 3
- 4
- 5 (Very, Very Good)

Yellow Metal 2

19. The End

Congratulations!

You have completed phase two of this survey. With the completion of phase two, you have completed the entire survey.

Thank you so much for your help.

Please notify one of the survey administrators that you have completed the survey.

- * 1. Please leave us some feedback about your survey experience. For instance, are you aware of any aspects of shopping sites that were not considered on this survey. Also, free to discuss your overall feelings about your experience with this survey.**

- * 2. Please fill in the code the administrator has given you. Then submit your survey. Then log off.**

B. Entire VISA Attribute List

A list of all of the attributes considered within the Variegated Inventory of Site Attributes (VISA) (Blake et al., 2010) is shown below. Within this table, a column is also provided to identify which items within VISA were included in the current research study. Also, one column is devoted to identifying which attribute importance dimension each attribute belongs to according to Blake et al. (2010). Finally, some of the wordings of attributes were transformed from the original VISA source to the current research. Wording changes are also indicated on the table.

Table XVI. *Entire VISA (Blake et al., 2010) Attribute List*

ID #	<u>VISA Attribute Importance Dimension</u>	<u>VISA Attributes</u>	<u>Used in the Current Research (Yes/No)</u>	<u>Wording used in the current research</u>
1	"Product Information"	The order process is easy to use	Yes	same as original wording (SAOW)
2	"Near Ideal"	The products I am looking for are easy to find	Yes	SAOW
3	"Uniquely Entertaining"	It is really unlike any other web site I have ever visited	No	Not applicable (n/a)
4	"Near Ideal"	Product price	Yes	It has reasonable prices
5	"Product Information"	Provides customer feedback (the site provides a place for you to learn about other customer's evaluation of products)	Yes	SAOW

6	"Others' Recommendation"	My friends and family have been happy when they have shopped there	Yes	SAOW
7	"Near Ideal"	Reputation and credibility of the company on the web	No	n/a
8	"Uniquely Entertaining"	It is enjoyable to visit	Yes	It is enjoyable to use
9	"Near Ideal"	The delivery time is short	No	n/a
10	"Near Ideal"	The site is in my primary language	No	n/a
11	"Uniquely Entertaining"	My friends and family will like to know my opinions of the site	Yes	SAOW
12	"Near Ideal"	A wide selection and variety of products on the site	Yes	SAOW
13	"Near Ideal"	Low or no charge for shipping and handling	No	n/a
14	"Uniquely Entertaining"	It has entertaining graphics and displays	Yes	SAOW
15	"Product Information"	Provides product information, including FAQs-frequently asked questions	No	n/a

				It provides price incentives (e.g., coupons, future sale items, frequent shopper programs, etc.)
16	"Near Ideal"	A good place to find a bargain	Yes	
17	"Security and Transaction Privacy"	Providing credit card safety	No	n/a
18	"Security and Transaction Privacy"	Fast response time from customer service	No	n/a
19	"Others' Recommendation"	I hear about it on the radio, television, or in the newspapers	Yes	SAOW
20	"Web Site Functionality"	The download speed of the page	No	n/a
21	"Web Site Functionality"	A return policy that is easy to understand and use	Yes	SAOW
22	"Web Site Functionality"	Price incentives (coupons, future sale items, frequent shopper programs, etc.)	Yes	SAOW
23	"New and Different"	Interactive web design (try it on, design your products/services)	Yes	SAOW
24	"New and Different"	It is quite different from the usual sites	Yes	SAOW

25	"Security and Transaction Privacy"	It has a guarantee from the vendor that my personal information will not be used to invade my privacy	No	n/a
26	"Web Site Functionality"	Has many options for navigating within the site	No	n/a
27	"Web Site Functionality"	The internet links on the site are working properly	Yes	SAOW
28	"New and Different"	The site is brand new to the web		n/a
29	"Web Site Functionality"	It is free of grammatical and typographical errors	Yes	SAOW
30	"True to Its Word"	Allows instant messaging with the company or company representatives	Yes	SAOW
31	"Security and Transaction Privacy"	It has seals of companies stating that my information on the site is secure (e.g., VeriSign)	Yes	SAOW
32	"True to Its Word"	My friends or family will not think less of me if I make a purchase there	No	n/a
33	"True to Its Word"	The privacy policy is easy to find on the site	No	n/a

