EFFECTS OF VISUAL DESIGN ON CONSUMER PERCEPTIONS

OF E-COMMERCE WEBSITES

FOR SEARCH AND EXPERIENCE PRODUCTS

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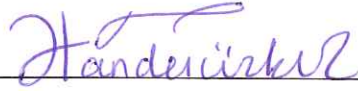Search and Experience Products

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ABSTRACT

Effects of Visual Design on Consumer Perceptions of E-Commerce Websites

for Search and Experience Products

Visual design is considered as one of key factors in online shopping, especially in the case of unknown sellers. The elements of visual design might be used by vendors to convey product quality information to consumers and decrease the risk perception. With limited ability to assess a product physically e-commerce creates information asymmetries which makes it difficult for consumers to effectively evaluate certain types of products. This is why it is important to understand the differences in visual design perceptions for search versus experience products and how product types affect consumer perceptions of a website. This study examines which elements of visual design play the most important role for search and experience products. The purpose of this study is to develop a visual design guideline for product page of e-commerce websites. An experiment was conducted using hypothetical websites with eight conditions of treatment manipulation for one search and one experience product. Data have been collected from 281 Internet users and analyzed by using factor, reliability, correlation, interaction effects, and MANCOVA analysis.

The results indicate that visual design quality influences consumers' perceptions of product quality, which subsequently affects risk perception. No significant difference between product types was found for pictures and background color elements. This study results show that on website with search product consumers prefer ornate font, while for experience product simple font is preferred. Implications for future research and website product page design are examined.

ÖZET

Arama ve Deneyim Ürünleri için E-Ticaret Web Sitelerinin Görsel Tasarımının
Tüketici Algısına Etkisi

E-ticaret alanında, özellikle bilinmeyen ve markalaşmamış satıcılar için web sitesi
görsel tasarımının ana faktörlerden biri olduğu kabul edilir. Görsel tasarımın
unsurları, satıcılar tarafından ürünün kalite bilgilerini tüketicilere iletmek ve risk
algısını azaltmak için kullanılabilir. Bir ürünü fiziksel olarak değerlendirmek için
sınırlı bir kabiliyeti olan e-ticaret, tüketicilerin belirli ürün türlerini etkili bir şekilde
değerlendirmelerini zorlaştıran bilgi asimetrileri yaratır. Bu nedenle, arama ve
deneyim ürünleri arasında görsel tasarım farklılıkları ve ürün türlerinin bir web sitesi
tüketicisinin algılarına nasıl etki ettiğini anlamak önemlidir. Bu çalışma, görsel
tasarımın hangi unsurlarının arama ve deneyim ürünleri için en iyi rolü oynadığını
incelemektedir. Çalışmanın amacı, e-ticaret web sitelerinin ürün sayfaları için görsel
tasarım rehberi geliştirmektir. 'Bir arama' ve 'bir deneyim' ürünü için sekiz işlem
manipülasyonu koşulu olan hipotetik web siteleri kullanılarak bir deney yapılmıştır.
Veriler 281 İnternet kullanıcısından toplanıp; faktör, güvenilirlik, korelasyon,
etkileşim ve MANCOVA analizi kullanılarak analiz edilmiştir. Sonuçlar görsel
tasarım kalitesinin tüketicilerin ürün kalitesi algılarını etkilediğini ve risk algısını
değiştirdiğini göstermektedir. Resimlerin ve arka plan renklerinin ise bu konuda
dikkate değer bir etkisi olmadığı anlaşılmıştır. Bu çalışma, 'dekoratif font' yazı
tiplerinin, deneyim ürünü satan web siteleri için daha riskli olduğunu ortaya
koymaktadır. Ayrıca, gelecekteki araştırmalar ve web sitesinin ürün sayfası tasarımı
için farklı çıkarımlar incelenmiştir.

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CHAPTER 1

INTRODUCTION

Aesthetic is a phenomenon old as humankind itself. The importance of beauty of nature, human, or artefacts has been known since ancient times. The Roman architect from 1st Century BC, Vitruvius in his treatise on architecture (De Architectura) asserted that beauty was one of three principles of good architecture and it should "delight people and raise their spirits" (Kruft, 1994). Through the years, the term "aesthetics" has been defined in many different ways in numerous fields of research (Lavie and Tractinsky, 2004). Although this term covers a wide range of definitions, in this study we refer to aesthetics in its popular meaning as "concerned with beauty or the appreciation of beauty" (Oxford English Dictionary). In modern times, social science has presented various important roles of aesthetics in our daily life. Dion, Berscheid, and Walster (1972) demonstrated in their paper that physical beauty of a person is positively associated with other personality traits and has an effect on social interactions. Besides being influenced by human or nature beauty (e.g., Nasar, 1988; Porteous, 1996), researchers in the past have discovered out that aesthetics plays an important role in marketing strategies, new product development and retail environment (Kotler and Rath 1984; Russell and Pratt, 1980; Whitney, 1988). Bloch (1995) stated that the ''physical form or design of a product is an unquestioned determinant of its marketplace success''. In present times, aesthetics is one of persuasion strategies and affects consumers by atmospherics, store layout, product design and advertising. Aesthetics of design is one of the explicit marketing instrument and it has been highly affected by the development of the Internet.

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The aesthetic beauty and emotional appeal of the website are expressed through the visual design of the website. It refers to all the graphical aspects of the website and includes such attributes as colors, pictures, page layout, use of graphics and different font types (Pengnate and Sarathy, 2017; Tan et al., 2009). The main purpose of visual design is to improve the look and feel of the website. In online setting, visual attractiveness may be used to induce affective responses which can result in positive attitudes toward the website (Cyr et al., 2009). Past studies have identified that visual design of a website have positive effect on such elements as trustworthiness (Cyr et al., 2008), overall enjoyment (Cyr et al., 2008), perceived usability (Lavie and Tractinsky, 2004) or content credibility (Robins and Holmes, 2008).

As Internet usage continues to grow worldwide, more and more often retailers see the competitive need to be present online to increase their market share and engage in e-commerce business. In the era of digitization, the largest retailers had no other choice but to adapt their businesses and vast majority is present online. This has led to rapid growth of e-commerce websites and greater competition for online customers. In the Internet, there is a wide range of websites that offer identical products, information or services and customers can change websites much more easily than in a traditional store. Therefore, online retailers have to constantly search for new methods to attract their customers and remain competitive in this dynamically growing market. However, online retail is different to large extent from the traditional retail. In e-commerce, all the interactions are technology-mediated and consumers assess the products or services via website.

Websites provide the first impression of an online store and that first visual impression of a user entering a website is made in a few seconds through the visual

design (Lindgaard, Fernandes, Dudek and Brown, 2006). In this moment, a person will either decide to leave or stay and start exploring the website on the basis of many factors. Considering how easily and quickly consumers can leave an ecommerce website and go to a competitor's online store (Wu, Chen, Chen and Cheng, 2014), the first impression that visual design creates is one of key factors of online success. Moreover, the importance of visual design in online shopping is emphasized by the severely limited possibilities for online retailers to otherwise create a store environment that would have a positive impact on consumer behavior. Traditional retail stores are able use different stimuli (e.g. music, smell) to build the favorable atmosphere. In online stores the ability of online sellers to affect consumers through these elements is very limited, therefore, they need to focus on the visual factors to create a desired store atmosphere and attract the visitors. With just one click users quickly leave the website and switch to another of many competing opinions practically without any effort. Reducing website abandonment rate and building trust with visitors is one of the main goal of e-commerce managers. Bad visual design results in a lack of perceived credibility and is certainly one of the reasons for website abandonment behavior. In last decade, it became more important to develop a knowledge on how to apply the visual design of a website to make an e-commerce website as effective as possible. E-commerce website design is a multidisciplinary task that combines different areas such as information technology, marketing, and HCI.

First studies on e-commerce focused mostly on website usability. In last two decades, the researchers shifted their interested from usability to user experience and started examine the visual aspects of online websites. Studies from past years have indicated that visual design of a website affects customer perceptions of online store

and their shopping intentions on those websites (Aladwani and Palvia, 2002; Cyr et al., 2008; Lavie and Tractinsky, 2004). The studies have shown that there should be more emphasis on the aesthetics of website design and the emotional reactions that it causes (Bucy, 2000; Marcus, 2002; Wright et al., 2001).

However, while there is now more research on visual design of e-commerce websites and its effect on consumer behavior in online setting, little research has been done so far on the specific question of which visual design elements of a website influence the perception of visual design quality. Therefore, in this study we focus on three most popular visual design elements which are: the usage of pictures, fonts and colors and we test their effect on perceived visual design quality. In Wells, Valacich and Hess (2011) research the overall website quality was determined by four dimensions where visual appeal presented the most significant effect on website quality. Yet, there was no past study which would examine the differences between search and experience products and visual design quality that works as a potential signal of website and product quality.

Answers to the question about the visual design perception depends on the type of products sought (e.g. Huang, Lurie and Mitra, 2009). Products can be characterized along various aspects. Certainly, different types of products are combined with different types of aesthetics. Consumers weigh various visual design attributes of online store differently when shopping for different type of product or service (Zhang et al., 2000). In our study, we concentrate specifically on experience versus search goods in product categorization. Due to the introduction of the Internet, products along the continuum of information asymmetry were influenced in many different ways. Therefore, we want to examine which elements of visual design are

the most important for search and experience products. The purpose of this study is to develop a visual design guideline for product page of e-commerce websites.

The thesis is divided into six chapters, and all chapters refer to specific subject of the study. The structure of this thesis is described below.

In Chapter 1 we first present an introduction to our study. In the next Chapter 2 we synthesize the theory literature. First, product classification theory and differences between search and experience goods in online setting are presented. We review the existing research on website design dimensions with particular emphasis on visual design and its sub-dimensions. Next, we summarize the past research about information processing differences between women and men in the e-commerce shopping context. We present signaling theory and then frame visual design quality as a signal of website and product quality perception. This is followed by, the summary of past research on trust and risk perceptions in the Internet. We also explain the research model and elaboration of the literature which led us to our hypothesis presented in this chapter.

The main objective of Chapter 3 is to describe the research methodology. First, we present the objective of our thesis. We explain why we decided to use survey as a data collection method and it is followed by the description of initial pretest study design and its results. Next, based on pretest study outcomes we present the design of the main experimental study and experimental website treatments design followed. We present sample selection and all the dependent and independent variables. In accordance with research methodology, this chapter presents the data analysis method as well.

In Chapter 4 we discuss and summarize the findings of the research. First, descriptive findings regarding demographics of participants and their e-commerce

experience and Internet usage are provided. Then we present results of factor analysis to show the factorial validity of the theoretical construct. Later, we examine scale reliabilities and correlation analysis where significant correlations between variables are given. Since above parts revealed a need for modifications, new research model and modified hypothesis were also included in this chapter. The main analysis of the experimental results was done using statistical technique called multivariate analysis of covariance (MANCOVA), means and interaction effects were presented in this chapter.

In Chapter 5 we summarize and discuss findings of the research. First descriptive findings regarding our sample are presented, followed by the results of the hypothesis, analysis of the research model and correlations between the variables.

In Chapter 6, we conclude with the theoretical and practical implications for the sector of this study. In the last part of the section the limitations of the study and suggestions for further research on the topic are presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Product classification theory

Numerous product classifications have been presented in the marketing literature in the past (e.g. Dabri and Karni, 1973; Klein, 1998; Lovelock, 1983; Nelson, 1970). However, one of the most frequently quoted and widely used classification is the experience/search distinction based on the extent to which consumers are able to evaluate products or their attributes prior to purchase (Nelson, 1970; 1974). In his work on the advertising and economics of information, Nelson (1970) proposed a classification of goods into search versus experience goods. In his later work (Nelson, 1974) he defined that product's classification is determined actually by the balance of search and experience attributes which the product contains.

Search products or services are defined as those dominated by search attributes for which full qualities and suitability can be evaluated by inspection prior to purchase of the product. If consumer has full information for dominant product attributes a good is a search good. For instance, buying a plane ticket can be classified as a search good because consumers are able to evaluate all of its attributes such as cost, travel class, baggage allowance and other services fees before buying a ticket. Whereas experience attributes are the ones that consumer is unable to evaluate until purchase is made and the actual use of the product. Also, information search about experience goods may be too costly or too difficult to access rather than directly buying the product and experiencing it. For example, in food sector in most of the cases it is easier for consumer to experience product (e.g. canned tuna fish) by purchase instead of search. If the price is relatively low the search does not pay off.

Customer may find the preferred brand from several purchases, which is an "experience process". Nelson (1974) pointed out that all products/services possess some search and some experience attributes. However, the dominance of either search or experience attributes is sufficient to find out to which of the two categories the good belongs. Search properties include characteristics such as price, fit, style, color, feel and smell, while experience properties include attributes such as taste, dependability and wearability (Parasuraman et al., 1985).

Moreover, Nelson extended his classification by segmenting experience goods into durables and non-durables. The reason for it is that these goods differ in the purchase frequency, the value of recommendations and users' experience. Thus, Nelson suggested the reverse prediction for advertising by greater advertising for non-durables than for durables for both search and experience products (Nelson, 1974).

Nelson's search-experience classification is especially attractive for the reason of a direct connection between information content and the classification, and because his empirical research precisely categorizes various products and eliminates an initial stage of the analysis (Norton and Norton, 1988). Therefore, many succeeding researchers followed and relied heavily on the studies of Nelson (e.g. Ford et al., 1990; Mitra et al., 1999; Srinivasan et al., 2002; Weathers et al., 2007).

Later on, Nelson's framework has been evolved by informational economists Darby and Karni (1973) resulting in the new product classification framework called Search, Experience, and Credence (SEC). Darby and Karni (1973) further developed Nelson's theory when they introduced a new product category called credence products. Credence good is a good whose level of quality of attribute information is not available prior to purchase, but in contrary to the experience products even right

after the use or consumption, it is difficult to measure the quality of that product. Typical examples of credence goods include professional services such as legal services, education, financial investments, car repairs, and medical treatments (Lovelock, 2001). Since the average consumer is usually unable to verify the quality of credence product attributes due to lack of the expert knowledge, it is very common to seek a second opinion to evaluate its quality. Also, trust of consumers during purchase of credence goods plays very important role.

The three-type SEC product classification model is common classification mechanism in the product classification literature. It has been used in studies examining the impact of product type on the information content of magazine advertisements (Norton and Norton, 1988), consumer differential skepticism claims (Ford et al., 1990), belief accessibility and confidence, claim recognition (Wright and Lynch, 1995), the role of claim substantiation (Sheffet, 1983), the importance placed on price in making a service choice (Ostrom and Iacobucci, 1995), and effects of different kind of relational bonds (Hsieh, 2005).

Ford, Smith, and Swasy (1988) expanded the definitions used by Nelson (1970, 1974) and by Darby and Karni (1973) and provided operational definition of the terms search, experience and credence attributes. The main differences are as follows: 1. the search goods contain information available in naturally occurring consumer environments, 2. experience category is limited to usage which takes place at the initial stages of a products' useful life; and 3. credence goods depend on the level of customers' technical expertise; and stems primarily from technical expertise and high cost of evaluation. In their later experimental study, Ford, Smith, and Swasy (1990) corroborated the results of earlier studies of Nelson (1970, 1974) and supported his hypothesis that consumers properly interpret the value of advertising

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for various types of goods. The authors tested consumers' differential skepticism for search, experience, and credence advertising claims and the results indicate that consumers are more skeptical of experience than search attribute claims and more skeptical of subjective than of objective claims. That is because consumers are more skeptical of claims that cannot be evaluated prior to purchase and that are subjective.

2.1.1 Experience versus search product online

Klein (1998) investigated whether the goods can change from one product category to another, especially thanks to the interactive media and more specifically the Internet. The author's findings show that the new capabilities of the communication medium may influence the SEC categorization of product attributes. User experience and the way of accessing the information in the Internet, offers new opportunity to change decision-making processes (Hoffman and Novak, 1995). New media was expected to decrease the search costs directly. For search goods, the Internet provides the greatest value by the access to information in less expensive, more accessible, and more customized way. On the other hand, for the experience goods the incremental value of new interactive media provides "virtual experience" which lets consumers to experience the product or service prior to the actual purchase. The Internet provided marketers the ability to "virtually" transform the experience product into a search product. In his study Klein (1998) presented three "routes" by which experience goods may be transformed into the search goods via "virtual experience":

- Route 1, a consumer's information search for certain products is made much easier and less costly by making information about search attribute available and easy to process.

- Route 2, emphasize the importance of the information provided on the website. The format and presentation of the information can directly affect consumer perception and importance they give to products' attributes.

- Route 3, true simulated product experience for the most important attribute can be offered by the website or such experience can be provided indirectly via the experience of other ''expert sources'' (e.g. consumer reviews). For example, if consumer is considering buying an image editing software which pre-purchase trial in a traditional store environment is not available, in the Internet consumer can download a demonstration version before the actual purchase and thus test the product functions directly, so it turns into a search product.

