2018

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Dinesh Khialani
Nova Southeastern University, dean.khialani@gmail.com

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

by

Dinesh Khialani

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in
Information Systems

College of Engineering and Computing
Nova Southeastern University

2018

We hereby certify that this dissertation, submitted by Dinesh Khialani, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

Maxine S. Cohen, Ph.D.
Chairperson of Dissertation Committee

11/12/2018
Date

John Bono, Ph.D.
Dissertation Committee Member

11/12/2018
Date

Sumitra Mukherjee, Ph.D.
Dissertation Committee Member

Nov 12, 2018
Date

Approved:

Meline Kevorkian, Ed.D.
Interim Dean, College of Engineering and Computing

11/12/18
Date

College of Engineering and Computing
Nova Southeastern University

2018

An Abstract of a Dissertation Submitted to Nova Southeastern University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

by
Dinesh Khialani
November 2018

E-commerce retail sales continue to experience significant growth in the United States (U.S.) annually. However, the contribution of e-commerce retail sales towards total retail sales in the U.S. remains low. Furthermore, the growth of e-commerce retail sales from year to year as a percentage of total retail sales in the U.S. is also fractional. The lack of online trust by consumers has been cited as a significant barrier to transacting online and a possible cause of this slow-moving trend.

E-commerce retail sales are paramount to the success and profitability of online merchants. It remains critical to understand the underlying determinants of online trust as a precursor to online purchase intention. This study sought to explore the effect of one such determinant namely, website design, on online trust. Using constructs and scales synthesized from the salient literature, the effects of visual design, social-cue design, and content design on online trust were measured and reported. Additionally, the mediating influence of online trust on online purchase intention was investigated. Demographic factors of age and gender were also examined for possible moderating effects of website design on online trust. A conceptual model of the influence of website design on online trust and the influence of online trust on purchase intention in e-commerce retailing environments was also tested.

The study involved scenario-based survey research methodology. Participants were presented with two websites along with a fictitious purchase scenario and post-scenario survey. The survey captured their responses with respect to the design elements of each website, their inclination to trust each website, and their intention to make a purchase from each website. Participants' age range and gender were also captured in the survey. A total of 502 participants took part in the study.

The results found that each of the components of website design namely, visual design, social-cue design, and content design had a statistically significant effect on online trust. Online trust was also found to mediate the effect of these design factors on purchase intention. Finally, no significant effects of age or gender on website design's relationship with online trust were found. Subsequently, implications and suggestions for future research are presented.

Acknowledgments

Gratitude is the fairest blossom which springs from the soul.

- Henry Ward Beecher

As I approach the final stretch of my dissertation towards fulfilling the requirements of my doctorate degree, I cannot help but feel a tremendous sense of gratitude for all the well-wishers who have stood by me and pushed me towards this noteworthy accomplishment.

First and foremost, I would like to express my heartfelt thanks to my dissertation advisor, Dr. Maxine Cohen, for her steadfast support and guidance in seeing me through this incredible journey. Her patience and methodical approach to tackling each milestone of the dissertation process were instrumental in ensuring a successful outcome and in allowing me to absorb every learning along the way to the best of my potential. Concurrently, I would also like to express my appreciation to my dissertation committee members, Dr. Sumitra Mukherjee and Dr. John Bono, whose rich feedback made sure that I didn't skip a beat and remained detail-oriented at every step of the dissertation deliverable. Your collective support, encouragement, and leadership have steered me towards producing a quality manuscript and brought me closer to the three letters I have coveted for a very long time – Ph.D.

I remain eternally grateful to all the professors of the College of Engineering and Computing at Nova Southeastern University. It has been almost a decade in the making but your class lectures showered with advice on approaching the dissertation process has resonated with me throughout each draft of the dissertation. Not to mention, your tremendous wisdom that has stimulated my growth from being a simple student of education to becoming a humble learner for life.