34	"True to Its Word"	It has received a best site award	No	n/a
35	"True to Its Word"	There is a guarantee from the vendor that the product will arrive on time	No	n/a
36	"Visual and Auditory Richness"	Uses a personalized greeting, e.g., "Hello, Tom!"	No	n/a
37	"Security and Transaction Privacy"	The company offering the product/service guarantees that my personal purchase information will not be shared with other people or organizations	No	n/a
38	"Security and Transaction Privacy"	Allows emails to the company or to a company representative	No	n/a
39	"Human Touch"	Has one or more animated characters that move or speak	Yes	SAOW
40	"Product Comparison"	The products are guaranteed to be in stock	No	n/a
41	"Human Touch"	Has photos of real people	Yes	SAOW
42	"Human Touch"	Has video of real people	No	n/a
43	"New and Different"	The site came online just recently	No	n/a

44	"Product Comparison"	The site presents both benefits and drawbacks of products/services	Yes	SAOW
45	"Product Comparison"	The site carries top-brand products and services	No	n/a
46	"Product Comparison"	Has photos of products	Yes	SAOW
47	"Security and Transaction Privacy"	There is a guarantee that my credit card information would be safely and securely protected	Yes	SAOW
48	"Visual and Auditory Richness"	Uses music	No	n/a
49	"Visual and Auditory Richness"	Uses sounds other than music	No	n/a
50	"Security and Transaction Privacy"	There is a money-back guarantee	No	n/a
51	"Visual and Auditory Richness"	Uses a lot of color	Yes	It has interesting, attractive color (e.g., in fonts, background, borders)
52	"Product Comparison"	Products can be easily compared	Yes	SAOW
53	"Visual and Auditory Richness"	Has video of products	No	n/a
54	"Visual and Auditory Richness"	Uses a lot of color	No	n/a

55	"Security and Transaction Privacy"	The company offering the product/service guarantees that my credit card information would not be abused	No	n/a
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C. Images of the Fry's Electronic Web Site (www.Frys.com)




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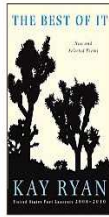
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E. EFA Results for General and Bookstore Importance

The pattern matrix for the general attribute importance structure is presented below. The primary issues with this solution include: only one attribute loads onto the 5th factor, the interesting graphics variable double loads, a majority of partial correlations outside the preferred 0.30 to 0.70 range, and communalities range from 0.06 to 0.78. Despite these issues, the solution contains some level of interpretability.

Figure 4. *EFA Results for General Attribute Importance*

Pattern Matrix^a

	Factor				
	1	2	3	4	5
GenSFPref_photos It has photos of products		.351			
GenSFPref_feedback Provides customer feedback (i.e.. the site provides a place for you to learn about other customers' evaluations of the product)			.351		
GenSFPref_animated It has one or more animated characters that move or speak	.437				
GenSFPref_interactive It has interactive web design (e.g.. design/customize your products/services)	.533				
GenSFPref_links The Internet links on the site are working properly					
GenSFPref_color It has interesting, attractive color (e.g.. in fonts, background, and borders)	.737				
GenSFPref_priceIncent It provides price incentives (e.g.. coupons, future sale items, frequent shopper programs, etc.)		.522			

GenSFPref_find The things I am looking for are easy to find on the site	.813			
GenSFPref_reasPrices It has reasonable prices	.503			
GenSFPref_grammar It is free of grammatical and typographical errors			.376	
GenSFPref_creditSecure There is a guarantee that my credit card information would be safely and securely protected			.724	
GenSFPref_secSeals It has seals of companies stating that my information on the site is secure (e.g.. Verisign)			.785	
GenSFPref_friends My friends and family have been happy when they have shopped there		.940		
GenSFPref_selection It has a wide selection and variety of products on the site	.418			
GenSFPref_intGraphics It has interesting. attractive graphics (e.g.. not too complicated. not too simple)	.507	.301		
GenSFPref_compare Products on the web site can be easily compared with each other				
GenSFPref_friendsOpin My friends or family let me know their opinions of the site		.745		
GenSFPref_returns It has a return policy that is easy to understand and use	.530			
GenSFPref_benefitsDraws The site presents both benefits and drawbacks of the products/services	.375			