The author examined how a medium can influence consumer information search through its impact on the critical information consumers have access to prior to product usage. An experience good having the potential of becoming a search good should certain conditions be met. Because most products possess search and experience attributes (e.g. Sheffet, 1983), it is necessary to understand the difference between perceived experience and search qualities. Internet gives users completely new possibilities in terms of access to information Klein (1998) and the products along the continuum of information asymmetry in many different ways has been influenced by the introduction of Internet (Hsieh et al., 2005).

The consumer may not only compare the prices offered in different stores but also with a few clicks he can learn the opinions about products from people on online forums or social media profiles. However, Internet has also some perceptual limitations as people are unable to physically "experience" the products (e.g. touch, smell, taste). For example, the user is not able to smell the perfume before buying it

online. Therefore, the same product in bricks-and-mortar can be qualified as a search product, because using the tester consumer can get to know its most important feature, i.e. the smell. On the other hand, the same product in the online store may already be qualified as an experience product due to the lack of sufficient information. Thus, the level of experience and search qualities of a product can be perceived differently in the electronic environment or in the traditional shopping. Despite that it is impossible to recreate some most important attributes (e.g. smell) for specific experience goods in the online environment, they can be described indirectly by the other people (Klein 1998). However, few researchers suggest that thanks to the Internet, users are nowadays able to gather much more specific information about product that is often difficult to obtain in offline settings (Alba et al., 1997; Klein, 1998; Peterson et al., 1997; Lynch and Ariely, 2000). It enables consumer to search all product attributes prior to purchase and decreases differences between search and experience products which exist in traditional shopping environment.

Despite the fact that search and experience product categorization model was initially designed by Nelson specifically for the traditional shopping environment, nowadays it may be applied to the e-commerce as well, by including in the analysis the digital dimension of the products.

The three-type SEC categorization of product attributes has been used in further online marketing studies. For example, Hsieh et al. (2005) in their study investigated the effects of different kind of relational bonds on customer commitment across SEC goods on Internet. They discovered that structural bonds ("the value adding services that are designed into a website including knowledge and information about the industry and product customization") are more important for

experience and credence goods than for search goods, financial bonds which
motivate consumer to purchase by special price offers or other financial incentives,
are more successful in strengthening customer commitment for search goods/services
than for experience or credence goods/services. Social bonds ("personal ties that
pertain to service dimensions that offer interpersonal interactions, friendships") are
almost just as important for all three types of SEC products/services.

Huang, Lurie and Mitra (2009) empirically tested consumer behavior for
search and experience goods. The authors made an analysis of the behavior of online
consumers and found that for both search and experience products/services users
spend similar amounts of time online to gather information. However, Huang et al.
(2009) discovered some important differences in the purchase and browsing behavior
of consumers for two types of goods. Primarily, search products involve lower depth
(time spend per page) and greater breadth (total number of pages visited) of search
than experience products. Secondly, free riding ("purchasing from a retailer other
than the primary source of product information") is more common for search than for
experience products.

Product cues in the service literature has been divided between extrinsic and
intrinsic attributes. Extrinsic attributes including price, packaging and brand
advertising are basically those which are observable by the consumer prior to
purchase. While intrinsic cues are those physical cues of the product which are often
unobservable before the purchase and they include such attributes as color, size,
texture, and flavor (Zeithaml, 1988). Zeithaml (1998) states that depending on the
characteristics of search vs. experience products, the information costs of searching
are different. While making a comparison of multiple search products consumers
reply more or intrinsic attributes which are more objective, concrete and easy to

access. Due to the nature of the experience goods, when consumer evaluates the product prior to purchase, he or she concentrates more on extrinsic attributes. In their later study, Kirmani and Zeithaml (1993) differentiate between the purchase decisions for products and services based on the level of importance given to extrinsic and intrinsic cues. If consumers are able to access the intrinsic attributes via search and the costs of obtaining the information are reduced via new media, consumers will rely more on the intrinsic attributes of products, which are not available in traditional shopping.

Since evidence is provided for the difference in expectations and behaviors towards classification of search versus experience products, the fundamental interest of this research thesis is examination of different visual design perceptions. We want to find the best ways in which product information is delivered through a website, depending on the nature of this product.

2.2 Website design

During the interaction with e-commerce website an online consumer performs all the functions of a traditional consumer on a computer, thus he or she exhibits as well all the characteristics of a computer user. Previous studies suggest that well designed interface and appropriate navigation of a website might be as important to consumers as the effect of low prices and good customer service in traditional shopping (Koufaris, 2002). The salesperson and physical surroundings of a traditional store are replaced by website design and content in online store (Lohse and Spiller, 1998). Thus, e-commerce website is a facilitator of the interaction between the organization and the consumer (Montoya-Weiss, Voss and Grewal, 2003). The empirical study of Liang and Lai (2002) revealed that the quality of e-commerce website design

influences consumer's purchase decisions and it is more likely that people buy products from better-designed websites. Additionally, well-designed e-commerce stores attract more consumers who intend to revisit and purchase again in the future (Liang and Lai, 2002). Presented findings are the proof that website design has bigger impact than only decorative one.

The website design has been studied from different viewpoints, and presents different meanings for different schools of thought. In this chapter, we only review a few aspects of web design classification which serve as a background for our study. In the following part, we focus on aesthetics and visual design, one of web design features which is the main focus of this thesis. We conclude this section by examining visual design dimensions.

2.2.1 Website design classification

Website design is certainly a multidimensional construct with the changing number of dimensions (Kim and Stoel, 2004). Numerous academic studies in the past have grouped website design parameters into different categories and used wide range of different techniques to evaluate the effectiveness of website design in e-commerce context (Cebi, 2013; Coursaris et al., 2008). The classifications which most commonly appear in HCI (human-computer interaction) studies are discussed below.

Garrett (2003) developed a tripartite model classifying website design features into information content, visual design and navigation design. Information content refers to the extent to which communication with user is sufficient, complete and effective. Navigation design is the way of how information is presented on the website and level to which the navigational scheme or format supports or interrupts users as they explore the website. Last feature, that is visual design refers to all the

visible design elements of website, such as aesthetics which is website overall visual perception (Cyr and Head, 2013).

Garrett's (2003) approach to web design classification is analogous to the architecture perspective of website design identified by Kim and Lee (2002). Architecture perspective focuses on e-commerce system implementation details and categorizes design factors into four individual elements based on the web architecture. Those components are content, structure, interaction and presentation. The content element determines how information is presented in the e-commerce website. It refers to the type and scope of the information to properly describe the products or services offered on the website. Structure represents the way that information is organized and presented on the website, for example it can be network or hierarchical structure. The interaction is a navigation mechanism that allows users to move from one page to another with maximum ease, and it consists of various search and browsing features. The last design factor is presentation, which stands for how the information is actually displayed on the screen and it represents the emotional appeal. Presentation design items include such elements as color, page layout, pixel size, background, or image.

Another web design framework which often occurs in the HCI literature (Pengnate and Antonenko, 2012; Pengnate and Sarathy, 2017) is drawn from Norman's (2004) emotional design model presenting different levels of aesthetics appreciation. It helps to understand how different characteristics of a product affect human emotions, which later influence user behavior and cognition (Sharp, Rogers and Preece, 2007). According to Norman's model, users' mental processing and overall experience are classified into three levels: visceral, behavioral and reflective. First one, visceral level refers primarily to the visual design attributes of the website

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and website's appearance which dominate human perception. Visual design is the "look and feel" and the perceived attractiveness of the website (Montoya-Weiss et al., 2003). At visceral level, users make immediate judgments based on initial emotional responses due to appearance of products and systems. In the website context, it is when user makes first rapid judgements based on design elements such as colors. The behavioral level, which is the second level of emotional design, refers to the experience of using the website and cognitive evaluation of website's usability. Usability is defined as ''the measure of the quality of a user's experience when interacting with a product or system – whether a website, a software application, mobile technology, or any user-operated device'' (Pearson and Pearson, 2007). The third, reflective level of Norman's (2004) emotional design model is associated with the quality or relevance of information. At this level users mostly evaluate the information presented on the website - in reflective, metacognitive processing of the website's usefulness. On reflective level user creates his opinion about the product or system. Norman's (2004) emotional design framework was used in experimental investigation on how website characteristics influence customers' trust in unfamiliar online vendors (Pengnate and Sarathy, 2017). Robins and Homes (2008) in their study used that framework to explore the link between page aesthetics and a user's judgment of the site's credibility. The findings of the study indicate that website with higher level of visual design and aesthetics was judged by users as having higher credibility.

All three web design classifications presented above suggest a similar structure and have many common points. In Garrett's (2003) classification, the information design includes of content and structure elements from the architecture perspective (Kim and Lee, 2002) and it is very close to the definition of design

reflective level presented by Norman (2004). Moreover, navigation design (Garrett, 2003) is similar to the interaction perspective (Kim and Lee, 2002) and behavioral level (Norman, 2004), while visual design is equivalent to the presentation component of website design suggested by Kim and Lee (2002) and visceral level of Norman's (2004) emotional design model.

In this thesis, we focus on aesthetics and visual aspect of web design, which are crucial in the first few seconds during which a user views a website and makes first judgments. Garrett's (2003) visual design definition is preferred due to its relatively higher popularity. In this thesis, Garrett's visual design is an independent variable to test its effect on perceived website and product quality.

2.2.2 Aesthetics and visual design

Visual design provides first general impression of the website. Lindgaard et al. (2006) conducted a study on how fast people decide whether they like or dislike the website they see and found out that visual design can be assessed within less than a second. Thus, within this time user probably makes the decision either to stay or move on to the next website. In early studies of interaction design, researchers have begun studying the importance of website aesthetics in interaction design, which we nowadays refer to as "visual design" (e.g. Karvonen, 2000; Lindgaard and Dudek, 2002; Tractinsky, 1997; Tractinsky et al., 2000). Schenkman and Jonsson (2000) found that beauty is the most important aspect of overall impression and preferences of website. In addition, Heijden's (2003) study revealed that visual attractiveness of the website has an impact on consumers' enjoyment, perceptions of ease of use and usefulness. Lavie and Tractinsky (2004) made one of the first attempts to create measure instrument of perceived website aesthetics. Based on their studies, they

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proposed two main dimensions: ''classical aesthetics'' and ''expressive aesthetics''. The classical aesthetics dimension is manifested by orderly and clear design. While, the expressive aesthetics dimension is related to creativity and originality of designers, and to their ability to break design conventions.

Until the early 2000s the fields of HCI and marketing stressed the importance of usability over aesthetics. Kurosu and Kashimura (1995) and Tractinsky (1997, 2000) were one of the first researchers who demonstrated the important relationship between users' initial perceptions of interface aesthetics and their perceptions of the system's usability. In their experiments, authors used different layouts of controls for Automated Teller Machines (ATM) and measured perceptions before and after the participants used the system. In the experiment that Tranctinsky (1997) conducted to validate and replicate Kurosu and Kashimura (1995) study, he supported the Japanese findings showing that subjective evaluations of usability and perceived visual aesthetics are correlated. Tractinsky et al. (2000) summed up his study with the conclusion that beautiful designs are usable. His findings resemble those made by social psychologists who found that the physical attractiveness has an effect on the valuation of other personality attributes. Dion et al. (1972) demonstrated that physical beauty of human is positively associated with other personality traits. Similar to this social phenomenon, Tractinsky et al. (2000) proved that aesthetic perceptions of an interface are highly correlated with perceptions of the interface's ease of use, so the first impression of the product is responsible for customers' evaluations of other attributes of that product. Numerous researchers have confirmed in their works that visual design is one of the most important dimensions of the website quality, which not only contribute to the users' first impressions and overall feelings about a website, but also influence the perceptions of a system, such as

perceived usability (Lavie and Tractinsky, 2004), trustworthiness (Cyr et al., 2008) and website's content evaluation (Aladwani and Palvia, 2002).

In line with the findings of Tractinsky et al. (2000), Robins and Holmes (2008) in their study proved that the website with the more attractive visual design is perceived by customers as having higher credibility and they call it "*the amelioration effect* of visual design and aesthetics on content credibility". The findings of those studies prove that website design has impact beyond decoration and deserves more detailed research. Thus, some later studies focused on deeper analysis of the visual design, so they analyzed visual design sub-dimensions and their effect on user behavior and website evaluation.

2.2.3 Dimensions of visual design

Past studies have identified various dimensions of visual design. Cebi (2012) examined in his study the importance degrees of website design parameters and the results indicated that among commercial websites the most important visual design sub-dimension is text, followed by graphics and layout, which is least important. The study showed that graphic design feature is the most important criterion and it directly influences text and layout design features while not being influenced by them. Pengnate and Sarathy (2017) manipulated visual at two levels by following Lavie and Tractinsky's (2004) definitions of classical and expressive aesthetics. The experimental website's visual design was manipulated by different combinations of image resolution, number of images, color harmony and sophistication of design. Tan et al. (2009) found out that according to web-designers attributes of visual design such as color usage, graphic usage, page layout/space usage, presentation of information are the most effective features of B2C websites. Other visual design sub-

dimensions that appear in the literature include proper use of fonts and color schemes, the use of animation, and the proper use of multimedia (Al-Qeisi et al., 2014; Cyr, 2013; Hasan, 2016; Huang and Benyoucef, 2013; Pengnate and Antonenko, 2012; Rosen and Purinton, 2004).

The most widely used group of dimensions to describe visual design are: color, font, and pictures. These three key dimensions are present in most of e-commerce website designs and thus, this thesis conceptualizes and operationalizes visual design in accordance using them.

2.2.3.1 Colors

A number of studies in the past focused on investigating different color choices and users' reactions on them. The results have confirmed that cooler colors, such as green or blue, are usually assessed more favorably than warmer colors, such as yellow or red (Cyr et al., 2009; Lichtle, 2007; Moshagen et al., 2010). Several studies supported the theory that blue color elicits relaxed feeling states (Gorn et al., 2004; Jacobs and Hustmyer, 1974; Jacobs and Suess, 1975; Valdez and Mehrabian, 1994). On the other hand, it has been found that yellow elicits less relaxed feeling states (Adams and Osgood 1973; Gorn et al., 2004). Moreover, color has been described as having an impact on behavioral intention, with blue creating higher intentions to buy than red (Bonnardel et al., 2010). Gorn and colleagues (2004) has revealed that color affects perceived download quickness and also has consequences for users' judgements of the website and on their likelihood of recommending that website to others.

More recently, some of these theories were supported in e-commerce website environment by Cyr et al. (2009). A number of variables affect color preferences,

including culture, where colors reflect strong cultural values (Marcus and Gould, 2000). Cyr et al. (2009) analyzed in their multi-method study the impact of e-commerce website color scheme on user trust, satisfaction, and e-loyalty across three culturally distinct viewer groups. Three color conditions (grey, blue and yellow) for the local SonyStyle country website were presented participants in the experiment. Color manipulation zones were the left navigation bar and top graphic and they were consistent across all local websites. Results revealed that online trust and satisfaction are strong predictors of e-loyalty in a context of website color appeal. In addition, all examined countries tended to dislike the yellow color treatment websites. The blue color was mostly preferred by Germans, while Canadians preferred the grey color treatment more than Japanese and Germans. Despite that SonyStyle name was removed to avoid the branding effect, it is actually impossible to prevent brand quality of such a well-known retailer like Sony and it could have a substantial impact on research results. Therefore, in this thesis we use an artificial environment to avoid such hidden confounders.

While most of the research focused on manipulating the page with one dominant color, Hall and Hanna (2004) conducted an experiment to examine how web page text and background color combination affects retention, aesthetics, readability and behavioral intention. In the experiment were used four different combinations for two different websites (educational and commercial): white background and black text; black background and white text; dark blue background and light blue text; and black background and cyan text. The findings of the study revealed that colors with greater contrast ratio usually resulted in greater readability, while preferred colors led to better ratings of intention to purchase and aesthetic quality. This corroborates the results of earlier study of Ling and van Schaik (2002)

who has examined the effect of text and background color on the presentation of information in a navigation bar. The results of experiment showed that higher contrasts between text and background color results in faster searching and participants rated higher contrast manipulations. Moreover, Hall and Hanna (2004) found out that ratings of aesthetic quality were significantly related to intention to purchase. However, the study showed that color combination did not significantly affect retention. For appropriate color combinations for commercial websites, authors recommend using chromatic (colored) text and background combinations. This is justified by the fact that chromatic colors make the user feel that website is more visually stimulating and pleasing. Furthermore, the authors supposed that chromatic colors cause higher purchase intention of products presented on the website.

Moshagen and Thielsch (2010) developed the Visual Aesthetics of Website Inventory (VisAWI), which is a measure of perceived visual aesthetics of websites and contains four interrelated facets validated in series of studies. This study also confirmed that colors are a critical property of aesthetic objects, and therefore it is important to investigate their relation with users' reactions.