To my co-workers and colleagues, most of whom are from the space of higher education, I thank you all for believing in me and for consistently nudging me towards completion with subtle hints yet powerful intent. Your cheer continued to keep my resolve strong and my mind focused as I navigated life with its numerous demands.

Finally, and most importantly, I would like to thank my family who have stood by me as I commandeered their weekends and holidays to work on my ambition. Your sacrifices are never forgotten and were it not for your unwavering support of my goals, this dream may have remained just as it was – a dream. This accomplishment is as much yours as it is mine. Thank you, Cristina, Dylan, Liam, and Mom!

I hope to have contributed ever so slightly to the body of knowledge with this study and look forward to contributing more as I continue to grow and learn in life. Thank you to everyone who has and continues to believe in me. To the next frontier!

Table of Contents

List of Tables

Tables

List of Figures

Figures

Chapter 1

Introduction

Background

Ever since the birth of the internet almost 40 years ago, the World Wide Web (WWW) has exploded at an exponential pace. The WWW is used for everything from basic communication like electronic mail to extensive economic exchanges like trading (Leiner et al., 2009). It has progressively emerged as a lucrative channel for commerce; existing brick-and-mortar merchants have extended their ground operations to online marketplaces, and new online businesses are being formed whose sole sustenance depends on financial transactions that occur online. However, new dynamics around online transactions are forming thus, bringing to question some of the characteristics native to physical interaction. One such characteristic remains the issue of trust due to the anonymity afforded to parties over the WWW (Beldad, de Jong, & Steehouder, 2010). This raises uncertainty and doubts, especially when engaging in financial transactions online (Ha & Stoel, 2009).

Electronic commerce (e-commerce) sales continue to experience significant volume in the online retail space. In 2014, retail e-commerce sales in the U.S. amounted to $299 billion, an increase of 14.3% from the year prior (U.S. Census Bureau, 2016). This growth has been steady since 2002, with the increase to 2010 averaging an annual growth rate of 17.9% (U.S. Census Bureau, 2012). In comparison, total retail sales in the U.S. for

the same time period averaged 2.9%. U.S. retail e-commerce sales is forecasted to reach $535 billion by 2019 (eMarketer, 2015c).

However, despite the convenience and benefits of online shopping, retail e-commerce sales accounted for only 8% of total retail sales in the U.S. in 2016, an increase of only 0.8% from the year prior (U.S. Census Bureau, 2018). One of the foremost reasons for this sluggish comparative growth has been identified as users' reluctance to purchase items online due to a lack of trust (Beatty, Reay, Dick, & Miller, 2011; Ganguly, Dash, Cyr, & Head, 2010). According to eMarketer (2011), 63% of Internet users are unwilling to provide their personal financial information online and several studies have provided empirical evidence of the effect of trust in an online transaction (He, 2013; Kim & Peterson, 2017).

Problem Statement

The research problem that this study addressed is the sluggish growth in e-commerce retail sales as evidenced by consumers' aversion to transact online (eMarketer, 2015a; U.S. Census Bureau, 2018; Ganguly et al., 2010; Liao & Chung, 2011). One of the key causes for this aversion has been identified as consumers' lack of trust in online transactions (Bansal, Zahedi, & Gefen, 2016; Dillard & Johnson, 2015; Ganguly et al., 2010; He, 2013; Kim & Peterson, 2017). Specifically, the study investigated the influence of website design on consumers' online trust in e-commerce retailing environments. Identified as a critical element that influences online trust, website design has evolved through several founding constructs (Karimov, Brengman, & Van Hove, 2011). In a

synthesis of the literature, Karimov et al. (2011) found that hypotheses postulating the effects of website design elements on consumers' online trust were supported by various empirical studies.

In a meta-analysis of the literature, Karimov et al. (2011) found that website design was defined by three broad constructs namely, visual design, social-cue design, and content design. A conceptual framework of these trust-inducing website design features was also proposed. However, Karimov et al. (2011) added that support for the positive effect of these trust-inducing factors of website design in e-commerce retailing environments was still lacking and further empirical testing of the proposed conceptual model was warranted.