GenSFPref_instantMessagi ng It allows instant messaging with the company or company representative					.584
GenSFPref_realPeople It has photos of real people using products/services	.326				
GenSFPref_ordering The order process is easy to use		.468			
GenSFPref_graphics It has entertaining graphics and displays	.892				

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The pattern matrix for the bookstore attribute importance structure is presented below. The primary issues with this solution include: a majority of partial correlations being outside of the preferred 0.30 to 0.70 range, the double-loading of the real people attribute, and communalities that range from 0.181 to 0.849. Despite these issues, the solution provides a decent level of interpretability.

Figure 5. *EFA Results for Bookstore Attribute Importance*

Pattern Matrix^a

	Factor				
	1	2	3	4	5
BookPref_creditSecure There is a guarantee that my credit card information would be safely and securely protected				.927	
BookPref_secSeals It has seals of companies stating that my information on the site is secure(e.g.. Verisign)				.840	
BookPref_reasPrice It has reasonable prices		.533			

BookPref_find The things I am looking for are easy to find on the site.	.796		
BookPref_selection It has a wide selection and variety of things on the site.	.558		
BookPref_color It has interesting. attractive color (e.g.. in fonts. background. and borders)	.807		
BookPref_graphics It has interesting. attractive graphics (e.g.. not too complicated. not too simple)	.881		
BookPref_links the Internet links on the site are working properly	.466		
BookPref_returns It has a return policy that is easy to understand and use			.309
BookPref_priceIncent It provides price incentives (e.g.. coupons. future sale items. frequent shopper programs. etc.)		.319	
BookPref_benefitsDraw The site presents both benefits and drawbacks of the products/services		.755	
BookPref_compare The products on the web site can be easily compared with eachother		.738	
BookPref_photos It has photos of products	.385		
BookPref_unusual It is quite different from the usual sites for products of the type involved	.441		
BookPref_interactive It has an interactive web design (e.g.. design/customize your products/services)	.631		

BookPref_graphic_II It has entertaining graphics and displays	.835				
BookPref_friendOpin My friends or family let me know their opinions of the site					.808
BookPref_instantMessag It allows instant messaging with the company or company representative.			.396		
BookPref_realPeople It has photos of real people using the products/services	.380		.394		
BookPref_animated It has one or more animated characters that move or speak	.586				
BookPref_ordering The order process is easy to use		.535			
BookPref_feedback provides customer feedback(i.e.. the site provides a place for you to learn about other customer's evaluations of the product)			.448		
BookPref_ads I hear about it on the radio. television. or newspaper					.339
BookPref_friends My friends or family have been happy when they have shopped there					.958

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

F. Correlations between Performance of Attributes for Fry's Electronics

Table XVII. <i>Fry's Electronic Attribute Performance Correlations</i>		
Attribute A	Attribute B	Correlation between Attributes A and B
secSeals	creditSecure	.690**
reasPrice	creditSecure	.392**
selection	creditSecure	.282**
find	creditSecure	.346**
color	creditSecure	.166**
graphics	creditSecure	.189**
links	creditSecure	.217**
returns	creditSecure	.459**
priceIncent	creditSecure	.301**
benefitsDraw	creditSecure	.411**
compare	creditSecure	.351**
photos	creditSecure	.208**
unusual	creditSecure	.213**
interactive	creditSecure	.332**
graphic_II	creditSecure	.215**
friendOpin	creditSecure	.241**

instantMessag	creditSecure	.225**
realPeople	creditSecure	.255**
animated	creditSecure	0.097
ordering	creditSecure	.282**
feedback	creditSecure	.334**
ads	creditSecure	.168**
friends	creditSecure	.221**
grammar	creditSecure	.239**
enjoyable	creditSecure	.371**
reasPrice	secSeals	.399**
selection	secSeals	.276**
find	secSeals	.306**
color	secSeals	.229**
graphics	secSeals	.265**
links	secSeals	.150**
returns	secSeals	.433**
priceIncent	secSeals	.306**
benefitsDraw	secSeals	.507**
compare	secSeals	.410**
photos	secSeals	.198**
unusual	secSeals	.250**
interactive	secSeals	.402**
graphic_II	secSeals	.281**
friendOpin	secSeals	.323**
instantMessag	secSeals	.354**
realPeople	secSeals	.387**
animated	secSeals	.223**
ordering	secSeals	.292**
feedback	secSeals	.441**
ads	secSeals	.315**