Based on these findings, we argue that design choices regarding colors and their combinations affect the perceived visual design of a website, which in turn, influence level of perceived website quality and perceived product quality, as well as risk and trust. Moreover, based on the fact that colors are often associated with specific feelings, we assume that color scheme is equally important on commercial websites selling search and experience products. Therefore, we present following hypothesis:

H1: For both search and experience product types, color dimension is equally important element for perceived visual design.

2.2.3.2 Fonts

Font is one of sub-dimensions of visual design that plays an important role in disseminating information on the website. Typography offers designers many different ways of presenting online text which have a direct impact on the perceived usability of websites (Ling and van Schaik, 2005). Past research indicates that the readability of text on computer screens is necessary to ensure an effective interaction with the media (Nielsen, 2000). The text which is easier to read reduces information overload since it reduces cognitive effort. This is particularly important in online shopping when consumers have to browse many pages of information to learn about the product (Labroo, Dhar, and Schwarz, 2008).

Standard fonts can be categorized into two categories: serif and san serif (Ambrose and Harris, 2006). Serif fonts are more decorative and have small strokes at the end of the letters, while san serif fonts do not. Many web designers state that san serif fonts, such as Arial or Verdana, give better computer screen readability, especially when a small font size is chosen (Peck, 2003; Powell, 2002). Also, most readers prefer sans serif fonts to serif fonts for body text on screen (Wilson, 2001). Most of sans serif fonts have been created specifically for reading on screen, thus they look more cleanly on screen since they have less fine detail and they are more legible than serif type fonts (Josephson, 2011). In his exploratory study Josephson (2011) measured that Verdana was preferred twice more as Times New Roman for reading on screen.

The studies in the past focused on examining some of the most popular fonts to determine the differences in reading time, reading effectiveness, font attractiveness and general preference. The results of Bernard et al. (2002) study showed that Verdana is the most preferred font, while the least preferred is Times.

Among eight studied fonts, Verdana seemed to be the best overall font choice. In addition, it was perceived as being legible and its reading performance was fairly quick. It was later confirmed by Josephson (2011) who conducted an exploratory eye-tracking study to compare the onscreen legibility of serif and sans serif typefaces. The results showed that overall Verdana font had the best performance and participants expressed a strong preference for this font on the computer screen.

The fonts, such as Verdana, Tahoma and Georgia were specially designed for computer screens display. While, fonts like Times New Roman and Arial were originally designed for printed media where legibility and economy of print space are crucial. Thus, they might not be the best fit for computer use (Bernard and Mills, 2000). Past research shows that for body text simpler font style is better and it accommodate readability (Garrett, 2003). Since product detail information on online shopping websites is generally presented in larger blocks, most of well-designed pages use simple fonts. Consumers' eyes can get tired quicker while trying to take in lots of text in a more ornate font. Moreover, companies use fonts to create their brand identity and specific visual style. Thus, for example using comic-book fonts and bright pastel colors would not be the right choice for an electronics website (Garrett, 2003).

Besides the font face (type) some studies focused on examining best font size, font style and text/background color. Bernard and Linda (2002) found that optimal reading speed for most adults is elicited with 12-point and 14-points fonts and website page fonts should not be less than 10-points. Moreover, 14-point fonts are more legible, led to faster reading, and they are preferred to the 12-point fonts (Bernard and Linda, 2002). Bhatia et al. (2011) found a significant effect of italics on effectiveness. The subjects in their study did not perform well when the page was

moderately italicized. This was supported by Ivory and Hearst (2002) who inspected 'good' web pages and identified that those pages rarely contained words in italics. Regarding font colors, Karim and Shukur (2016) found that most of students preferred black colored text on white background. Additionally, black on a white background provides good contrast to the readers, thus it improves reading effectiveness (Ahmad Zamzuri, 2008; Erdogan, 2008).

Despite the fact that previous studies examined different font styles and consumer preferences, nobody examined how the font can affect perceived visual design and whether the product type has any effect on it. Since the text is the main source of information about the search products, we assume that the proper use of fonts is more important for the website selling search product. Therefore, we propose following hypothesis.

H2: For search products, the most important dimension of perceived visual design is font.

2.2.3.3 Pictures

Information display in e-commerce websites is based on text or pictures, or the combination those two. The majority of currently designed e-commerce websites use text and images to present product information (Lightner and Eastman, 2002). Online sellers mostly use text to describe search attributes of products (Nelson, 1974). They contain such information as size of product, warranty policies, and weight. Consequently, pictures are used to present the visual appearance of products completing the information that is difficult to express using just verbal cues alone (Baggett, 1989).

Some usability experts in the past claimed that the use of pictures in websites is not necessary and it might slow down the website and disrupt its functioning (Riegelsberger 2002). Alternately, researchers found out that websites with pictures are more aesthetically pleasing in general (Cober et al., 2004) and they create a positive response from consumers (Geissler, 2001). Additionally, the theory of visual rhetoric suggests that images are able to easily convey complex messages, and reduce the need to read (Scott, 1994). This is particularly appealing for users from Generation Y (age between 18 and 30) who prefer picture-based communication and websites including a main large image, little text, and also images of celebrities (Djamasbi et al., 2010). Past experimental studies suggest that consumers reactions to picture-based online store are more positive than for text-based store design and also by pictures rather than just text online retailers are able to create a store image that the consumer feels is more entertaining and safer (Oh et al., 2008). Web pages that consumers consider to be visually appealing usually tend to have a relatively large non-text image and less characters. Tullis and Tullis (2007) in their study found that the visual appeal increases with the picture size and consequently decreases with the number of characters on a page. It shows that picture-based communication is much more favorable than just text.

Visual presentation of products can fill the lack of haptic information, which is "the active seeking and pickup of information by the hands" (Peck and Childers, 2003) and increase the confidence in product evaluation judgement. Picture of a product can be sufficient for satisfying consumer's need to physically assess the product before the actual purchase. However, it may depend on product type (search-experience). So called "need for touch" (Peck and Childers, 2003) can be stronger for experience products, which attributes are perceived mostly by "feel and touch" and

visual presentation of the product cannot be a substitute of real experience. For search products, consumers are able to be more certain about product's performance based on picture evaluation and past experience. Weathers et al. (2007) found that presence of pictures on the website have a greater effect on reducing performance uncertainty for the experience good than for the search good. Thus, retailers can improve vividness of information, that is the extent to which sensory information is available, by adding pictures to the website. On the other hand, too high number of pictures might decrease the speed of presentation and screen transition that could negatively influence consumers' reaction in the web-based environment (Yang, 1994).

Chau et al. (2000) empirically tested how information presentation on website influence consumers' shopping behavior and found out that product familiarity and shopping effectiveness are strongly connected with each other. When consumers are purchasing online the familiar product items, pictures are better than text in terms of both effectiveness and efficiency. Thus, we established following hypothesis:

H3: For experience products, the most important dimension of perceived visual design are pictures.

Based on the literature review and the fact that consumers are not able to fully access the information about the experience products before the purchase, we assume that they rate these products more poorly than search products if the website design is poor. In this direction, next hypotheses are developed as follows:

H4-a: Overall experience products are evaluated more poorly than search products when visual design attribute of color is not attractive.

H4-b: Overall experience products are evaluated more poorly than search products when visual design attribute of font is not attractive.

H4-c: Overall experience products are evaluated more poorly than search products when visual design attribute of picture is not attractive.

2.2.4 Gender

Some researchers have addressed gender differences and website design in an e-commerce shopping context before. The uncovered differences included website design and satisfaction (Cyr and Bonanni, 2005; Moss et al., 2006), website trust (Awad and Ragowsky, 2008; Riedl et al., 2010), or online risk (Garbarino and Strahilevitz, 2004). Cyr and Bonanni (2005) found that men and women had statistically significant different responses in the visual appeal of the website. However, no research examines this topic across different types of products. Therefore, we pose following hypothesis about gender differences.

H5: Between men and women there are significant differences in perception of visual design for experience versus search products.

2.3 Signaling theory

2.3.1 Information asymmetries of products

Most of buyer-seller relationships are characterized by the fact that seller has more detailed information about the product and the risk exists that he can use this knowledge to his own advantage (Bergen et al., 1992; Mishra et al., 1998). The information asymmetries of product are the combination of pre-purchase information scarcity and post-purchase information clarity (Kirmani and Rao, 2000). The pre-purchase information scarcity appears when a consumer is not able to access or interpret a product's quality attributes before buying that product. While post-purchase information clarity occurs when consumer can assess and revise the product

quality right after the purchase or use. The level of product information asymmetry can vary depending upon the type of the product and past buying experience of consumer, including experiences in a product class and past learning about the environment (Murray, 1991). Since different degrees of information asymmetries exist, while consumer is evaluating the quality of a product in online store, he or she needs to rely on the combination of product information (intrinsic attributes) and signals (extrinsic attributes) (Richardson et al., 1994). If information asymmetry of product is high, consumers rely more on extrinsic attributes of product (signals) to compensate for the lack of information about the product.

2.3.2 Signals

Signals are described in literature as information cues about online retailer's characteristics which are examined by customers to evaluate the credibility and validity of a retailer's qualities (Benbunan-Fich, Koufaris and Mavlanova; 2012). Signals are easy-to-acquire informational cues, mostly extrinsic to the product itself, which means that they provide customer information about the online seller and quality or value of the goods, so they influence their shopping responses (Demangeot and Broderick 2010; Eroglu et al. 2003; Hu et al. 2010). Extrinsic attributes used as signals include such features as price (Dawar and Parker, 1994), retail reputation (Chu and Chu, 1994), brand (Erdem and Swait, 1998) and warranties (Boulding and Kirmani, 1993). Intrinsic attributes are product physical characteristics (e.g. smell, taste) that consists of the fundamental nature of the product (Richardson et al. 1994). Consumers may use both cues as the signal of product quality, however some of them can be more influential in certain contexts. Kirmani and Zeithaml (1993) proposed a differentiation between purchase decisions of products based on relative

importance of types of attributes (extrinsic vs. intrinsic). If there are some evaluation barriers or the cost of assessing the product intrinsic attributes before the purchase is too high (e.g. services), consumers rely more on extrinsic product attributes. In some situations, extrinsic attributes are easier to understand and they're more available than intrinsic attributes. Using a toast machine as an example, the internal components would be its extrinsic attribute while the price would be the intrinsic attribute.

2.3.3 Signaling theory in e-commerce

Signaling theory was previously used across multiple disciplines to understand the way in which one party (e.g. seller) is able to signal quality to the less-informed other party (e.g. buyer) and how all the necessary information is provided to complete an exchange or transaction (Bloom and Reve, 1990). In online environment web pages are the only way in which consumers are able to learn about product, its availability and other necessary information in order to complete the online transaction. Thus, Liang and Lai (2002) suggested that online store design is even more influential than layout of a traditional one. In contrary to the traditional store and offline customers, online users are not able to physically assess the product before the purchase, they have limited tools to evaluate product's quality with their senses (e.g. smell, touch), and as a consequence they have to make decisions based on partial information (Gefen and Straub, 2004). Since electronic commerce users have diminished capacity to judge product quality, some cues are being used to signal product quality instead (Jiang and Benbasat, 2004-2005). E-commerce stores create a similar atmosphere to traditional store stimuli, which influences consumer reactions and responses during the website visit. Online stores create this atmosphere by manipulating the

atmospheric cues, such us design, layout or photographs (Eroglu, Machleit and Davis, 2001). Depending on the type of product, online shoppers may look for different kind of information or features, so it needs to be considered during designing the website.

2.3.4 Perceived website quality

Websites can present both intrinsic and extrinsic attributes related to product. Same as traditional stores have interior design and customer service, online stores have attributes (e.g. navigability, visual appeal, security, loading time) that can have an impact on website quality perceptions. Next to the intrinsic product attributes conveyed on the website, the extrinsic attributes of website can function as a signal which influences consumers perceptions of website quality.

Past research has demonstrated that consumers evaluate website quality based on extrinsic cues. In Wells, Valacich and Hess (2011) research the overall website quality was determined by four dimensions where visual appeal presented the most significant effect on website quality succeeded by navigability, security, and download delay. Those findings prove that website quality and visual design attributes play an important role in communicating product and retailer qualities to the consumers, which ultimately affects online purchase intentions. The similar results of web design on online customers are reported in Ahn, Ryu and Han (2007) work, where they stated that enjoyable website design has a positive impact on online shoppers' beliefs of perceived ease of use and usefulness. Their research confirms that online consumers value not only website's efficiency in they utilitarian way, but shopping enjoyment and playfulness make them returning customers. Additionally, past research shows that the quality of online store design has an effect

on the consumer purchase intention. It is more likely that consumers visit, purchase, and repurchase from better designed online websites (Liang and Lai, 2002). Therefore, the better visual design, the higher the consumer's perceived website quality. That is, a better designed website leads consumers to impute higher value on perceived website quality. Thus, it is proposed that:

> H6: For all product types, higher perception of website visual design has a positive effect on perceived product quality.

2.3.5 Perceived product quality

Perceived quality is different from objective or actual quality and it can be defined as the consumer's judgements about a product's overall excellence or superiority compared to the available alternatives (de Chernatony, 2009; Zeithaml, 1988). Objective quality is used to describe the actual technical excellence of the product that can be verified and measured and it refers to some predetermined ideal standard or standards (Grewal, Monroe and Krishnan, 1985).

Unlike in the traditional store, online users are not able to physically assess the product and they have limited tools to evaluate it. In particular, it is challenging to convey the quality of experience products (e.g. clothing) online. The biggest barrier is the inability to evaluate by customers the experimental attributes (e.g. size, smell, taste) of such products. Wells, Valacich and Hess (2011) applied a signaling theory in their research and conducted an experimental study which showed that website quality influences product quality perceptions of experience product (tote bags). Given that extrinsic attributes often serve as substitutes for intrinsic product attributes if they are not available (Zeithaml 1988). Website quality is accessible throughout the online shopping experience and it is easy for consumers to evaluate it.

Therefore, it makes website quality the most available extrinsic cue to be assessed by consumers. If the consumer does not have full information about the product, we expect website quality to influence perceived product quality as an extrinsic attribute, both for experience and search products. However, we expect that the signaling effect is stronger for experience products which present higher asymmetries of information, so the influence of website quality is stronger for experience than for search products. Therefore, based on the cue signaling theory the following hypotheses are extended.

H7: For both search and experience product types, higher perceived website quality has a positive effect on perceived product quality.

H8: Perceived website quality has stronger impact on perceived quality of experience product, than search product.

2.3.6 Trust in e-commerce context

Whenever two parties are involved in a transaction, trust is one of the most important elements and it is especially critical to create trust when user visits unfamiliar websites or those with no past brand reputation. In online commerce context, trust is defined as belief of an online consumer that (unfamiliar) vendor will perform generally acceptable practices and will be able to deliver the products or service which was promised, while the consumer is unable to control or monitor the vendor (Lewicki et al., 1998; Lim et al., 2006; Mayer, Davis and Schoorman, 1995). Online trust refers to individual's confidence in a website and willingness to rely on the online seller in conditions where the consumer can be vulnerable to the seller (Cyr et al., 2009). If user interacts with an unfamiliar website, the trust is built on the basis of the consumer's first impression of the visual design, usefulness and ease of use of

this website (Pengnate and Sarathy, 2017; Reinecke et al., 2013). It is possible to differentiate between experience-based trust and cue-based trust.

Experience-based trust comes from repeated interactions with the object of trust, for example past experience with the online vendor. Cue-based trust can be understood as the trust which is created based on a consumer's initial encounter with a stimulus. Wang et al. (2004) proposed following definition of cue-based trust, "the trust consumers form based on cues received from an initial encounter with a stimulus. It involves consumers' beliefs that his or her vulnerabilities will not be exploited." During the first visit to an unknown website, it is important that consumer immediately establish the trust for the possibility of future purchase and transaction (Dholaki and Sternthal, 1977).

Online trust has been investigated by many disciplines in the past, most of the researchers focused on the relation between trust and security of transaction or privacy issues. The focus of this thesis is somewhat different because it concentrates on the development of trust through a positive user experience with the website by its visual design and perceived website quality, rather than security policies, this complies with the couple of other studies in this area (Cyr, 2008; Pengnate and Sarathy, 2017; Skulmowski et al., 2016; Vance et al., 2008; Zhang et al., 2009). In this thesis, we are examining the signals that consumers receive from unfamiliar website during the initial visit. Since the past experience with this retailer does not exist we are assuming that consumers can understand the trustworthiness of online store based only on available signals. The signal which we measure is perceived website quality. An opportunity exists to investigate the link between perceived website quality and trust in an online environment, and to better understand how

visual design signaling can ultimately influence trust. Therefore, we offer the following hypothesis:

H9: For both search and experience product types, higher perceived website quality has a positive effect on trust.