Online trust is a critical factor for e-commerce merchants, especially those whose core business relies on online transactions. In fact, online trust has been cited as one of the foremost reasons why e-commerce has not yet achieved its full potential (Grabner-Kraeuter & Kaluscha, 2008). Apprehensions with doing business transactions online remain prevalent among users of the internet and such fears deter the growth of retail e-commerce (Hwang & Lee, 2012; McCole, Ramsey, & Williams, 2010; Pennington, Wilcox, & Grover, 2004). Such apprehensions stem from the risk and uncertainty of conducting business with an unfamiliar entity online (Wang & Wu, 2011), which can result in information asymmetry - a condition where information is known to some but not all participants (Wang, Shi, & Fan, 2006) - between the e-commerce retailer and the consumer (Ba & Pavlou, 2002). Conditions like these compel e-commerce retailers to

ensure that their websites reflect trust-building characteristics to ensure profitability and sustainability of their online businesses.

Research Goals

Online trust has widely come to have settled on a consistent definition within the salient literature. Building upon the general definition of trust, Beldad et al. (2010) define online trust as "an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited" (p. 860). In particular, when understanding online trust in the context of online financial exchange, Beldad et al. define online trust as "reliance on a firm by its stakeholders with regard to the firm's business activities in the electronic medium, and in particular, its website" (p. 860). Broadly, online trust encompasses three dimensions namely, integrity/confidence, ability/competence, and benevolence (Urban, Amyx, & Lorenzon, 2009). Utilizing the framework compiled by Karimov et al. (2011) for trust-inducing features of website design namely visual design, social-cue design, and content design, the goal of this study was broken down into the following component goals (G):

G1: Investigate the influence of website design on online trust in e-commerce retailing environments.

G2: Investigate the influence of consumer demographics (age and gender) as factors affecting the influence of website design on online trust in e-commerce retailing environments.

G3: Propose and test a conceptual model of the influence of website design on online trust and the influence of online trust on purchase intention in e-commerce retailing environments.

Research Questions, Hypotheses, and Model

Based on the identified goals of the study, the following research questions (RQ) and associated null hypotheses (H) were addressed. The null hypotheses suggest that individuals exhibiting a higher level of online trust will not be influenced by website design.

RQ1: What is the effect of website design (visual design, social-cue design, and content design) on online trust in e-commerce retailing environments?

H1: Visual design will have no effect on online trust in e-commerce retailing environments.

H2: Social-cue design will have no effect on online trust in e-commerce retailing environments.

H3: Content design will have no effect on online trust in e-commerce retailing environments.

RQ2: What effect do consumer demographics (age and gender) have on website design's influence on online trust in e-commerce retailing environments?

H4: Age will have no effect on online trust in e-commerce retailing environments.

H5: Gender will have no effect on online trust in e-commerce retailing environments.

RQ3: What effect does online trust have on purchase intention in e-commerce retailing environments?

H6: Online trust will have no effect on purchase intention in e-commerce retailing environments.

Figure 1 illustrates the defined hypotheses and outlines a conceptual model of the effect of website design on online trust and the influence of online trust on purchase intention.