friends	secSeals	.310**
grammar	secSeals	.134*
enjoyable	secSeals	.400**
selection	reasPrice	.567**
find	reasPrice	.460**
color	reasPrice	.280**
graphics	reasPrice	.330**
links	reasPrice	.365**
returns	reasPrice	.406**
priceIncent	reasPrice	.375**
benefitsDraw	reasPrice	.343**
compare	reasPrice	.390**
photos	reasPrice	.404**
unusual	reasPrice	.283**
interactive	reasPrice	.406**
graphic_II	reasPrice	.266**
friendOpin	reasPrice	.250**
instantMessag	reasPrice	.250**
realPeople	reasPrice	.221**
animated	reasPrice	.156**
ordering	reasPrice	.480**
feedback	reasPrice	.340**
ads	reasPrice	.256**
friends	reasPrice	.278**
grammar	reasPrice	.278**
enjoyable	reasPrice	.407**
find	selection	.498**
color	selection	.269**
graphics	selection	.277**
links	selection	.377**
returns	selection	.394**
priceIncent	selection	.316**
benefitsDraw	selection	.407**
compare	selection	.359**
photos	selection	.480**
unusual	selection	.215**
interactive	selection	.337**
graphic_II	selection	.253**
friendOpin	selection	.183**
instantMessag	selection	.231**
realPeople	selection	.194**

animated	selection	0.048
ordering	selection	.406**
feedback	selection	.297**
ads	selection	.183**
friends	selection	.200**
grammar	selection	.314**
enjoyable	selection	.396**
color	find	.420**
graphics	find	.493**
links	find	.470**
returns	find	.341**
priceIncent	find	.280**
benefitsDraw	find	.341**
compare	find	.414**
photos	find	.420**
unusual	find	.300**
interactive	find	.368**
graphic_II	find	.278**
friendOpin	find	.207**
instantMessag	find	.195**
realPeople	find	.167**
animated	find	0.084
ordering	find	.488**
feedback	find	.224**
ads	find	.172**
friends	find	.171**
grammar	find	.387**
enjoyable	find	.489**
graphics	color	.765**
links	color	.223**
returns	color	.223**
priceIncent	color	.164**
benefitsDraw	color	.309**
compare	color	.349**
photos	color	.312**
unusual	color	.356**
interactive	color	.325**
graphic_II	color	.530**
friendOpin	color	.279**
instantMessag	color	.232**
realPeople	color	.210**

animated	color	.298**
ordering	color	.204**
feedback	color	.190**
ads	color	.293**
friends	color	.270**
grammar	color	.221**
enjoyable	color	.339**
links	graphics	.310**
returns	graphics	.269**
priceIncent	graphics	.226**
benefitsDraw	graphics	.340**
compare	graphics	.329**
photos	graphics	.339**
unusual	graphics	.362**
interactive	graphics	.444**
graphic_II	graphics	.591**
friendOpin	graphics	.285**
instantMessag	graphics	.200**
realPeople	graphics	.202**
animated	graphics	.289**
ordering	graphics	.285**
feedback	graphics	.204**
ads	graphics	.259**
friends	graphics	.273**
grammar	graphics	.237**
enjoyable	graphics	.448**
returns	links	.386**
priceIncent	links	.288**
benefitsDraw	links	.242**
compare	links	.264**
photos	links	.393**
unusual	links	.128*
interactive	links	.256**
graphic_II	links	.155**
friendOpin	links	0.099
instantMessag	links	0.047
realPeople	links	0.09
animated	links	-0.025
ordering	links	.465**
feedback	links	0.093
ads	links	0.069