2.3.7 Perceived risk in e-commerce context

Next to trust, risk is another consumer perception that creates a linkage between website design and behavioral intentions. The types of risk perceived by consumers characterized in the past literature include performance, financial, social, physical, psychological, and time risks (Dholakia, 1997; Jacoby and Kaplan, 1972; Roselius, 1971). In order to increase the confidence in the website and decrease the level of perceived risk some online retailers provide consumers with testimonials, security policies or privacy practices (Jarvenpaa et al. 1999; Urban et al. 2000). We believe that similar to the information content, visual design may help decrease the perceived riskiness with website perceived quality as a mediating signal. Therefore, following hypothesis is offered.

H10: For both search and experience product types, higher perceived website quality results in lower perceived risk.

2.4 Research model

Given the asymmetries of information presented in the chapter above, we propose the research model as presented in Figure 1.
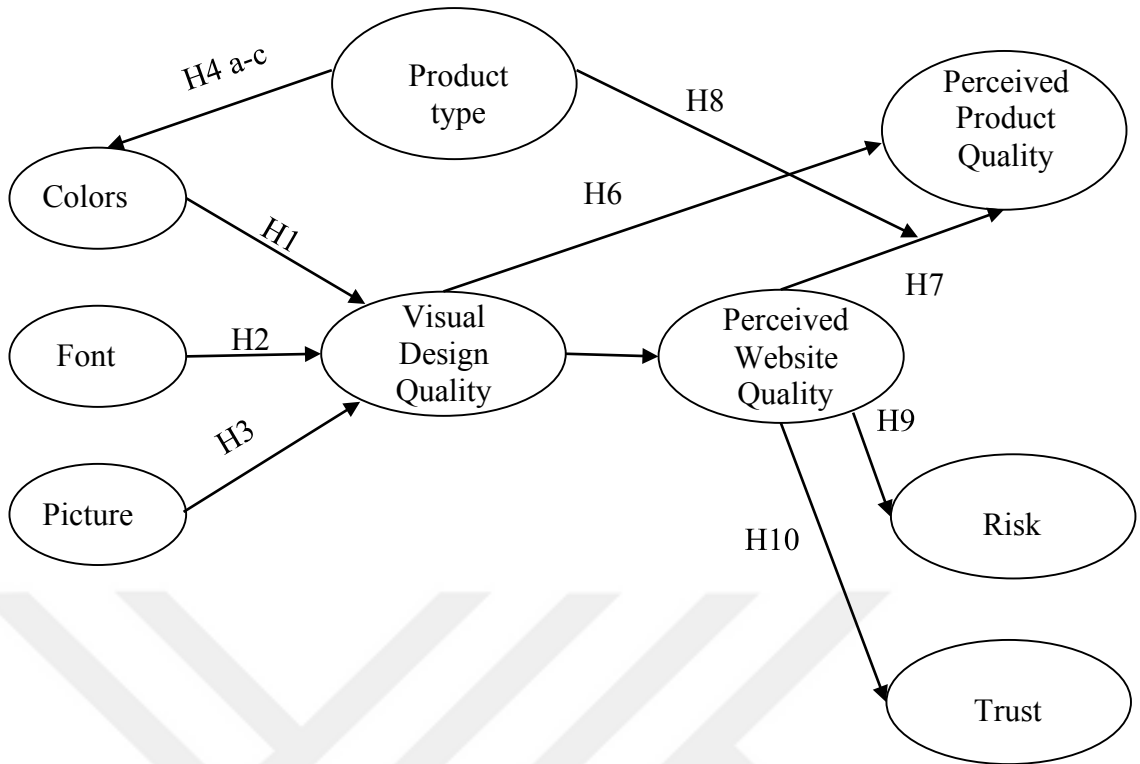
Fig. 1 Structural model

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

In this section of the study the research design and methodology are presented.

Beginning with the research objective, data collection method, continuing with initial

pretest study, and ending with main study design including experimental website

treatments, sample selection, operationalization of the variables and data analysis.

3.1 Research objective

The objective of this thesis is to examine whether perceived website visual design

and the perception of website quality corresponded to perceived product quality, trust

and risk across search and experience products and genders. Also, we find out which

visual design elements are crucial for the perception of visual design across different

products. Based on the pretest study we carefully choose the products, which are

later used in websites experimental treatments. In order to investigate how visual

design influences responses of consumers a survey study with website experimental

treatments for different types of products has been designed. The details of the

methodology of this study are presented in the forthcoming sections.

3.2 Data collection method and survey

In this thesis, a questionnaire is prepared for data collection. The choice is justified

by the fact that questionnaires are an easy and fast way of reaching a high number of

respondents at cost that does not require a high budget. This method is suitable to

establish a data set which is big enough for healthy statistical analyses. The data for

the study has been collected in two stages. First, a pretest study is conducted to select

the most representative products for search-experience class definitions. Later, the main study which aimed at measuring user reactions is designed.

Both, pretest and main study questionnaires were conducted online. The questionnaires were delivered to web users via social networking, like Facebook and student forums online. A total of 107 pretest surveys were obtained. After a week, main study questionnaire was distributed resulting in 281 obtained surveys.

3.3 Initial pretest study

The purpose of the pretest was to choose appropriate research products to represent search and experience products. Despite that Nelson's (1970, 1974) product categorization was initially designed only for the traditional distribution channel, this model was later applied in several online commerce studies as well. However, the sample of products was drawn initially from the physical environment. Thus, a pretest was needed to assign online products to the search and experience categories and to test whether the results are consistent with previous studies and assess the reliability and validity of our measures. The questionnaire was posted online with a link from the website to further narrow down the choice of products. One hundred-seven participants took part in a pretest that tested product type and online shopping behavior.

3.3.1 Experience and search products

In the pretest respondents were asked to classify 5 search and 5 experience products from a list of thirty-eight based on Nelson's search and experience class definitions drawn from the literature (Nelson 1970, 1974). The products on the list have been chosen after an analysis of the most commonly used products in previous studies

(e.g. Girard et al., 2002; Nelson 1970, 1974; Norton and Norton, 1988; Weathers et al., 2007) and KPMG 2017 Global Online Consumer Report which presented some of the most often sold products online. Because the study tested for purchase intentions from Internet retailers, the products sold online were included in the survey. In order to avoid order bias, the products on the list were presented in a random order.

The five experience products listed were consistent with previous research. For example, Girard et al. (2002) use perfume, cosmetics, shoes and mattress as experience-1 products for which full information on dominant attributes cannot be known without direct experience. Among the search products, two of them (laptop, airplane ticket) coincide with those in previous studies while the three others (mobile phone, television, car) were conversely identified as experience products by researchers such as Nelson (1970) and Girard (2002). This can be due to the fact that initial search-experience product categorization has been presented for traditional shopping environment where consumer's ability to access the information about the product prior to the purchase strongly differs from online environment. Secondly, more than 10 years past from Girard's research, and during this time the usage of Internet and online shopping became much more common. Therefore, also consumer's ability to evaluate the most important attributes of the product has changed and some of the products might be today easier classified as search goods. All products contain a mix of search and experience characteristics (Alba et al. 1997; Lynch and Ariely 2000), so the classification of products by respondents into the previously constructed categories might have changed over the years.

In the first part of the survey respondents were also presented with five-point Likert scale to measure perceived risk in shopping online. They were asked to fill out

two questions. The results of this study confirm previous research of Mitra et al. (1999) on perceived risk among SEC products which indicated that perceived risk increases along a continuum from search to experience products purchases. Overall perceived risk was lower for search products. However, for most of pretest respondents online shopping is not of high risk both for search and experience products. In two categories, online shopping was most often considered as "a little risky".

3.3.2 Online shopping experience

In the second section of the pretest survey respondents were asked about their online shopping experience. First question concerned how much money in total users spent in last 12 months for online shopping. Out of 107 respondents, 13.08% spent less than 100 TRY on online purchase during last year, 14.02% between 100 – 299 TRY, 12.15% between 300 – 499 TRY; 14.95% between 500 – 699 TRY; 5.61% between 700 – 999 TRY; and 40.19% of interviewee spent more than 1000 TRY. The second question asked about the total length of online shopping experience. Most of the respondents have between 4 and 6 years of experience (26.17%), 24.30% between 2-4 years; 14.02% between 1-2 years; less than 1 year 6.54%; 17.76% between 6-10 years; and 11.21% had more than 10 years of experience. Last question in that section of the survey was an open one and respondents were asked what are the products they purchased online in last 12 months. In total 249 products were named and the 7 most frequently listed product types are presented in Table 1. According to KPMG 2017 Global Online Consumer Report, in most of examined countries, books and music, electronics, and apparel are among the top five products most often

purchased online. Thus, respondents' answers regarding the products most often

bought online are in line with the general world's trend.

Table 1. Most Popular Products Bought Online

Product	Frequency
Electronics	41
Clothes	38
Tickets	34
Books	27
Cosmetics and perfumes	16
Shoes	10
Food	6

3.3.3 Demographics

The last part of the survey contained demographic questions. Of the respondents

50.47% were female and 49.53% were male. More than half of the respondents

(51.40%) were between the ages of 21 to 25; 0.93% of the respondents were younger

than 17; 24.30% between the ages of 26 to 30; and 11.21% aged 31 to 40. Around

24.30% of the respondents have listed as having already obtained a high school

degree, 43.93% were holding an undergraduate degree, approximately 24% percent

had a graduate degree and 2.80% had a PhD degree. Most of the respondents

(57.01%) had a monthly income below 2000 TRY. 15.89% between 2,000 TRY and

3,499 TRY; 11.21% between 3,500 TRY and 4,999 TRY; 12.15% between 5,000

TRY and 7,499 TRY; 1.87% between 7,500 TRY and 9,999 TRY; and 1.87% of

respondents had monthly income above 10,000 TRY. The answers collected have

been from respondents in one country, Turkey.

Based on the results of the pretest, toast machine and perfume were

considered as appropriate to be used as examples in the main study. Those products

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represent two most popular groups (electronics and cosmetics) of products bought online by the respondents. Perfume was the second most frequently selected experience product in our pretest and it's consistent with previous research. Toast machine was chosen as universal kitchen appliance from electronic category. Moreover, both products are from the similar price range.

3.4 Main study design

After completing the pretest study, we planned an experimental design as our main study method. Experimental design refers to examination of independent variable effect on the dependent variable. In this method, independent variables are manipulated via treatments. The effect of those manipulations is reflected on the dependent variables and focus on observing the responses. Experimental research design consists manipulation, control and randomization (Suresh, 2018). Manipulation happens when the researcher purposely controls of the independent variable though treatment and observes its effect on the dependent variables. In a randomized experimental design, treatments and individuals are randomly assigned to an experimental group. The use of randomization is one of the most trustworthy method of creating similar treatment groups without any prejudices or judgments.

In our study, we varied the independent variable of visual design quality to observe the effect of those manipulations on the dependent variables. The experimental website treatments for search and experience products were designed. In order to investigate how visual design influences user responses, the experimental website treatments needed to vary only in terms of visual design, represent an unfamiliar online shop, and induce the perception of the product quality. Following these criteria, four conditions of toast machine product page were created and they

varied at four levels of visual design. Each of the four websites displayed the same content but varied in the levels of visual design manipulations which included the fonts, colors, and number and quality of pictures. Similar manipulation was made for product page representing experience product - perfume.

The participants viewed a product page of a website and completed an online questionnaire based upon their impression of that site. The participants were randomly assigned to one of eight treatments. Approximately half of the participants evaluated the toast machine and the other half evaluated the product page of perfumes. The participants evaluated the web sites on each of the adjectives using a 5-point point scale ranging from ''strongly disagree'' to ''strongly agree''. After the rating, we asked the participants about their demographics and experience in shopping online and Internet usage.

The first part of the questionnaire focused on independent variables aimed to gather information about the participants impressions of product page of website and product. The second section included the independent variables, which aimed to gather information about participant evaluation of visual design. The third section of the questionnaire contained questions about participants' demographics, Internet usage and online shopping experience. Four questions were designed to collect demographic characteristics of the sample. Questions to identify the basic characteristics of the sample consisted gender, age, highest degree of education achieved and monthly income. To ensure that the respondents are in the population of active Internet users three following questions were asked:

Q1. How many years of online shopping experience you have?

Q2. How often you make shopping online?

Q3. On average, how many hours online you spend?

3.5 Experimental website treatments design

Experimental websites were adapted from templates picked from Wix.com which is a cloud-based web development platform commonly used in e-commerce sector. Templates offered by the platform adapt the most common trends in design and they are developed by professional designers. One website template was the basis for the experimentally manipulated websites used in this study. Existing template was used to give the most authentic impression possible and make the interfaces of experiment websites consistent with others that our respondents were already familiar with. Each experimental treatment of product page was inserted into questionnaire as a picture before the list of questions. Since online survey method was chosen for collecting the data we decided not to redirect users to external pages, because it could create confusion and we would not be able to monitor users' behavior.

For the font style, 14-point Verdana in black against white background was used for aesthetically pleasing website version. We did not use text in italics or bold, since classical style was proven to look clearest. In distorted version of website, we used 14-point ornate font Linotype Didot, which is against the rule that better designed websites use simple fonts (Garrett, 2003). For good color manipulation, we used white background and black fonts, while for the distorted version of website we applied yellow background color, RGB (255, 210, 90), which is mostly disliked by the users (Cyr et al., 2009). Finally, on well-designed product page was displayed one big main picture and preview of 3 smaller product pictures. In the poor variation of website, the picture quality was low and the size was small. Also, there was only one picture available.

3.6 Sample selection

Turkey has been chosen for the empirical study because it is characterized by high ratio of young generation and annual growth of e-commerce market size at level of 37-percent. The population in Turkey is more than 80 million people with a median age just over 30, which is younger than anywhere else in Europe (TurkStat, 2017). Moreover, most of urban population in Turkey is aged 18-35-year-old, and those people are having higher incomes and different lifestyles than previous generation. More than 44% of the population actively engages in shopping online. Young people tend to favor products and services which are easily accessible, reflecting the activity of almost 7 million online consumers in this age group. We concentrated on B2C pure online retail websites as previous studies suggested that focusing on a specific industry allows to collect more accurate answers and reduce the possibility of error variance by increasing the power of hypothesis testing (Lam et al., 2004).

Due to the fact that a large percentage of online shoppers in Turkey are young people, we decided to use them as our sample in this thesis. Generation Y consists of people between eighteen and thirty-two years old (Fox and Jones, 2009). They are the generation who grew up watching the development of the Internet and technology from the early stage which makes them significantly more active than older users (Djamasbi et al., 2008; Fox, 2008). Some previous studies demonstrated that visual design can be particularly important to users of Generation Y users and since they have grown with high level of technology, they have certain requirements regarding the functionality and aesthetics of a website (Tractinsky; 2004, 2006). It is a group looking for more complete online experience, thus it makes Generation Y unique demographic sample of this study.

Data was collected from Turkish citizens. In total 281 participants fully completed our questionnaire. We decided not to eliminate any people from our study since they represented similar demographic characteristics. The majority of participants belonged to Generation Y (91.1%). About 50.9-percent of the participants were females and the remaining 49.1-percent were males. 91.5% of respondents had more than 1 year of online shopping experience. The results of analysis for user background indicated that 75.8% of participants shop online once for three months or more often.

3.7 Variables

The main goal of this study was to examine whether or not product type (search versus experience) moderates the perception of website visual design resulting in perceived product quality, trust and risk, and whether there are differences in perception of website visual design between men and women. The questionnaire was divided into the following main parts: consumer perception of visual design, website quality, product quality, perceived risk and trust; general information about the respondent and his/her online shopping experience (see Appendix A). First, participants were randomly assigned to one of eight website aesthetic conditions. In order to assure random allocation of experimental conditions, we added randomizer to our survey flow in Qualtrics (online survey software). When a respondent clicked on the survey, they were randomly assigned to each of the experimental groups automatically. After each respondent had been exposed to the assigned manipulation, they replied 19 questions about trust (3), perceived risk (3), visual design (7), perceived website quality (3), and perceived product quality (3), which were presented in a completely randomized order. The participants evaluated the product

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pages using a 5-point scale ranging from (1) ''strongly disagree to (5) ''strongly agree''.

3.7.1 The independent variables

3.7.1.1 Visual design

Visual design refers to the aesthetic and aims to identify to which degree the elements of attractiveness of website's appearance such as images, colors, fonts, layout or animations enhance a website's overall look and feel (Cyr and Bonanni, 2005; Li and Yeh, 2010). One of key components of website quality is website visual design (Vance, Elie-Dit-Cosaque, Straub; 2008) which has impact on experience of users who are interacting with the website (Wells et al., 2011). As emphasized in theoretical framework, visual design consists of three main sub-dimensions: color, font and pictures, which were used in the research as moderator variables for the relation between visual design and dependent variables.

Visual design measures were adapted from existing, validated scale of Cyr et al. (2006) and participants were expected to evaluate three items. In each item, a 5-point Likert scale starting from "strongly disagree", to "strongly agree" was used. No existing measures for chosen visual design sub-dimensions were found in the past literature. It can be due to the fact that past researchers focused on experimental manipulations or controls without accompanying manipulation check measures. Therefore, a new scale for measuring color, font and pictures attractiveness was developed (see Appendix B).