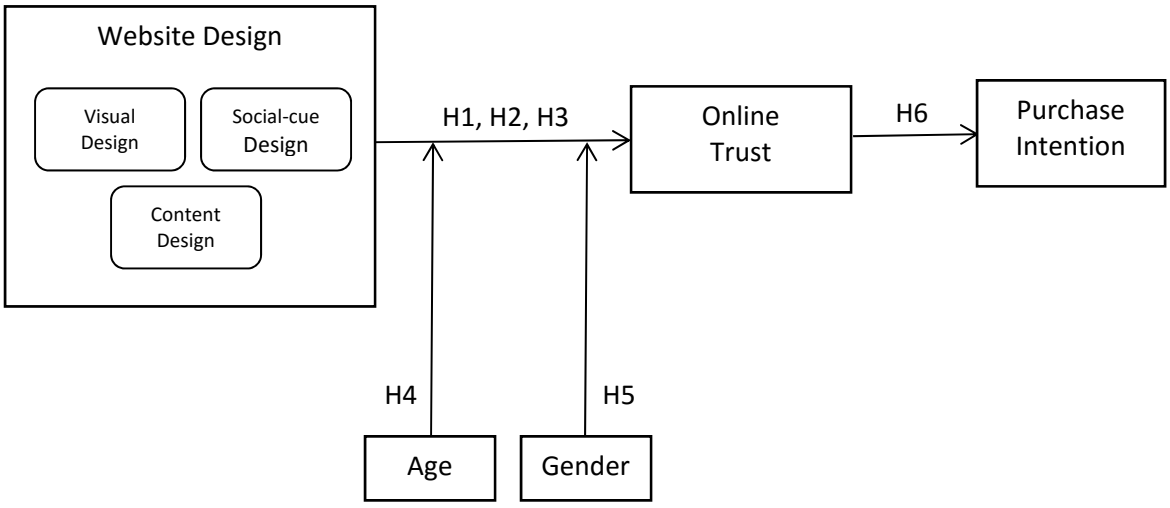


Figure 1. Proposed Conceptual Model of the Influence of Website Design on Online Trust and the Influence of Online Trust on Purchase Intention in E-commerce Retailing Environments.

Relevance and Significance

While U.S. retail e-commerce sales was predicted to climb from $209 billion in 2012 to $270 billion in 2015, the growth rate of such sales was expected to drop steadily between each interim year from 11.3% in 2012 to 8.1% in 2015 (eMarketer, 2011). In a report released by eMarketer in 2015, this number was reconciled as 7.2%, almost a percent point lower than the 2011 forecast (eMarketer, 2015a; eMarketer, 2015b). Furthermore, the growth rate is projected to increase only slightly to 9.8% by 2019 (eMarketer, 2015a). The growth rate of e-commerce has been sluggish in recent years and its share of retail sales continues to be low. One of the reasons cited by the NCC Group (2015) for this slow growth is the reluctance of consumers to share financial details and complete financial transactions online. The security and privacy required for successful online transactions compel online users to be vigilant and many times, dubious when entrusting personal and financial information to an online merchant. The NCC Group cited that fewer than 10% of consumers are strongly in favor of sharing their financial information online to complete a transaction. Additionally, 62% of consumers stated they were more concerned about online security than in the past with 23% admitting that they were doing less online due to security concerns. Such security concerns are expected to continue to impact online purchases despite consumers' growing understanding about privacy and security online (Dillard & Johnson, 2015).

Additionally, the nature of online shopping involves transactions that are anonymous and impersonal and where consumers are unable to directly experience the goods to be purchased. This causes online users to be weary of engaging in online transactions (Chen

& Barnes, 2007). In a 2010 Q2 survey by eMarketer (2011), 71% of online users chose not to buy goods online due to their inability to touch the product before purchasing it. Other empirical studies have found that a consumer's ability to experience the product through physical sensory means like touch or smell plays a significant role in their ability to trust an online merchant and their intention to purchase a product online (Ahuja, Gupta, & Raman, 2003; Chen & Chang, 2003).

Such predispositions by online users can have far reaching consequences on the state of e-commerce sales and the survivability of online merchants (Cook & Luo, 2003; Wang, Wang, Fang, & Chau, 2012). Trust remains critical to the success of the Web and e-commerce (Urban et al., 2009) and lack of online trust is considered one of the greatest barriers to e-commerce and to the survival of online merchants (Bauer, Albrecht, Neumann, & Haber, 2015). Wang and Emurian (2005) explained that if online merchants can fully understand the nuances of online trust and increase the propensity for a user to trust the merchant, then the number of online transactions should increase substantially. Developing a general climate of online trust will have a favorable influence on purchase intention and consequently, have a positive impact on retail e-commerce sales. Several empirical studies have provided supporting evidence in this regard (Chang, Cheung, & Tang, 2013; Ganguly et al., 2010; Gefen, Karahanna, & Straub, 2003; Hong & Cha, 2013; Kim & Kim, 2005). Chang et al. (2013) concluded that trust in an online vendor is significantly affected by the three trust-building mechanisms namely, third-party certification, reputation, and return policy, and while their overall effect on online trust differs from their individual effects, the consequence to the online transaction is the