friends	links	0.105
grammar	links	.472**
enjoyable	links	.378**
priceIncent	returns	.379**
benefitsDraw	returns	.550**
compare	returns	.469**
photos	returns	.370**
unusual	returns	.224**
interactive	returns	.419**
graphic_II	returns	.283**
friendOpin	returns	.244**
instantMessag	returns	.276**
realPeople	returns	.255**
animated	returns	0.111
ordering	returns	.509**
feedback	returns	.406**
ads	returns	.284**
friends	returns	.280**
grammar	returns	.354**
enjoyable	returns	.448**
benefitsDraw	priceIncent	.445**
compare	priceIncent	.340**
photos	priceIncent	.316**
unusual	priceIncent	.279**
interactive	priceIncent	.415**
graphic_II	priceIncent	.321**
friendOpin	priceIncent	.214**
instantMessag	priceIncent	.323**
realPeople	priceIncent	.272**
animated	priceIncent	.208**
ordering	priceIncent	.326**
feedback	priceIncent	.315**
ads	priceIncent	.272**
friends	priceIncent	.245**
grammar	priceIncent	.158**
enjoyable	priceIncent	.348**
compare	benefitsDraw	.595**
photos	benefitsDraw	.295**

unusual	benefitsDraw	.352**
interactive	benefitsDraw	.498**
graphic_II	benefitsDraw	.421**
friendOpin	benefitsDraw	.389**
instantMessag	benefitsDraw	.466**
realPeople	benefitsDraw	.485**
animated	benefitsDraw	.298**
ordering	benefitsDraw	.290**
feedback	benefitsDraw	.608**
ads	benefitsDraw	.444**
friends	benefitsDraw	.421**
grammar	benefitsDraw	.129*
enjoyable	benefitsDraw	.484**
photos	compare	.447**
unusual	compare	.373**
interactive	compare	.548**
graphic_II	compare	.359**
friendOpin	compare	.337**
instantMessag	compare	.449**
realPeople	compare	.436**
animated	compare	.225**
ordering	compare	.293**
feedback	compare	.524**
ads	compare	.354**

friends	compare	.381**
grammar	compare	.197**
enjoyable	compare	.473**
unusual	photos	.240**
interactive	photos	.368**
graphic_II	photos	.247**
friendOpin	photos	.162**
instantMessag	photos	.118*
realPeople	photos	0.092
animated	photos	-0.03
ordering	photos	.368**
feedback	photos	.181**
ads	photos	0.066
friends	photos	.139*
grammar	photos	.350**
enjoyable	photos	.340**
interactive	unusual	.401**
graphic_II	unusual	.416**
friendOpin	unusual	.364**
instantMessag	unusual	.422**
realPeople	unusual	.366**
animated	unusual	.226**
ordering	unusual	.208**
feedback	unusual	.311**
ads	unusual	.359**
friends	unusual	.342**
grammar	unusual	0.089
enjoyable	unusual	.386**
graphic_II	interactive	.551**
friendOpin	interactive	.401**
instantMessag	interactive	.418**
realPeople	interactive	.445**
animated	interactive	.304**
ordering	interactive	.354**
feedback	interactive	.407**
ads	interactive	.371**
friends	interactive	.388**
grammar	interactive	.131*

enjoyable	interactive	.509**
friendOpin	graphic_II	.357**
instantMessag	graphic_II	.336**
realPeople	graphic_II	.397**
animated	graphic_II	.391**
ordering	graphic_II	.216**
feedback	graphic_II	.348**
ads	graphic_II	.434**
friends	graphic_II	.378**
grammar	graphic_II	0.011
enjoyable	graphic_II	.441**
instantMessag	friendOpin	.500**
realPeople	friendOpin	.491**
animated	friendOpin	.364**
ordering	friendOpin	.232**
feedback	friendOpin	.420**
ads	friendOpin	.561**
friends	friendOpin	.757**
grammar	friendOpin	-0.038
enjoyable	friendOpin	.403**
realPeople	instantMessag	.603**
animated	instantMessag	.342**
ordering	instantMessag	.192**
feedback	instantMessag	.424**
ads	instantMessag	.485**
friends	instantMessag	.505**
grammar	instantMessag	0.062
enjoyable	instantMessag	.342**
animated	realPeople	.489**
ordering	realPeople	.179**
feedback	realPeople	.535**
ads	realPeople	.552**
friends	realPeople	.516**