3.7.2 The dependent variables

All measures for dependent variables were adapted from existing, validated scales and they are provided along with the scale anchors and sources in Appendix B. For each item in every question was used a five-point Likert scale ranging from "strongly disagree", to "strongly agree". All the questions were translated into Turkish without changing any meaning.

3.7.2.1 Perceived website quality

Perceived website quality aimed to measure the overall consumer perception of a website. In order to assess perceived website quality (PWQ), three items were adapted from prior signaling research (Ether et al., 2006; Wells et al., 2012).

3.7.2.2 Perceived product quality

The dependent variable of the study, perceived product quality, aimed to measure the consumer's judgements about a product's overall excellence or superiority compared to the available alternatives they know. The question about perceived product quality consisted of three sub-questions borrowed from Wells et al. (2012).

3.7.2.3 Trust

The third dependent variable, trust, was design to identify to which degree of consumers' confidence in an e-commerce website and willingness to rely on the online seller. Trust dimension consisted of three items adapted from Cyr (2008), Cyr et al. (2005), Cyr et al. (2007) and Li (2010).

3.7.2.4 Risk

Three statements aimed to assess the perception of risk in shopping different types of products online. We asked participants whether they think it is risky to purchase the toast machine/perfume online.

3.8 Data analysis

After we collected all the questionnaires from the experimental study, further statistical analysis was made by using the Statistical Package for the Social Science (SPSS). To summarize the data set collected in the survey we conducted a descriptive analysis. After, the factor analysis was performed to test the factorial validity of the theoretical construct and determine if the items loaded on the dimensions they were written to represent. We measured scale reliabilities and correlation analysis was done to find out whether any significant correlations exist between the variables. Multivariate analysis of covariance (MANCOVA) method for the main analysis of study result was done. Means and interaction effects were measured as well.

CHAPTER 4

FINDINGS OF THE STUDY

In this chapter, findings of the study are introduced. It begins with descriptive statistics, continues with the factor analysis, scale reliabilities and inter-correlations of the variables. Later, revised research model and hypothesis are presented. The chapter finishes with MANCOVA, interaction effects and means description.

4.1 Descriptive findings

4.1.1 Demographics of participants

4.1.1.1 Age

41.3% participants are between 23-27 years old and 91.1% are between 18-31 years old (Table 2). Therefore, majority of the participants belong to Generation Y which is curious about technology and is more active online than older people. This is an advantage because we wanted our respondents to have similar demographic characteristics to avoid any unwanted manipulations of the variables, different than the treatment variables.

4.1.1.2 Gender

The distribution did not significantly differ with regards to gender. Female sample was slightly more than male with a ratio of 50.9% (Table 3). Therefore, this study represents preferences of both males and females equally.

Table 2. Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-22	82	29.2	29.2	29.2
	23-27	116	41.3	41.3	70.5
	28-31	58	20.6	20.6	91.1
	32-40	19	6.8	6.8	97.9
	41 and more	6	2.1	2.1	100.0
	Total	281	100.0	100.0	

Table 3. Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	138	49.1	49.1	49.1
	Female	143	50.9	50.9	100
	Total	281	100	100	

4.1.1.3 Education level

According to the survey results, 21.7% of all participants have high school degree whereas 53% of them have undergraduate degree; 24.2% have a master and 1.1% doctorate degree. Thus, the majority of our respondents have already completed some level of higher education (Table 4).

Table 4. Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School Degree	61	21.7	21.7	21.7
	Undergraduate	149	53.0	53.0	74.7
	Master	68	24.2	24.2	98.9
	Doctorate	3	1.1	1.1	100.0
	Total	281	100.0	100.0	

4.1.1.4 Monthly personal income

Table 5 shows the monthly personal income of participants. The financial profile of the respondents varied and their incomes fell into six almost equally distributed income categories. The most numerous category (19.9%) earns less than 1000 tl per month, while the least numerous category's income (13.2%) is in the range of 4001-5000 tl per month.

4.1.2 Internet usage and online shopping experience of participants

4.1.2.1 Hours online spent per day

In the second part of the survey we collected self-reported online participation data, including the number of hours spent online per day. The distribution of daily Internet usage presents us that 90% (Table 6) of the participants of our study are using Internet more than one hour per day. Moreover, the biggest category of 34.5% reported using Internet more than 6 hours daily. Because the more time people spend on the Internet, the more they encounter with e-commerce websites.

4.1.2.2 Frequency of online purchases

Participants indicated that their frequency of online shopping is rather high. 56.2% of participants of this study makes shopping online once a month or more. 41.7% of participants are online shoppers who shop online once for three months or sometimes. Only 2.1% of respondents never bought anything online (Table 7). This is very important since it is better that questions are evaluated by more experienced users on the subject of online shopping. Thus, so they can compare what they see with previous experiences.

4.1.2.3 Experience in online shopping

When the experience in online shopping is analyzed, it can be easily seen that 91.5% (Table 8) of participants have more than 1 year online shopping experience. This result is in our favor because it means that our participants could refer to their past authentic experience when they answered our questions.

Table 5. Monthly Personal Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.000 TL and less	56	19.9	19.9	19.9
	1.001 TL - 2.000 TL	48	17.1	17.1	37.0
	2.001 TL - 3.000 TL	43	15.3	15.3	52.3
	3.001 TL - 4.000 TL	45	16.0	16.0	68.3
	4.001 TL - 5.000 TL	37	13.2	13.2	81.5
	5.001 TL and more	52	18.5	18.5	100.0
	Total	281	100.0	100.0	

Table 6. Time Spent Online

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1	28	10.0	10.0	10.0
	1-2	35	12.5	12.5	22.4
	2-4	63	22.4	22.4	44.8
	4-6	58	20.6	20.6	65.5
	6 hours and more	97	34.5	34.5	100.0
	Total	281	100.0	100.0	

Table 7. Online Purchases

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	At least once a week	11	3.9	3.9	3.9
	Few times a month	76	27.0	27.0	31.0
	Once a month	71	25.3	25.3	56.2
	Once for three months	55	19.6	19.6	75.8
	Sometimes	62	22.1	22.1	97.9
	Never	6	2.1	2.1	100.0
	Total	281	100.0	100.0	

Table 8. Online Shopping Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I never bought anything online	6	2.1	2.1	2.1
	Less than 1 year	18	6.4	6.4	8.5
	1-3 years	53	18.9	18.9	27.4
	4-6 years	128	45.6	45.6	73.0
	7-10 years	45	16.0	16.0	89.0
	More than 10 years	31	11.0	11.0	100.0
	Total	281	100.0	100.0	

4.1.3 Experimental treatments

Each experimental condition constituted between 10.70-14.90% of all completed

surveys. And each condition had at least 30 observations, which is the minimum

recommended sample size for an experimental study that provides statistical power

of conditions (Chin, 1998).

Table 9. Experimental Treatments

Experimental treatment	Number of participants (n)	Percent	Men	Women
Condition 1	30	10.70%	56.70%	43.30%
Condition 2	39	13.90%	51.30%	48.70%
Condition 3	33	11.70%	48.30%	51.50%
Condition 4	42	14.90%	54.80%	45.20%
Condition 5	37	13.20%	54.10%	45.90%
Condition 6	36	12.80%	61.10%	38.90%
Condition 7	32	11.40%	50%	50%
Condition 8	32	11.40%	50%	50%
	281	100.00%	49.10%	50.90%

4.2 Factor analysis

Factor analysis was performed to test the factorial validity of the theoretical construct

and ascertain whether the items loaded on the dimensions they were written to

represent. The first factor analysis revealed a need for modifications, as some factors

had low factor loadings below 0.5, and therefore these components were excluded

from the further analysis.

The second Principal Component Analysis with Varimax rotation was

performed on the twelve remaining items to examine their discriminant and

convergent validity. Factor analysis showed that three components are optimal for

our study. Therefore, we had to modify our research model and combine the reduced

variables into three, not five factors (Table 9). The three factors that emerged (Visual

Design Quality, Perceived Product Quality, Risk) explained 71.76% of the total variance.

4.2.1 Visual design quality

As originally expected, "I like the way this website looks", "The website is visually attractive (i.e. colors, images, layout etc.)", "The website looks professionally designed", "The way that website displays the product information is attractive" items loaded on Visual Design Quality. "Overall, the website (visually) resembled other sites I think highly of" item that was originally expected to measure Perceived Website Quality loaded on Visual Design Quality and was combined under Visual Design Quality because it seemed more suitable to measure that component. The item, "I would rate the website as being of high quality" loaded on two factors, both Visual Design Quality (slightly higher) and Perceived Product Quality. Since factors should be mutually exclusive, we did not want one item to load on different factors. Therefore, "I would rate the website as being of high quality" factor was eliminated. Five visual design quality items loaded on one factor with loadings ranging from .709 to .866. The (total) variance explained was 49.27%

Table 10. Factor Analysis

	Factors		
Items	Visual Design Quality	Perceived Product Quality	Risk
I like the way this website looks.	.866		
The website is visually attractive (i.e. colors, images, layout etc.)	.840		
Overall, the website (visually) resembled other sites I think highly of.	.799		
The website looks professionally designed.	.747		
The way that website displays the product information is attractive.	.709		
I would rate the website as being of high quality.	.690	.476	
I think the product offered at the website is durable.		.848	
I trust the information presented on this website.		.725	
I think the product offered at the website is of high quality.		.714	
Purchasing the product from this website can lead to a loss because of financial risk involved.			.842
Purchasing the product from this website can lead to a loss because of the risk of product performance failure.			.799
I think it is risky to purchase the product online from this website.			.770
Variance explained	49.27%	14.91%	7.59%

Extraction Method: Principal Component Analysis.

4.2.2 Risk

Consistent with theory (Girard and Dion, 2008), risk dimension grouped with three items "I think it is risky to purchase the product online from this website", "Purchasing the product from this website can lead to a loss because of financial risk involved", "Purchasing the product from this website can lead to a loss because of the risk of product performance failure". Three risk perception items loaded on one factor with loadings ranging from .770 to .842. The (total) variance explained was 7.59%.

4.2.3 Perceived product quality

"I trust the information presented on this website" item that was originally expected to measure Trust loaded on Product Quality. We combined the dimensions and named it Perceived Product Quality, because they seemed more suitable to measure that component together. "The product appears to me to be well crafted" item did not load on Perceived Product Quality factor as expected. "Well crafted" term may have caused ambiguous interpretation among the respondents, so it was eliminated. Three Perceived Product Quality items loaded on one factor with loadings ranging from .714 to .848. The (total) variance explained was 14.91%.

4.3 Data Screening for Testing Assumptions of Multivariate Data Analysis

4.3.1 Normality

The statistical analysis of the study was made by using SPSS. Results of kurtosis and skewness were employed as normality test indicators to see if the variables are normally distributed. Skewness means that the responses did not fall into a normal distribution and they were strongly weighted toward one end of the scale. Skewness

value for all visual design sub-dimensions (Font type, Color and Pictures) was less than -1 which means they were all negatively skewed, as seen in Table 11. Other variables were not skewed.

Table 11. Skewness and Kurtosis Values of Indicators

		Risk	Visual_Design_Quality	Product_Quality	Fonttype_simple	Background_clear	Hires_picture
N	Valid	281	281	281	281	281	281
	Missing	0	0	0	0	0	0
Skewness		0,072	-.465	-.251	-1.281	-1.060	-1.080
Std. Error of Skewness		0,145	.145	.145	.145	.145	.145
Kurtosis		-0,527	-.794	.134	-.361	-.884	-.839
Std. Error of Kurtosis		0,290	.290	.290	.290	.290	.290

4.3.2 Linearity

If the significance value for Deviation from Linearity is less than 0.05, the relationship between independent variable and dependent variable is not linear, and thus as presented on Table 12 the relationships of the variables in the study are not sufficiently linear.

Table 12. Linearity

			Sum of Squares	df	Mean Square	F	Sig.
Risk * Visual_Design_Quality	Between Groups	(Combined)	33.370	16	2.086	3.535	.000
		Linearity	24.148	1	24.148	40.932	.000
		Deviation from Linearity	9.222	15	.615	1.042	.412
	Within Groups		155.747	264	0.590		
	Total		189.117	280			
Product_Quality_Trust * Visual_Design_Quality	Between Groups	(Combined)	53.318	16	3.332	9.279	.000
		Linearity	44.630	1	44.630	124.270	.000
		Deviation from Linearity	8.688	15	.579	1.613	.070
	Within Groups		94.813	264	.359		
	Total		148.130	280			

4.3.3 Multicollinearity

Multicollinearity exists when in a regression model there is a strong correlation between two or more predictors. It has a negative effect on the regression analysis for reliability of values and estimation of partial regression coefficients (Field, 2009). To identify multicollinearity, we analyzed the value of the variance inflation factor (VIF), which tells if a predictor has a strong linear relationship with other predictors (Field, 2009). When the value of VIF is above 10 probably we have issues regarding the regression analysis (Field, 2009). The VIF values were all below 10, thus, it can be concluded that multicollinearity was not an issue (Table 13).

Table 13. Collinearity statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	Fonttype_simple	.660	1.514
	Background_clear	.644	1.554
	Hires_picture	.645	1.550
	Risk	.670	1.493
	Product_Quality_Trust	.670	1.493

a. Dependent Variable: Visual_Design_Quality

4.3 Scale reliabilities

After data collection, to check if the scales satisfy the reliability conditions Cronbach's alpha value is calculated for each construct in the model. Each scale with Cronbach's alpha greater than .60 (Hair, Black, Babin, Anderson and Tatham, 2005) was accepted.

4.3.1 Scale about visual design quality

Cronbach alpha values for the four dimensions are all above the threshold value of .60. A 4-item scale was used to measure perceived Visual Design Quality of e-commerce website product page. Cronbach's Alpha was calculated 0.632 for the 4-item scale (Table 14). It is generally agreed that a Cronbach's alpha value of 0.60 or higher is a sign of reliability. Therefore, it is true to state that our scale satisfies the reliability.

Table 14. Scale Reliability of Visual Design Quality

ITEMS	Factors	Reliability
The website is visually attractive (i.e. colors, images, layout etc.)	.840	.632
I like the way this website looks.	.866	
The website looks professionally designed.	.747	
Overall, the website (visually) resembled other sites I think highly of.	.799	

4.3.2 Scale about risk

A 3-item scale was used to measure the risk. Cronbach's Alpha was calculated 0.802 for 3 items (Table 15), which Cronbach alpha values are all above the threshold value of .60.

Table 15. Scale Reliability of Risk

ITEMS	Factors	Reliability
I think it is risky to purchase the product online from this website.	.770	.802
Purchasing the product from this website can lead to a loss because of financial risk involved.	.799	
Purchasing the product from this website can lead to a loss because of the risk of product performance failure.	.842	

4.3.3 Scale about perceived product quality

The Perceived Product Quality was measured using three items and the Cronbach's Alpha value for this dimension is 0.829 (Table 16), which is a sufficient level of reliability.

Table 16. Scale Reliability of Perceived Product Quality

ITEMS	Factors	Reliability
I think the product offered at the website is durable.	.848	
I trust the information presented on this website.	.725	.829
I think the product offered at the website is of high quality.	.714	

4.4 Correlations

Correlations let researchers to find out about the direction and strength of bivariate relationships between variables (Erkman, 2013). We use correlation analysis to determine whether significant correlations or associations exist between the variables (for each product type). The correlation coefficients are calculated by using Pearson correlation.

4.4.1 Visual design attributes and visual design quality

A correlation analysis was conducted in order to understand the relation between Visual Design Attributes and Visual Design Quality. It showed that the strongest significant attributes of visual design are colors, followed by font type and pictures (Table 17).

Table 17. Correlations Visual Design Quality - Visual Design Attributes

		I think that product pictures are attractive.	I think that the fonts on the website are attractive.	I think that the colors in the website are attractive.	Visual_Design_Quality
I think that product pictures are attractive.	Pearson Correlation	1	.373**	.658**	.575**
	Sig. (2-tailed)		.000	.000	.000
	N	281	281	281	281
I think that the fonts on the website are attractive.	Pearson Correlation	.373**	1	.721**	.606**
	Sig. (2-tailed)	.000		.000	.000
	N	281	281	281	281
I think that the colors in the website are attractive.	Pearson Correlation	.658**	.721**	1	.933**
	Sig. (2-tailed)	.000	.000		.000
	N	281	281	281	281
Visual_Design_Quality	Pearson Correlation	.575**	.606**	.933**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	281	281	281	281

**. Correlation is significant at the 0.01 level (2-tailed).

4.4.2 Visual design quality and perceived product quality

We found positive correlation (.549) between perceived Visual Design Quality and

Perceived Product Quality at significance level of 0.01 (Table 18).