same. In a study of random students chosen from India, USA, and Canada, Ganguly et al. (2010) found that trust in an online store mediated the effects of information, visual, and navigation design on perceived risk and purchase intention. Gefen et al. (2003) studied the purchase intentions of consumers based on trust in the e-vendor and on the perceived usefulness and perceived ease of use of the e-vendor's website and found that customers were more likely to transact with an e-vendor based on a positive reaction to these elements. Hong and Cha (2013) studied the mediating effect of perceived risk on consumer purchase intention for online merchants and advised that online merchants can reduce perceived risk to improve trust and ultimately, increase purchase intention. Kim and Kim (2005) explained the important role of online self-efficacy in reducing uncertainty and consequently, influencing online consumer choices significantly.

While several antecedents of online trust have been identified in the salient literature (Beldad et al., 2010), a recurring antecedent that continues to emerge in the literature remains website design. Karimov et al. (2011) note that despite the conceptual nature of their literature-synthesized framework for website design, the need for empirical testing is required to understand the effects of website design on online trust. Furthermore, insight into the influence of online trust on consumer purchase intention is vital to the future of e-commerce retail growth (Becerra & Korgaonkar, 2011). Organizations must work towards increased user engagement online through affective aspects like better website design that can positively impact online trust and consequently, purchase intention (Benbasat, 2010; Reinecke et al., 2013; Samuel, Balaji, & Wei, 2015).

Barriers and Issues

Certain barriers and issues related to the comprehensive understanding of website design and its influence on online trust in e-commerce retailing environments made this problem inherently difficult to solve. One such issue involving the measurement of online trust had to do with the nature of single-item measures. Single-item measures are unable to accurately discriminate between the various elements of a construct and the degree to which each element contributes to the construct (Dollinger & Malmquist, 2009). As a result, it was difficult to determine if a specific trust element played a singular role or if it was the combined effect of all elements that contributed to online trust in e-commerce retailing environments. Moreover, their vulnerability to acquiescence bias makes single-item measures difficult to control even when mixing positively and negatively keyed items (Moshagen & Thielsch, 2010).

The recruitment of appropriate participants was another issue that made it difficult to understand the effect of website design on online trust in e-commerce retailing environments. Any individual who is 18 years or older with access to the Internet is able to participate in online e-commerce activities. With such a large population, it was difficult to sample a group that comprises a balanced mix of the target population (e.g., genders, multiple age ranges, demographics, etc.). Similar studies (Chen & Barnes, 2007; Wang & Hu, 2009) opted to use convenience sampling to overcome this challenge.

Visual, navigational, and informational design elements of website design characteristics have found to impact perceived irritation of online shoppers in a negative way (Hasan, 2016). Hasan found that websites with an unpleasant visual design elicited

feelings of irritation with users and upset them. Poor navigation, leading to difficulty in finding the intended resource, was found to have the highest negative impact of the three design elements on perceived irritation. Though information design was found to have the lowest impact of the three design elements on perceived irritation, its negative impact was still statistically significant. Perceived irritation caused by the scenario presented to the participants in this study posed a potential issue as it increased the likelihood for non-completion of scenario-based tasks.

Assumptions, Limitations and Delimitations

Assumptions

The inherent assumptions of the study were primarily aligned to the significance of the study. These assumptions included (a) the importance that e-commerce retailers continue to place on online trust as being a key precedent for consumers to engage in business with them, (b) the importance of e-commerce trade in the sustenance of e-commerce retailers, and the growth of e-commerce, in general, and (c) the significance of website design in instilling online trust within consumers to develop the intention to purchase from the e-commerce retailer.