grammar	realPeople	-0.034
enjoyable	realPeople	.354**
ordering	animated	.125*
feedback	animated	.350**
ads	animated	.459**
friends	animated	.405**
grammar	animated	-0.095
enjoyable	animated	.278**
feedback	ordering	.268**
ads	ordering	.185**
friends	ordering	.220**
grammar	ordering	.276**
enjoyable	ordering	.416**
ads	feedback	.521**
friends	feedback	.478**
grammar	feedback	0.018
enjoyable	feedback	.478**
friends	ads	.696**
grammar	ads	-0.057
enjoyable	ads	.429**
grammar	friends	-0.01
enjoyable	friends	.516**
enjoyable	grammar	.236**
enjoyable	instantMessag	.342**
animated	realPeople	.489**
ordering	realPeople	.179**
feedback	realPeople	.535**
ads	realPeople	.552**
friends	realPeople	.516**
grammar	realPeople	-0.034
enjoyable	realPeople	.354**
ordering	animated	.125*
feedback	animated	.350**
ads	animated	.459**
friends	animated	.405**
grammar	animated	-0.095
enjoyable	animated	.278**
feedback	ordering	.268**
ads	ordering	.185**
friends	ordering	.220**
grammar	ordering	.276**
enjoyable	ordering	.416**

ads	feedback	.521**
friends	feedback	.478**
grammar	feedback	0.018
enjoyable	feedback	.478**
friends	ads	.696**
grammar	ads	-0.057
enjoyable	ads	.429**
grammar	friends	-0.01
enjoyable	friends	.516**
enjoyable	grammar	.236**

Notes. 1) no asterisk indicates the correlation is not significant. 2) 1 asterisk indicates that the correlation is significant in regard to the 0.05 cut-off. 3) 2 asterisks indicate that the correlation is significant in regard to the 0.01 cut-off.

G. Correlations between Performance of Attributes for Powell's Bookstore

Table XVIII. <i>Powell's Bookstore Attribute Performance Correlations</i>		
Attribute A	Attribute B	Correlation between Attribute A and B
secSeals	creditSecure	.696
reasPrice	creditSecure	.378
selection	creditSecure	.356
find	creditSecure	.350
color	creditSecure	.285
graphics	creditSecure	.269
links	creditSecure	.549
returns	creditSecure	.517
priceIncentives	creditSecure	.330
benefitsDrawbacks	creditSecure	.323
compare	creditSecure	.332
photos	creditSecure	.379
unusual	creditSecure	.256
interactive	creditSecure	.224

graphics_II		.224
	creditSecure	
friendOpin		.165
	creditSecure	
instantMessag		.132
	creditSecure	
realPeople		.140
	creditSecure	
animated		.053
	creditSecure	
ordering		.448
	creditSecure	
feedback		.352
	creditSecure	
ads		.097
	creditSecure	
friends		.072
	creditSecure	
grammar		.453
	creditSecure	
enjoyable		.365
	creditSecure	
	reasPrice	.338
secSeals		
secSeals	selection	.337
secSeals	find	.274
secSeals	color	.278
secSeals	graphics	.276
secSeals	links	.515
secSeals	returns	.466
	priceIncentives	.289
secSeals		
	benefitsDrawbacks	.304
secSeals		
secSeals	compare	.316
secSeals	photos	.350
secSeals	unusual	.315
secSeals	interactive	.204
secSeals	graphics_II	.258

secSeals	friendOpin	.150
	instantMessag	.155
secSeals		
secSeals	realPeople	.132
secSeals	animated	.037
secSeals	ordering	.407
secSeals	feedback	.277
secSeals	ads	.123
secSeals	friends	.120
secSeals	grammar	.378
secSeals	enjoyable	.396
reasPrice	selection	.516
reasPrice	find	.488
reasPrice	color	.214
reasPrice	graphics	.256
reasPrice	links	.403
reasPrice	returns	.380
	priceIncentives	.366
reasPrice		
	benefitsDrawbacks	.312
reasPrice		
reasPrice	compare	.356
reasPrice	photos	.312
reasPrice	unusual	.239
reasPrice	interactive	.232
reasPrice	graphics_II	.242
reasPrice	friendOpin	.202
	instantMessag	.204
reasPrice		
reasPrice	realPeople	.182
reasPrice	animated	.070
reasPrice	ordering	.346
reasPrice	feedback	.316
reasPrice	ads	.218
reasPrice	friends	.220
reasPrice	grammar	.245
reasPrice	enjoyable	.456
selection	find	.571
selection	color	.344
selection	graphics	.311
selection	links	.457
selection	returns	.382