Table 18. Correlations Visual Design Quality – Perceived Product Quality

		Visual_Design_Quality	Perceived_Product_Quality
Visual Design Quality	Pearson Correlation	1	.549**
	Sig. (2-tailed)		.000
	N	281	281
Perceived_Product_Quality	Pearson Correlation	.549**	1
	Sig. (2-tailed)	.000	
	N	281	281

**. Correlation is significant at the 0.01 level (2-tailed).

4.4.3 Visual design quality and risk

Moreover, we can see that there is a significant negative relation between perceived

Visual Design Quality and Risk (-.357) at the significance level of 0.01 (Table 19).

4.4.4 Perceived product quality and risk

Finally, there is a significant negative relation between Perceived Product Quality

and Risk (-.575) at the significance level of 0.01 (Table 20).

Table 19. Correlations Visual Design Quality - Risk

		Risk	Visual_Design_Quality
Risk	Pearson Correlation	1	-.357**
	Sig. (2-tailed)		.000
	N	281	281
Visual_Design_Quality	Pearson Correlation	-.357**	1
	Sig. (2-tailed)	.000	
	N	281	281

**. Correlation is significant at the 0.01 level (2-tailed).

Table 20. Correlations Risk – Perceived Product Quality

		Risk	Perceived_Product_Quality
Risk	Pearson Correlation	1	-.575**
	Sig. (2-tailed)		.000
	N	281	281
Perceived_Product_Quality	Pearson Correlation	-.575**	1
	Sig. (2-tailed)	.000	
	N	281	281

**. Correlation is significant at the 0.01 level (2-tailed).

4.4.5 Demographics correlations

We observed no statistically significant correlations between Gender and Risk,

Gender and Visual Design Quality perception as well as Gender and Perceived

Product Quality perception. Therefore, our Hypothesis 5 was not confirmed.

Analyzing the Demographics dimensions we found that there is a significant negative relation between Visual Design Quality and the years of online shopping experience (-.152) at the significance level of 0.05. Another negative significant relation which we observed was between Visual Design Quality and hours spend online per day (-.194), at the significance level of 0.05. We assume that people who have more experience in online shopping and who are more active internet users evaluated the visual design of the experimental websites more critically because they could refer to their rich experience. Also, there was a significant negative relation between Visual Design Quality and level of monthly income (-.174) at the significance level of 0.01.

4.5 Revised research model and hypothesis

Because trust and perceived website quality did not emerge as separate factors and the items designed to capture those factors did not load as expected. We redesigned our research model (Figure 2) by using only three dimensions (Visual Design Quality, Perceived Product Quality and Risk). Due to the redesign of our research model we also redefined some of our initial hypotheses.

Hypothesis 1-6 remained same without any changes. In our factor analysis, we combined two dimensions and named it Perceived Product Quality. Therefore, Hypothesis 6 which was initially going to measure the effect of visual design on perceived product quality, was resigned to test the impact of visual design quality on perceived product quality.

H6: For both search and experience product types, higher perception of website visual design quality has a positive effect on perceived product quality.

Because variable of perceived website quality was removed, we also removed four hypotheses connected with that dependent variable, listed as follow:

H7: For both search and experience product types, higher perceived website quality has a positive effect on perceived product quality.

H8: Perceived website quality has a stronger impact on perceived quality of experience product, than search product.

H9: For all product types, higher perceived website quality has a positive effect on trust.

H10: For both search and experience product types, higher perceived website quality results in lower perceived risk.

In place of removed hypothesis we added two new hypotheses to better measure the Risk dimension. The following hypothesis were formed and tested:

H7: For both search and experience product types, higher perceived product quality results in lower perceived risk.

H8: For both search and experience product types, higher visual design quality results in lower perceived risk.
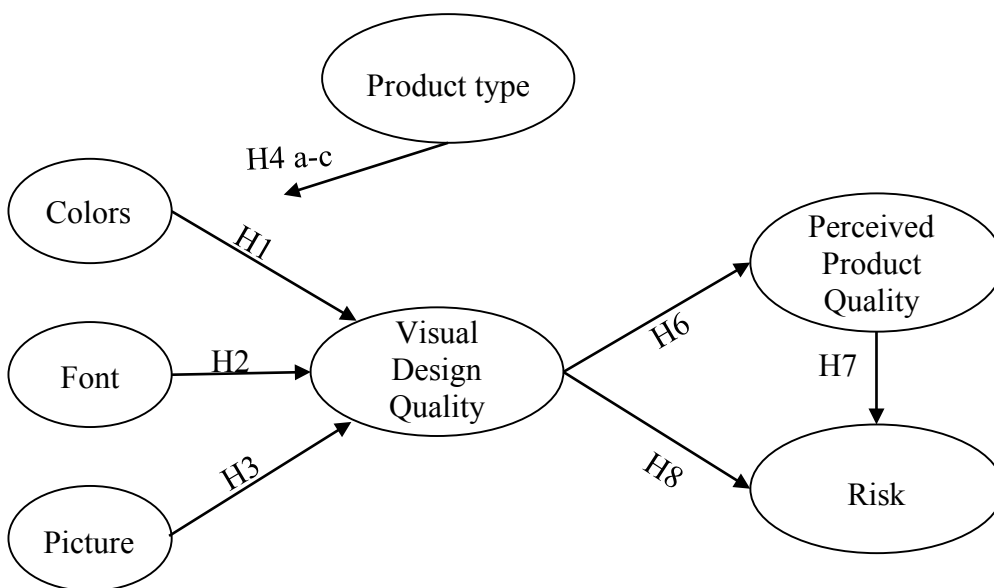
Fig. 2 Redesigned structural model

4.6 ANOVA

We have conducted an ANOVA analysis separately for search and experience products. An ANOVA test was conducted to understand the differences between the product types and perception of visual design. The results of the test show that for search product the most important visual design sub-dimension was usage of pictures (0.001) and font type (0.026) was least important (see Appendix A, Table A2). Therefore Hypothesis 2 was not supported. For the experience product, none of visual design sub-dimensions was more significant than others and Hypothesis 3 was not supported (see Appendix A, Table A1).

4.7 MANCOVA

In order to find the relationships between the variables, the main analysis of the experimental results was done using multivariate analysis of covariance (MANCOVA). Researchers recommend this technique when a variable which is likely to affect the dependent variables is expected to be correlated with more of the experimental factors as well (Tabachnick and Fidell, 1996). Risk, Visual Design Quality and Perceived Product Quality were the dependent variables. The results revealed significant treatment ($p < 0.1$) and they are presented in Appendix A, Table A3.

Results of analysis presented a significant relation between certain demographic dimensions and dependent variables. Average time spent online ($p = .011$) and monthly income ($p = .035$) of consumers proved to have a significant effect on Visual Design Quality perception. While education degree of consumers significantly ($p = .067$) affects Perceived Product Quality.

Moreover, the analysis results indicated that product type has a significant effect on the results of Risk perception (p = .065). Yet, risk perception was not significantly affected by visual design attributes of Fonttype_simple (p = .178), Background_clear (p = .155) and Hires_picture (p = .504). Also, MANCOVA revealed that there was no significant effect of product type on Visual Design Quality (p = .216) or Perceived Product Quality (p = .425).

For the independent variables which were used for the experimental website manipulations Hires_picture (p = .001) and Background_clear (p = .002) were significant for perception of Visual Design Quality. On the other hand, font type manipulation (Fonttype_simple) occurred to be non-significant (p = .373) for perceived Visual Design Quality.

For the product type, there was a significant difference in font type affecting perceived Visual Design Quality (p = 0.005). However, the difference between search and experience products for perception of Visual Design Quality turned out to be insignificant when it comes to the quality of pictures (p = .168) and the background color (p = .230). Moreover, the analysis revealed a significant relation between perceived product quality and quality of pictures (=.065).

4.8 Interaction effects

In order to better understand the impact of how font type affected people's website perceptions for different product types, profile plots (interaction plots) were made. We used this method to compare marginal means in our model.

4.8.1 Interaction effect of font type and product type on risk

From the profile plot, we observed that for the simple font manipulation perceived risk was higher for experience products. Consequently, for ornate font type perceived risk was slightly higher for search products. In general, perceived risk was higher for experience product and estimated marginal means of risk were between 2.85-3.15 and we see it is not significant result.

4.8.2 Interaction effect of font type and product type on visual design quality

Visual Design Quality was perceived high for the manipulation of experience product page with simple font. On the other hand, for the website offering search product perceived Visual Design Quality was perceived higher for ornate font type (Figure 3).
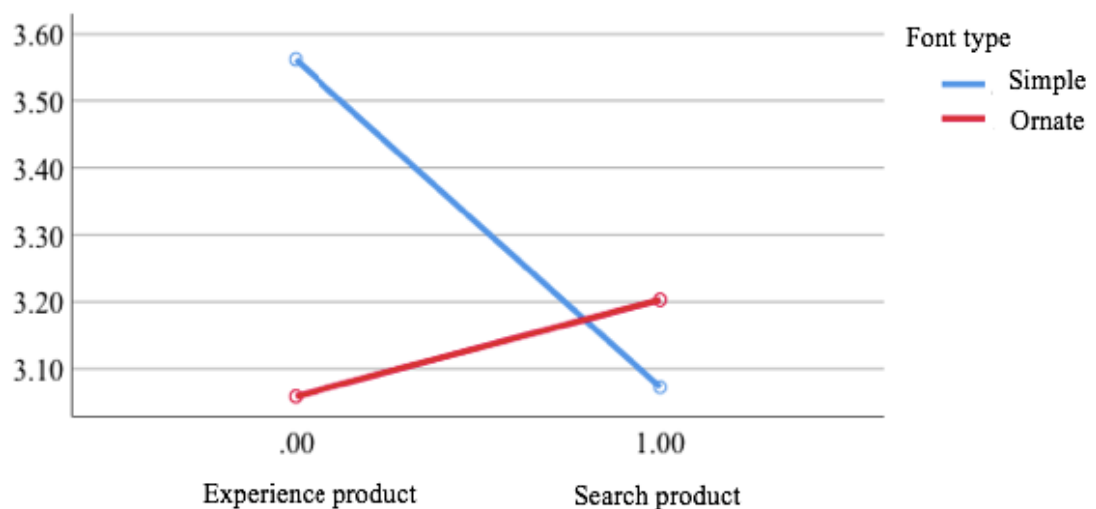
Fig. 3 Estimated marginal means of visual design quality for different font types

4.8.3 Interaction effect of font type and product type on perceived product quality

Perceived Product Quality perception was high for the website experimental manipulation which used simple font type and presented experience product. For

search product type the Perceived Product Quality was almost at the same level for two types of fonts used in our experimental manipulations and we see that results were not significant.

4.9 Means

Means analysis was conducted to deepen MANCOVA findings and look into differences between search and experience products. Below, mean tables for search and experience products are presented. MANCOVA analysis showed a significant correlation between background color and visual design quality. As Table 24 presents, means analysis revealed that for experience products visual design quality is perceived higher when the background is white (mean = 3.2599) and less attractive when it is yellow (mean = 3.0347). Similarly, on Table 28 means showed that for search products visual design is more attractive for white background (mean = 3.1857), not yellow (mean = 2.9423).

As expected, on the website treatment with higher number and better quality of pictures visual design quality and perceived product quality are perceived higher, both for experience (Table 25) and search product (Table 29). Consistent with past research interaction mean analysis showed that experience products are perceived riskier (mean = 3.0146) to buy online than search products (mean = 2.8264) (see Table 30).

Table 21. Correlations Demographics - Risk - Visual Design Quality – Perceived Product Quality

		Risk	Visual_Design_ Quality	Perceived_Product_ Quality
How many years of shopping experience over the Internet you have?	Pearson Correlation	.082	-.152*	-.113
	Sig. (2-tailed)	.171	.011	.058
	N	281	281	281
How often do you shop online?	Pearson Correlation	-.041	.079	.068
	Sig. (2-tailed)	.492	.189	.255
	N	281	281	281
On average, how many hours online you spend?	Pearson Correlation	.067	-.194**	-.085
	Sig. (2-tailed)	.265	.001	.155
	N	281	281	281
What is your gender?	Pearson Correlation	.052	.068	.037
	Sig. (2-tailed)	.382	.255	.541
	N	281	281	281
How old are you?	Pearson Correlation	.056	-.071	-.108
	Sig. (2-tailed)	.348	.233	.071
	N	281	281	281
What is the highest degree or level of school you have completed?	Pearson Correlation	.068	-.046	-.148*
	Sig. (2-tailed)	.257	.443	.013
	N	281	281	281
What is your monthly income?	Pearson Correlation	.040	-.174**	-.095
	Sig. (2-tailed)	.503	.004	.114
	N	281	281	281

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 22. Risk - Visual_Design_Quality – Perceived_Product_Quality *
Product_Type (Experience Product)

Product_type		Risk	Visual_Design_Quality	Perceived_Product_Quality
Experience	Mean	3.0146*	3.2007	3.0584
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428
Total	Mean	3.0146*	3.2007	3.0584
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428

*. Mean is significant

Table 23. Risk - Visual_Design_Quality – Perceived_Product_Quality *
Fonttype_Simple (Experience Product)

Fonttype_simple		Risk	Visual_Design_Quality	Perceived_Product_Quality
Ornate Font	Mean	2.6875	3.5391	3.2083
	N	32	32	32
	Std. Deviation	.85483	.86161	.80656
Simple Font	Mean	3.1143	3.0976	3.0127
	N	105	105	105
	Std. Deviation	.80441	.86776	.76226
Total	Mean	3.0146	3.2007	3.0584
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428

Table 24. Risk - Visual_Design_Quality – Perceived_Product_Quality *
Background_Clear (Experience Product)

Background_clear		Risk	Visual_Design_Quality	Perceived_Product_Quality
Yellow background	Mean	3.1852	3.0347*	3.0741
	N	36	36	36
	Std. Deviation	.72350	.91642	.78117
White background	Mean	2.9538	3.2599*	3.0528
	N	101	101	101
	Std. Deviation	.86414	.86813	.77565
Total	Mean	3.0146	3.2007*	3.0584
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428

*. Mean is significant

Table 25. Risk Visual_Design_Quality – Perceived_Product_Quality *
Hires_Picture (Experience Product)

Hires_picture		Risk	Visual_Design_Quality	Perceived_Product_Quality
Low-res picture	Mean	3.1667	3.0078*	2.9167*
	N	32	32	32
	Std. Deviation	.72339	.85309	0.65583
Hires picture	Mean	2.9683	3.2595*	3.1016*
	N	105	105	105
	Std. Deviation	.86173	.88790	.80480
Total	Mean	3.0146	3.2007*	3.0584*
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428

*. Mean is significant

Table 26. Risk - Visual_Design_Quality – Perceived_Product_Quality *
Product_type (Search Product)

Product_type		Risk	Visual_Design_Quality	Perceived_Product_Quality
Search	Mean	2.8264*	3.1198	3.1528
	N	144	144	144
	Std. Deviation	.80303	0,99341	.67922
Total	Mean	2.8264*	3.1198	3.1528
	N	144	144	144
	Std. Deviation	.80303	.99341	.67922

*. Mean is significant

Table 27. Risk - Visual_Design_Quality – Perceived_Product_Quality *
Fonttype_Simple (Search Product)

Fonttype_simple		Risk	Visual_Design_Quality	Perceived_Product_Quality
Ornate Font	Mean	2.7576	3.0682	3.1414
	N	33	33	33
	Std. Deviation	.75587	1.00443	.62378
Simple Font	Mean	2.8468	3.1351	3.1562
	N	111	111	111
	Std. Deviation	.81870	0.99418	.69750
Total	Mean	2.8264	3.1198	3.1528
	N	144	144	144
	Std. Deviation	.80303	.99341	.67922

Table 28. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Background_Clear (Search Product)

Background_clear		Risk	Visual_Design_Quality	Perceived_Product_Quality
Yellow background	Mean	2.9915	2.9423*	3.1197
	N	39	39	39
	Std. Deviation	.88353	.99747	.74726
White background	Mean	2.7651	3.1857*	3.1651
	N	105	105	105
	Std. Deviation	.76645	.98853	.65555
Total	Mean	2.8264	3.1198	3.1528
	N	144	144	144
	Std. Deviation	.80303	.99341	.67922

*. Mean is significant

Table 29. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Hires_picture (Search Product)

Hires_picture		Risk	Visual_Design_Quality	Perceived_Product_Quality
Low-res picture	Mean	2.7857	2.9286*	3.0476*
	N	42	42	42
	Std. Deviation	.84847	1.02601	.66899
Hires picture	Mean	2.8431	3.1985*	3.1961*
	N	102	102	102
	Std. Deviation	.78728	.97388	.68193
Total	Mean	2.8264	3.1198*	3.1528*
	N	144	144	144
	Std. Deviation	.80303	.99341	.67922

*. Mean is significant

Table 30. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Product_type

Product_type		Risk	Visual_Design_Quality	Perceived_Product_Quality
Experience	Mean	3.0146*	3.2007	3.0584
	N	137	137	137
	Std. Deviation	.83320	.88328	.77428
Search	Mean	2.8264*	3.1198	3.1528
	N	144	144	144
	Std. Deviation	.80303	.99341	.67922
Total	Mean	2.9181*	3.1593	3.1068
	N	281	281	281
	Std. Deviation	0.82184	.94053	.72735

*. Mean is significant

Table 31. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Fonttype_simple

Fonttype_simple		Risk	Visual_Design_Quality	Perceived_Product_Quality
Ornate Font	Mean	2.7231	3.3000	3.1744
	N	65	65	65
	Std. Deviation	.80054	.95933	.71470
Simple Font	Mean	2.9769	3.1169	3.0864
	N	216	216	216
	Std. Deviation	.82090	.93289	.73153
Total	Mean	2.9181	3.1593	3.1068
	N	281	281	281
	Std. Deviation	.82184	.94053	.72735

Table 32. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Background_Clear

Background_clear		Risk	Visual_Design_Quality	Perceived_Product_Quality
Yellow background	Mean	3.0844	2.9867*	3.0978
	N	75	75	75
	Std. Deviation	.81113	.95409	.75888
White background	Mean	2.8576	3.2221*	3.1100
	N	206	206	206
	Std. Deviation	.81928	.92993	.71740
Total	Mean	2.9181	3.1593*	3.1068
	N	281	281	281
	Std. Deviation	.82184	.94053	.72735

*. Mean is significant

Table 33. Risk - Visual_Design_Quality - Perceived_Product_Quality *
Hires_Picture

Hires_picture		Risk	Visual_Design_Quality	Perceived_Product_Quality
Low-res picture	Mean	2.9505	2.9628*	2.9910*
	N	74	74	74
	Std. Deviation	.81404	.94966	.66202
Hires picture	Mean	2.9066	3.2295*	3.1481*
	N	207	207	207
	Std. Deviation	.82626	.92949	.74648
Total	Mean	2.9181	3.1593*	3.1068*
	N	281	281	281
	Std. Deviation	.82184	.94053	.72735

*. Mean is significant

CHAPTER 5

DISCUSSION

The main purpose of this research is to illuminate the impact of product type (search versus experience) on consumer perception of a website and product, and to investigate the relationship between website visual design attributes and consumer perception of visual design. We would like to answer the question how visual design affects perceived product quality and risk as a signal. Additionally, this study aims to measure if there are any significant differences between male and female participants as it was observed in the past research. For these objectives, eight hypotheses are derived and tested by experiments with eight online imaginary website product pages and two hundred and eighty-one participants. In this chapter, we discuss descriptive findings of the study, and continue with the correlations and hypothesis.

Descriptive findings of our study reveal that most of the participants are close to each other in all demographics. 91.1% belong to Generation Y which means that they are between 18 and 32 years old. The majority of our respondents have past experience in online shopping (97.9%) and actively use Internet everyday (90%). Only six people (2.1%) stated that they never bought anything online. Since we did not want variables other than our experimental treatments to influence the study results, we wanted to keep the respondents group consistent. To have a group of participants characterized by similar demographics, we have conducted our research mostly among students and all of our participants have already completed some level of higher education (78.3%).

After conducting the factor analysis, we found that trust and perceived website quality did not emerge as separate factors as expected. Therefore, it was

necessary to revise our research model and hypothesis accordingly. As a result, we have eliminated some of the items and defined following dependent variables: Visual Design Quality, Perceived Product Quality, and Risk. Further analysis revealed the correlations between them.

As we expected the experiment results showed that there is a significant relation between color of the background, visual design and product type. This means that perceived visual design of a website was higher for clear background manipulation and most of consumers dislike colorful scheme website. This outcome is consistent with the previous findings in the literature. The current research extends earlier theoretical contributions regarding culture, since our experiment was made in Turkey - so different cultural context was examined. However, there was no significant result which supported Hypothesis 1 for which we claimed that for all product types (search and experience) color dimension is equally important element for perceived visual design.

In Hypothesis 2 we stated that for the search product the most important dimension of visual design is font and we found that this was not supported by the analysis. Our research showed that the most important element was picture usage. For the experience product, we expected that pictures play the most important role, but the analysis revealed that none of visual design attributes played more important role than others.

Despite the fact that color occurred to be an important attribute of visual design, Hypothesis 4-a which predicted that overall experience products are evaluated more poorly when visual design attribute of color is not attractive, was not supported. There was no significant difference of color impact on visual design quality perception for search and experience products. Also, from Hypothesis 4-c we

learned that visual design attribute of pictures usage was not significantly different between search and experience products in regard to visual design quality perception. For Hypothesis 4-b experiment results showed that there was a positive-correlation between font type, product type and visual design quality perception. We have claimed that overall experience products are evaluated more poorly than search products when visual design attribute of font is not attractive. In visually attractive website manipulation we used 14-point Verdana, while in the distorted condition we used 14-point ornate font Linotype Didot which is an ornate font type. As we expected the overall visual design quality for experience product page was higher when the font style was simple. However, the interaction plot presented a mismatch between product types and it occurred that for search product users prefer ornate font manipulation to the simple one. This finding is partly contradicted to those of the previous studies which created a rule that better designed websites use simple fonts (Garrett, 2003). This issue needs to be further investigated by considering type of product (search vs. experience) and individual characteristics (e.g. past experience).

In Hypothesis 5 we tested whether the differences in perception of visual design between men and women exist. MANCOVA and correlation analysis showed no significant correlation between gender and Visual Design Quality. The reasoning behind this hypothesis was that females have different preferences of website design, but our results fail to support this idea.

In our study, we examined also the relations between our three dependent variables (Visual Design Quality, Perceived Product Quality and Risk). In Hypothesis 6 we claimed that for all product types, higher perception of website visual design quality has a positive effect on perceived product quality. In correlation analysis, we found positive correlation (.549) between perceived Visual Design

Quality and Perceived Product Quality. This means that as visual design quality perception increases, the perception of product and trust toward it increases proportionally. The analysis results supported our hypothesis and studies from the past.

Our Hypothesis 7 stated that higher perceived product quality results in lower perceived risk for all the product types. The relationship between those two variables occurred to have the strongest significant negative relation (-.575) between all our dependent variables and hypothesis was again supported. Therefore, if perceived product quality and trust towards it is high, the perceived risk level is lower.

The visual design quality and risk also occurred to have a significant negative correlation, however it was the weakest correlation between our dependent variables (-.357). This means that products on visually well-designed website are also perceived less risky to purchase and Hypothesis 8 was supported. Above results support one of the most important theories in this study that visual design quality can be a potential signal of perceived product quality and risk. The results of our hypothesis are presented in Table 34.

Table 34. Hypothesis Results

Hypothesis	Result
Hypothesis 1: For both search and experience product types, color dimension is equally important element for perceived visual design.	Not supported
Hypothesis 2: For search products, the most important dimension of perceived visual design is font.	Not supported
Hypothesis 3: For experience products, the most important dimension of perceived visual design are pictures.	Not supported
Hypothesis 4-a: Overall experience products are evaluated more poorly than search products when visual design attribute of color is not attractive.	Not supported
Hypothesis 4-b: Overall experience products are evaluated more poorly than search products when visual design attribute of font is not attractive.	Supported
Hypothesis 4-c: Overall experience products are evaluated more poorly than search products when visual design attribute of picture is not attractive.	Not supported
Hypothesis 5: Between men and women there are significant differences in perception of visual design for experience versus search products.	Not supported
Hypothesis 6: For all product types, higher perception of website visual design quality has a positive effect on perceived product quality.	Supported
Hypothesis 7: For all product types, higher perceived product quality results in lower perceived risk.	Supported
Hypothesis 8: For all product types, higher visual design quality results in lower perceived risk.	Supported

CHAPTER 6

CONCLUSION

Online retailers operate in a competitive environment, and to differentiate their

online operations, it is crucial to emphasize different characteristics of website visual

design. Our overview of previous literature has revealed that the effectiveness of

certain product quality and trust-signaling features within the visual design

dimensions is still under-researched. The goal of the current study is to fill this gap

and determine whether the perception of visual design affects consumers perceptions

of the website differs between search and experience products. This study presents a

comprehensive overview of previous studies on visual design sub-dimensions and

dependent variables affected by visual design of the website.

6.1 Implications

This study provides contributions to both e-commerce managers and website

designers. The study provides a theoretical understanding of how users' perceptions

of website design quality dimensions (e.g., font types, use of pictures, background

colors) are important features of an e-commerce website design. Several theoretical

implications come up from our experimental study.

The first contribution lies in the finding that consumers prefer simple font

type (e.g. Verdana) on website offering experience product and ornate font type (e.g.

Linotype Didot) for search products. Despite the fact that simple font types are

generally recommended for online use, our study underlines that consumers might

have different design preference based on the presented product. Thus, while

designing a website it is crucial to conduct usability tests to understand user preferences.

Secondly, we defined the effect of color in terms of cool and warm. Cool background scheme was operationalized with white color and found that participants tend to prefer cool color scheme website, which confirms the general outcome of past research. In this study, we found that white color has a more positive effect on perceived product quality than yellow color scheme. This is consistent with multiple studies in different cultural settings. Cool background color is preferred in most of cultures, both for search and experience products.

Thirdly, the usage of product pictures has the strongest impact on visual design perception among three tested sub-dimensions and it is equally important for search and experience products. This means that at the first place successful e-commerce websites should provide good quality and number of product pictures.

Finally, this study once again confirms the paramount importance of the visual design quality which works as a signal for perceived product quality and risk. In B2C e- commerce context visual design is the first impression about the online retailer and might have a crucial role in consumer evaluation of website and intention to purchase.

6.2 Limitations and further research

We acknowledge that certain limitations should be taken into account when interpreting the results of this study and point to directions for future research which may focus on some of these limitations. First, this study was conducted for an experimental e-commerce website treatments where participants could only see a preview of a product page. Observed behavior may differ from behavior on real

websites since there was no actual interaction and feeling of using the website. Future research could explore consumer behavior related to both product quality perception, trust and risk using real e-commerce websites which offer search and experience products.

The second limitation was that only one graphical template was chosen for the experimental manipulations of a website. The manipulations included two color treatments of background, two treatments of picture usage and two font type treatments. The advantage of this procedure is that the website product pages and treatments observed by the consumers are strictly controlled. However, some of our manipulations could appear artificial for the e-commerce website context. Hence, additional research can explore different manipulations of visual design attributes within this context.

Moreover, only one product from each product category was used in the experimental study. As shown by earlier studies, products may contain different characteristics and overtime product can even change the category it belongs to. Thus, we believe that future research should also extend the number of products representing each category.

Next limitation of the study was fact that no manipulation check was done for all the conditions. Another issue is related to the nature of survey-based studies. Questionnaire participants may have answer questions differently than they usually would, because of the fact that they are aware of taking part in an experiment and they analyze their answers.

Final limitation is that the study was conducted only in Turkey which creates cultural limitation of generalizability of the findings to the other countries. Therefore, we recommend to extend the research to other countries and cultures.

THE RELATIONSHIPS BETWEEN THE VARIABLES

Table A1. Tests of Between-Subjects Effects - Experience Products

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Risk	7.815[a]	9	.868	1.273	.258
	Visual_Design_Quality	11.198[b]	9	1.244	1.665	.104
	Perceived_Product_Quality	2.453[c]	9	.273	.438	.912
Intercept	Risk	12.517	1	12.517	18.356	.000
	Visual_Design_Quality	12.987	1	12.987	17.378	.000
	Perceived_Product_Quality	21.262	1	21.262	34.146	.000
How often do you shop online?	Risk	.001	1	.001	.001	.972
	Visual_Design_Quality	.040	1	.040	.054	.817
	Perceived_Product_Quality	.003	1	.003	.004	.947
What is your gender?	Risk	.702	1	.702	1.030	.312
	Visual_Design_Quality	.699	1	.699	.935	.335
	Perceived_Product_Quality	.154	1	.154	.247	.620
How old are you?	Risk	1.433	1	1.433	2.101	.150
	Visual_Design_Quality	.003	1	.003	.004	.947
	Perceived_Product_Quality	.129	1	.129	.207	.650
What is the highest degree or level of school you have completed?	Risk	.145	1	.145	.212	.646
	Visual_Design_Quality	2.012	1	2.012	2.692	.103
	Perceived_Product_Quality	.000	1	.000	.000	.985
On average, how many hours per day do you spend online?	Risk	.073	1	.073	.107	.745
	Visual_Design_Quality	.278	1	.278	.371	.543
	Perceived_Product_Quality	.100	1	.100	.161	.689

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
What is your monthly income?	Risk	.383	1	.383	.561	.455
	Visual_Design_Quality	2.886	1	2.886	3.861	.052
	Perceived_Product_Quality	.173	1	.173	.277	.599
Fonttype_simple	Risk	1.778	1	1.778	2.607	.109
	Visual_Design_Quality	1.439	1	1.439	1.926	.168
	Perceived_Product_Quality	.463	1	.463	.743	.390
Background_clear	Risk	.599	1	.599	.878	.350
	Visual_Design_Quality	.832	1	.832	1.113	.293
	Perceived_Product_Quality	3.836	1	3.836	.000	.999
Hires_picture	Risk	.606	1	.606	.889	.348
	Visual_Design_Quality	1.151	1	1.151	1.541	.217
	Perceived_Product_Quality	.411	1	.411	.659	.418
Fonttype_simple * Background_clear	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Fonttype_simple * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Background_clear * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Fonttype_simple * Background_clear * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Error	Risk	86.600	127	.682		

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
	Visual_Design_Quality	94.907	127	.747		
	Perceived_Product_Quality	79.080	127	.623		
Total	Risk	1339.444	137			
	Visual_Design_Quality	1509.625	137			
	Perceived_Product_Quality	1363.000	137			
Corrected Total	Risk	94.415	136			
	Visual_Design_Quality	106.105	136			
	Perceived_Product_Quality	81.533	136			

a. R Squared = .083 (Adjusted R Squared = .018)
b. R Squared = .106 (Adjusted R Squared = .042)
c. R Squared = .030 (Adjusted R Squared = -.039)

Table A2. Tests of Between-Subjects Effects - Search Products

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Risk	5.340[a]	9	0.593	.915	.514
	Visual_Design_Quality	31.528[b]	9	3.503	4.283	.000
	Perceived_Product_Quality	7.700[c]	9	.856	1.968	.048
Intercept	Risk	10.735	1	10.735	16.557	.000
	Visual_Design_Quality	41.114	1	41.114	50.271	.000
	Perceived_Product_Quality	38.061	1	38.061	87.524	.000
How often do you shop online?	Risk	.172	1	.172	.265	.608
	Visual_Design_Quality	.170	1	.170	.207	.650
	Perceived_Product_Quality	.320	1	.320	.736	.393
What is your gender?	Risk	1.402	1	1.402	2.162	.144
	Visual_Design_Quality	8.646	1	8.646	10.572	.001
	Perceived_Product_Quality	1.356	1	1.356	3.117	.080
How old are you?	Risk	.218	1	.218	.337	.563
	Visual_Design_Quality	1.588	1	1.588	1.941	.166
	Perceived_Product_Quality	.212	1	.212	.487	.486
What is the highest degree or level of school you have completed?	Risk	1.087	1	1.087	1.677	.198
	Visual_Design_Quality	.422	1	.422	.517	.474
	Perceived_Product_Quality	.101	1	.101	.233	.630
On average, how many hours per day do you spend online?	Risk	.510	1	.510	.786	.377
	Visual_Design_Quality	.339	1	.339	.414	.521
	Perceived_Product_Quality	2.782	1	2.782	6.397	.013
What is your monthly income?	Risk	1.329	1	1.329	2.049	.155
	Visual_Design_Quality	.357	1	.357	.436	.510
	Perceived_Product_Quality	.435	1	.435	1.001	.319
Fonttype_simple	Risk	.095	1	.095	.147	.702

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
	Visual_Design_Quality	4.130	1	4.130	5.049	.026
	Perceived_Product_Quality	.233	1	.233	.536	.466
Background_clear	Risk	.606	1	.606	.935	.335
	Visual_Design_Quality	5.688	1	5.688	6.955	.009
	Perceived_Product_Quality	.416	1	.416	.957	.330
Hires_picture	Risk	.041	1	.041	.063	.803
	Visual_Design_Quality	9.845	1	9.845	12.038	.001
	Perceived_Product_Quality	1.721	1	1.721	3.958	.049
Fonttype_simple * Background_clear	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Fonttype_simple * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Background_clear * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Fonttype_simple * Background_clear * Hires_picture	Risk	.000	0			
	Visual_Design_Quality	.000	0			
	Perceived_Product_Quality	.000	0			
Error	Risk	86.875	134	.648		
	Visual_Design_Quality	109.593	134	.818		
	Perceived_Product_Quality	58.272	134	.435		
Total	Risk	1242.556	144			
	Visual_Design_Quality	1542.688	144			