selection	priceIncentives	.305
selection	benefitsDrawbacks	.291
selection	compare	.367
selection	photos	.491
selection	unusual	.295
selection	interactive	.323
selection	graphics_II	.311
selection	friendOpin	.150
selection	instantMessag	.073
selection	realPeople	.119
selection	animated	-.006
selection	ordering	.397
selection	feedback	.339
selection	ads	.067
selection	friends	.084
selection	grammar	.323
selection	enjoyable	.428
find	color	.381
find	graphics	.365
find	links	.493
find	returns	.372
find	priceIncentives	.240
find	benefitsDrawbacks	.319
find	compare	.396
find	photos	.436
find	unusual	.261
find	interactive	.318
find	graphics_II	.358
find	friendOpin	.162
find	instantMessag	.169
find	realPeople	.199
find	animated	.019
find	ordering	.470
find	feedback	.288
find	ads	.180
find	friends	.175
find	grammar	.351

find	enjoyable	.496
color	graphics	.799
color	links	.409
color	returns	.274
color	priceIncentives	.238
color	benefitsDrawbacks	.207
color	compare	.244
color	photos	.371
color	unusual	.368
color	interactive	.329
color	graphics_II	.574
color	friendOpin	.208
color	instantMessag	.181
color	realPeople	.245
color	animated	.172
color	ordering	.284
color	feedback	.151
color	ads	.194
color	friends	.083
color	grammar	.264
color	enjoyable	.407
graphics	links	.401
graphics	returns	.253
graphics	priceIncentives	.302
graphics	benefitsDrawbacks	.243
graphics	compare	.239
graphics	photos	.329
graphics	unusual	.359
graphics	interactive	.319
graphics	graphics_II	.626
graphics	friendOpin	.195
graphics	instantMessag	.192
graphics	realPeople	.252
graphics	animated	.263
graphics	ordering	.251
graphics	feedback	.137
graphics	ads	.202

graphics	friends	.100
graphics	grammar	.242
graphics	enjoyable	.429
links	returns	.482
links	priceIncentives	.358
links	benefitsDrawbacks	.263
links	compare	.315
links	photos	.472
links	unusual	.259
links	interactive	.253
links	graphics_II	.323
links	friendOpin	.123
links	instantMessag	.050
links	realPeople	.145
links	animated	-.026
links	ordering	.523
links	feedback	.340
links	ads	.012
links	friends	.074
links	grammar	.558
links	enjoyable	.440
returns	priceIncentives	.379
returns	benefitsDrawbacks	.422
returns	compare	.367
returns	photos	.325
returns	unusual	.231
returns	interactive	.243
returns	graphics_II	.288
returns	friendOpin	.248
returns	instantMessag	.196
returns	realPeople	.225
returns	animated	.087
returns	ordering	.434
returns	feedback	.364
returns	ads	.206
returns	friends	.226
returns	grammar	.346

returns	enjoyable	.429
	benefitsDrawbacks	.358
priceIncentives		
priceIncentives	compare	.335
priceIncentives	photos	.183
priceIncentives	unusual	.211
priceIncentives	interactive	.319
priceIncentives	graphics_II	.286
priceIncentives	friendOpin	.278
	instantMessag	.228
priceIncentives		
priceIncentives	realPeople	.259
priceIncentives	animated	.171
priceIncentives	ordering	.275
priceIncentives	feedback	.205
priceIncentives	ads	.169
priceIncentives	friends	.220
priceIncentives	grammar	.208
priceIncentives	enjoyable	.375
benefitsDrawbacks	compare	.629
benefitsDrawbacks	photos	.197
benefitsDrawbacks	unusual	.347
benefitsDrawbacks	interactive	.429
benefitsDrawbacks	graphics_II	.340
benefitsDrawbacks	friendOpin	.480
	instantMessag	.365
benefitsDrawbacks		
benefitsDrawbacks	realPeople	.353
benefitsDrawbacks	animated	.281
benefitsDrawbacks	ordering	.323
benefitsDrawbacks	feedback	.510
benefitsDrawbacks	ads	.356
benefitsDrawbacks	friends	.391
benefitsDrawbacks	grammar	.127
benefitsDrawbacks	enjoyable	.363
compare	photos	.270
compare	unusual	.391
compare	interactive	.423
compare	graphics_II	.356
compare	friendOpin	.353
	instantMessag	.364
compare		
compare	realPeople	.342