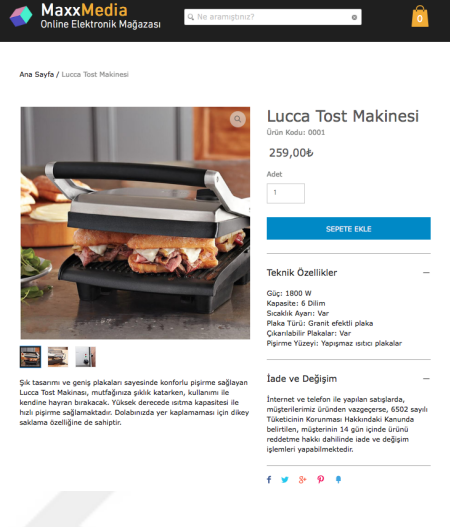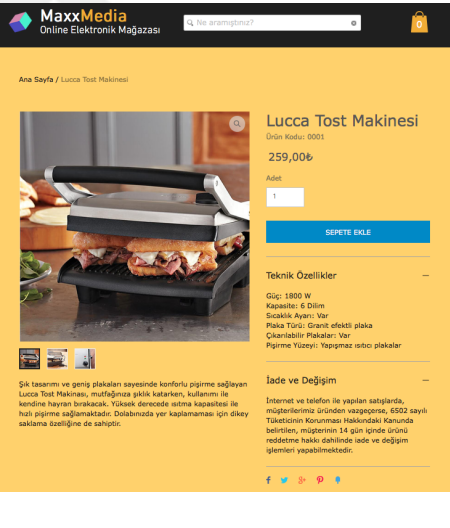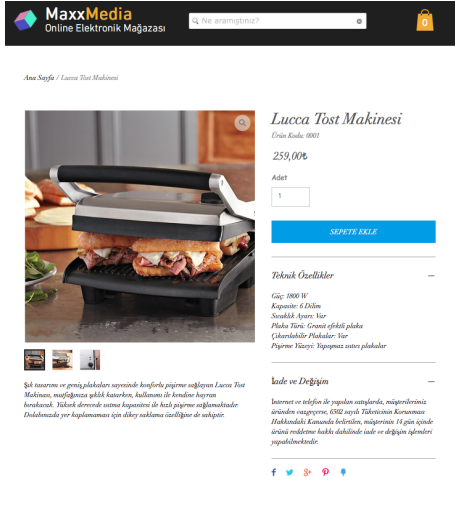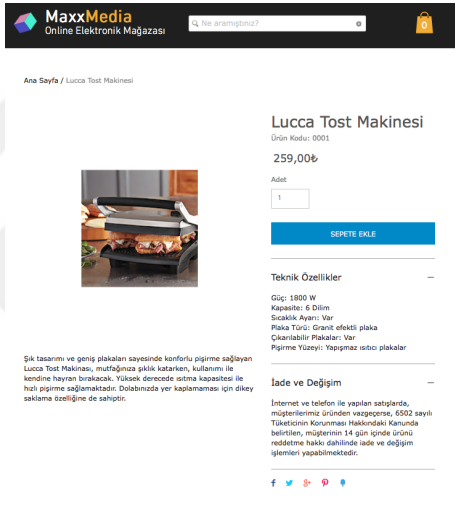| Source		Type III Sum of Squares	df	Mean Square	F	Sig.
	Perceived_Product_Quality	1497.333	144			
Corrected Total	Risk	92.215	143			
	Visual_Design_Quality	141.121	143			
	Perceived_Product_Quality	65.972	143			

a. R Squared = .058 (Adjusted R Squared = -.005)
b. R Squared = .223 (Adjusted R Squared = .171)
c. R Squared = .117 (Adjusted R Squared = .057)

Table A3. MANCOVA

Tests of Between-Subjects Effects						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Risk	13.133[a]	14	.938	1.418	.144
	Visual_Design_Quality	34.222[b]	14	2.444	3.046	.000
	Perceived_Product_Quality	9.118[c]	14	.651	1.246	.242
Intercept	Risk	18.538	1	18.538	28.020	.000
	Visual_Design_Quality	48.569	1	48.569	60.523	.000
	Perceived_Product_Quality	51.534	1	51.534	98.610	.000
How many years of shopping experience over the Internet you have?	Risk	.532	1	.532	.804	.371
	Visual_Design_Quality	.325	1	.325	.405	.525
	Perceived_Product_Quality	.042	1	.042	.080	.778
How often do you shop online?	Risk	.007	1	.007	.010	.919
	Visual_Design_Quality	.007	1	.007	.009	.926
	Perceived_Product_Quality	.109	1	.109	.208	.648
On average, how many hours online you spend?	Risk	.979	1	.979	1.480	.225
	Visual_Design_Quality	5.206	1	5.206	6.487	.011
	Perceived_Product_Quality	.811	1	.811	1.552	.214
What is your gender?	Risk	.626	1	.626	.946	.332
	Visual_Design_Quality	.312	1	.312	.389	.533
	Perceived_Product_Quality	.202	1	.202	.386	.535
How old are you?	Risk	.038	1	.038	.057	.811
	Visual_Design_Quality	.275	1	.275	.343	.559
	Perceived_Product_Quality	.034	1	.034	.065	.799
What is the highest degree or level of school you have completed?	Risk	.283	1	.283	.428	.513
	Visual_Design_Quality	.034	1	.034	.042	.838
	Perceived_Product_Quality	1.763	1	1.763	3.374	.067
What is your monthly income?	Risk	.052	1	.052	.079	.779
	Visual_Design_Quality	3.588	1	3.588	4.471	.035
	Perceived_Product_Quality	.008	1	.008	.016	.899
Product_type	Risk	2.274	1	2.274	3.437	.065
	Visual_Design_Quality	1.232	1	1.232	1.535	.216
	Perceived_Product_Quality	.334	1	.334	.639	.425
Fonttype_simple	Risk	1.199	1	1.199	1.813	.179
	Visual_Design_Quality	.639	1	.639	.797	.373
	Perceived_Product_Quality	.003	1	.003	.006	.941
Background_clear	Risk	1.346	1	1.346	2.034	.155
	Visual_Design_Quality	7.555	1	7.555	9.414	.002
	Perceived_Product_Quality	.320	1	.320	.612	.435
Hires_picture	Risk	.297	1	.297	.448	.504
	Visual_Design_Quality	9.160	1	9.160	11.414	.001
	Perceived_Product_Quality	1.800	1	1.800	3.444	.065
Product_type *	Risk	.588	1	.588	.888	.347

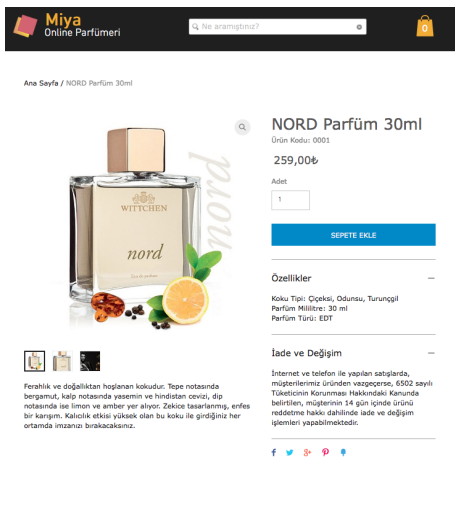| Tests of Between-Subjects Effects						
Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Fonttype_simple	Visual_Design_Quality	6.473	1	6.473	8.066	.005
	Perceived_Product_Quality	.900	1	.900	1.722	.191
Product_type * Background_clear	Risk	.001	1	.001	.002	.967
	Visual_Design_Quality	1.160	1	1.160	1.445	.230
	Perceived_Product_Quality	.246	1	.246	.470	.494
Product_type * Hires_picture	Risk	.221	1	.221	.333	.564
	Visual_Design_Quality	1.531	1	1.531	1.908	.168
	Perceived_Product_Quality	.200	1	.200	.382	.537
Error	Risk	175.985	266	.662		
	Visual_Design_Quality	213.464	266	.802		
	Perceived_Product_Quality	139.013	266	.523		
Total	Risk	2582.000	281			
	Visual_Design_Quality	3052.313	281			
	Perceived_Product_Quality	2860.333	281			
Corrected Total	Risk	189.117	280			
	Visual_Design_Quality	247.686	280			
	Perceived_Product_Quality	148.130	280			

a. R Squared = .069 (Adjusted R Squared = .020)
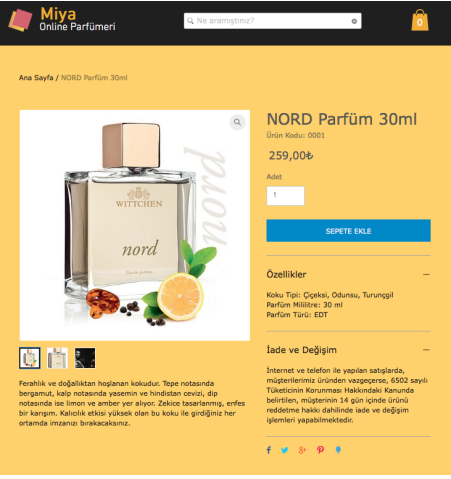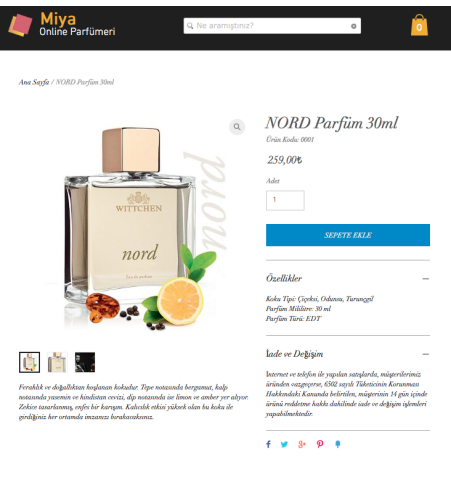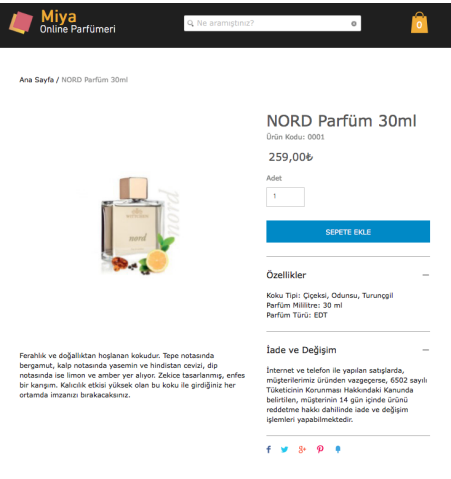b. R Squared = .138 (Adjusted R Squared = .093)
c. R Squared = .062 (Adjusted R Squared = .012)

APPENDIX B

THE SURVEY

Condition 1	İnternet üzerinden bir tost makinesini aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a toast machine, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	
Condition 2	İnternet üzerinden bir tost makinesini aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a toast machine, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	

Condition 3	İnternet üzerinden bir tost makinesini aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a toast machine, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	
Condition 4	İnternet üzerinden bir tost makinesini aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a toast machine, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	
Condition 5	İnternet üzerinden bir parfüm aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a perfume, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	

Condition 6	İnternet üzerinden bir parfüm aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a perfume, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	
Condition 7	İnternet üzerinden bir parfüm aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a perfume, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	
Condition 8	İnternet üzerinden bir parfüm aradığınızı ve bir online alışveriş mağazasını ziyaret ettiğinizi düşünün. Lütfen aşağıdaki ürün sayfasını inceleyin. Ardından anketteki soruları cevaplayın. (*Looking online for a perfume, you visit an online shop. Please examine the product page. Then answer the questions on the survey*.)	

PART A: Measures

Note: All items were measured with five-point scales. Questions were anchored with
strongly disagree – strongly agree.

Visual design (Source: Cyr et al., 2006)	
VD-1	Web sitesi görsel olarak ilgi çekici (renkler, resimler, düzen vb.) *(The website is visually attractive (i.e. colors, images, layout etc.))*
VD-2	Web sitesinin ürün bilgilerini görüntüleme biçimi ilgi çekici. (*The way that website displays the product information is attractive.*)
VD-3	Bu web sitenin görüntüsünü beğendim. (*I like the way this website looks.*)
VD-4	Web sitesi profesyonelce tasarlanmış görünüyor. (*The website looks professionally designed.*)
Visual design attributes (new scale)	
VD-5 (Pictures)	Web sitesindeki ürün resimlerinin ilgi çekici olduğunu düşünüyorum. (*I think that product pictures are attractive.*)
VD-6 (Fonts)	Web sitesindeki yazı tiplerinin ilgi çekici olduğunu düşünüyorum. (*I think that the fonts on the website are attractive*.)
VD-7 (Colors)	Web sitesindeki renklerin ilgi çekici olduğunu düşünüyorum. (*I think that the colors in the website are attractive.*)
Perceived website quality (Source: Ethier et al., 2006; Wells et al., 2012)	
WQ-1	Web sitesini yüksek kaliteli olarak değerlendiririm. (*I would rate the website as being of high quality*.)
WQ-2	Genel olarak, web sitesinin (görsel olarak) beğendiğim diğer kaliteli sitelere benzediğini düşünüyorum. (*Overall, the website (visually) resembled other sites I think highly of.*)
WQ-3	Web sitesi tüm gerekli bilgileri kolaylıkla sağladı. (*The website provided easily all the necessary information.*)
Perceived product quality (Source: Wells et al., 2012)	
PQ-1	Web sitesinde sunulan ürünün dayanıklı olduğunu düşünüyorum. (*I think the product offered at the website is durable.*)
PQ-2	Ürün bana iyi hazırlanmış görünüyor. (*The product appears to me to be well crafted.*)
PQ-3	Web sitesinde sunulan ürünün yüksek kalitede olduğunu düşünüyorum. (*I think the product offered at the website is of high quality.*)

Trust (Source: Cyr 2008; Cyr et al. 2005; Cyr et al. 2007; Li, 2010)	
T-1	Bu siteye güvenebilirim. (*I can trust this website.*)
T-2	Bu web sitesinde sunulan bilgilere güveniyorum. (*I trust the information presented on this website.*)
T-3	Bu online perakendeci, müşterilere güven aşılmaktadır. (*This online retailer instills confidence in customers.*)
Risk (Source: Girard and Dion, 2008)	
R-1	Ürünü bu internet sitesinden satın almanın riskli olduğunu düşünüyorum. (*I think it is risky to purchase the product online from this website.*)
R-2	Ürünü bu internet sitesinden satın almak, finansal riskten dolayı kayba yol açabilir. (*Purchasing the product from this website can lead to a loss because of financial risk involved.*)
R-3	Ürünün bu web sitesinden satın alınması, ürün performansının riskli olması nedeniyle ileride maddi kayba yol açabilir. (*Purchasing the product from this website can lead to a loss because of the risk of product performance failure.*)

PART B: Demographic and Internet Usage

D-1 İnternet üzerinden ürün satın alma deneyiminizin kaç yıllık? (*How many years of buying products online do you have?*)
İnternetten hiç bir şey almadım (*I didn't buy anything from the Internet*)
1 yıldan daha az (Less than 1 year)
1-3 yıl (*1-3 years*)
4-6 yıl (*4-6 years*)
7-10 yıl (*7-10 years*)
10 yıldan daha fazla (*More than 10 years*)
D-2 İnternet üzerinden ne sıklıkla ürün satın alıyorsunuz? (*How often you make shopping online?*)
En az haftada bir kez (*At least once a week*)
Ayda birkaç kez (*Few times a month*)

Ayda bir kez (*Once a month*)	
Üç ayda bir kez (*Once three months*)	
Ara sıra (*Sometimes*)	
Asla (Never)	
D-3 Cinsiyetiniz nedir? (*What is your gender?*)	
Erkek (1) *Male (1)*	
Kadın (2) *Female (2)*	
D-4 Kaç yaşındasınız? (*How old are you?*)	
18-22	
23-27	
28-31	
32-40	
41 ve üstü (*41 and more*)	
D-5 Sahip olduğunuz diploma türü seçin: (*Choose the type of diploma you have:*)	
İlkokul veya ortaokul (Primary or secondary school)	
Lise (*High school*)	
Lisans (*Undegraduate*)	
Yüksek lisans (*Post graduate*)	
Doktora (*Doctorate*)	
D-6 Günde ortalama kaç saat online harcıyorsunuz? (*On average, how many hours per day do you spend online?*)	
0-1	
1-2	
2-4	
4-6	

6 saatten daha fazla (*More than 6 hours*)
D-7 Aylık geliriniz ne kadar? (*What is your monthly income?*)
1,000 TL ve altı (*1,000 TL and less*)
1,001 TL – 2,000 TL
2,001 TL – 3,000 TL
3,001 TL – 4,000 TL
4,001 TL – 5,000 TL
5,001 TL ve üstü (*5,001 TL and more*)

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