compare	animated	.206
compare	ordering	.334
compare	feedback	.423
compare	ads	.248
compare	friends	.332
compare	grammar	.155
compare	enjoyable	.385
photos	unusual	.255
photos	interactive	.249
photos	graphics_II	.312
photos	friendOpin	.104
	instantMessag	.076
photos	realPeople	.064
photos	animated	-.084
photos	ordering	.466
photos	feedback	.351
photos	ads	.029
photos	friends	.063
photos	grammar	.417
photos	enjoyable	.391
unusual	interactive	.294
unusual	graphics_II	.370
unusual	friendOpin	.345
	instantMessag	.285
unusual	realPeople	.392
unusual	animated	.235
unusual	ordering	.218
unusual	feedback	.159
unusual	ads	.263
unusual	friends	.330
unusual	grammar	.198
unusual	enjoyable	.372
interactive	graphics_II	.454
interactive	friendOpin	.409
	instantMessag	.350
interactive	realPeople	.293
interactive	animated	.312
interactive	ordering	.274
interactive	feedback	.327
interactive	ads	.285

interactive	friends	.302
interactive	grammar	.145
interactive	enjoyable	.344
graphics_II	friendOpin	.331
graphics_II	instantMessag	.206
graphics_II	realPeople	.355
graphics_II	animated	.329
graphics_II	ordering	.190
graphics_II	feedback	.231
graphics_II	ads	.308
graphics_II	friends	.200
graphics_II	grammar	.167
graphics_II	enjoyable	.502
friendOpin	instantMessag	.464
friendOpin	realPeople	.436
friendOpin	animated	.357
friendOpin	ordering	.174
friendOpin	feedback	.295
friendOpin	ads	.439
friendOpin	friends	.658
friendOpin	grammar	.037
friendOpin	enjoyable	.280
instantMessag	realPeople	.508
instantMessag	animated	.472
instantMessag	ordering	.086
instantMessag	feedback	.253
instantMessag	ads	.411
instantMessag	friends	.416
instantMessag	grammar	-.005
instantMessag	enjoyable	.265
realPeople	animated	.472
realPeople	ordering	.023
realPeople	feedback	.154
realPeople	ads	.448
realPeople	friends	.349
realPeople	grammar	-.033
realPeople	enjoyable	.324
animated	animated	1
animated	ordering	.012
animated	feedback	.055
animated	ads	.331

animated	friends	.273
animated	grammar	-.038
animated	enjoyable	.175
ordering	feedback	.361
ordering	ads	.046
ordering	friends	.187
ordering	grammar	.519
ordering	enjoyable	.494
feedback	ads	.259
feedback	friends	.275
feedback	grammar	.266
feedback	enjoyable	.290
ads	friends	.576
ads	grammar	-.032
ads	enjoyable	.322
friends	grammar	.021
friends	enjoyable	.294
grammar	enjoyable	.385

Notes. 1) no asterisk indicates the correlation is not significant. 2) 1 asterisk indicates that the correlation is significant in regard to the 0.05 cut-off. 3) 2 asterisks indicate that the correlation is significant in regard to the 0.01 cut-off.

H. Factor Correlation Matrices for Performance EFAs

Figure 6, seen below, is the factor correlation matrix taken from the output of the EFA for attribute performance based on ratings of attributes for the www.Frys.com website.

Figure 6. *Factor Correlation Matrix for Fry's Electronics*

Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	.203	.495	.447
2	.203	1.000	.652	.429
3	.495	.652	1.000	.544
4	.447	.429	.544	1.000

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

Figure 7, seen below, is the factor correlation matrix taken from the output of the EFA for attribute performance based on ratings of attributes for the www.Powells.com website.

Figure 7. *Factor Correlation Matrix for Powell's Bookstore*

Factor Correlation Matrix

Factor	1	2	3	4
1	1.000	.409	.295	.343
2	.409	1.000	.692	.444
3	.295	.692	1.000	.381
4	.343	.444	.381	1.000

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.