Limitations

The study employed scenario-based survey methodology which has some limitations. One such limitation is the limited generalizability of the results obtained from a scenario-based method when compared to field studies (Chang et al., 2013). Additionally, Chang

et al. noted that another limitation involves the lack of perceived realism of scenarios by the participants of the study, which limits the ability of the participants to view the scenarios in the context of the real world.

Social desirability bias (SDB) was yet another limitation of this scenario-based survey research. This kind of response bias involves participants feeling the urge to provide responses that will make them appear socially desirable (Grimm, 2010). SDB can impact the results of a study as responses may not be reflective of participants' true feelings but is most critical in studies involving sensitive issues like religion, politics, drug use, and smoking.

Common method variance (CMV) was another limitation of this study. CMV is a variance that stems from the measurement method as opposed to the constructs of the measures and is common in survey research (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It purports that the measures between two constructs, that are hypothesized to have a relationship, may have a confounding effect on the observed correlations of the constructs. This is due to the fact that the measures of both constructs may share common methods in the measurement and therefore, may pose a conflicting explanation of the correlation between the constructs. Although Podsakoff et al. (2003) underscore the impact of CMV, King and Malhotra (2015) found that more than 80% of correlations in their study remained significant when compared to their parallel CMV-adjusted counterparts.

Prior studies have highlighted two distinct methods of measuring visual aesthetics of user interfaces namely, objective and subjective (Seckler, Opwis, & Tuch, 2015). Both

these approaches offer unique ways of capturing the effect of these aesthetics on the end-user and remain mutually exclusive. The objective approach measures the elements of the object being perceived while the subjective approach captures the perception of the object in the eyes of the subject. This study applied the objective approach by investigating the impact of elements of website design on online trust and was therefore, remiss in considering the subjective perception of website design on online trust.

Delimitations

One of the delimitations imposed on the study included the age of the participants. To qualify, participants had to be 18 years of age or older and have access to the Internet. This was due to the fact that only adults are permitted to make purchases online with an e-commerce retailer.

Another delimitation of the study included constraining the scope of the study to the U.S. While culture has been noted to be a moderating factor for the effect of website design on purchase intention (Ganguly et al., 2010), the participants of this study were recruited from the U.S. This was delimited to control for the effects of culture on the influence of website design in the formation of online trust. Moreover, the U.S. has the third largest number of internet users in the world with an estimated 87.4% of its population who are internet users ("Internet Users - Top 20 Countries - Internet Usage," 2015).

Mobile commerce (m-commerce) is an evolving theme in the emerging literature and in trade reports given the proliferation of mobile devices such as phones and tablets. M-

commerce was deliberately placed out of the scope of this study given that it represents a modality of website delivery with nuances that would serve as moderating factors in this study. Such nuances include screen size, portability of the devices, and the ubiquitous access of mobile devices (Heinze, Thomann, & Fischer, 2017; Maity & Dass, 2014; Natarajan, Balasubramanian, & Kasilingam, 2018).

Online safeguarding systems like escrow payment services (e.g., PayPal, Amazon Payments, Bill Me Later, etc.) and digital wallet services (e.g., Apple Pay and Android Pay) offer consumers a layer of protection from online fraud by serving as a third-party in the payment transaction, and ensuring that buyers and sellers fulfill their intended obligations (Fang et al., 2014). Such safeguards attempt to establish consumer trust in the transaction via the consumer's trust in their brand and their moderating effects were excluded from the scope of this study.

Definition of Terms

Baby Boomers – Individuals born between 1946 and 1964 (Obal & Kunz, 2013).

Brand Alliance – "the short or long term association of two or more individual brands, products, and/or other distinctive proprietary assets" (Simonin & Ruth, 1998, p. 30).

Content Design – the information components of a website, either textual or graphical (Wang & Emurian, 2005).

E-Assurances – Elements of a website that help safeguard consumer interests like personal identity and individual transactions. E-assurances are categorized in two types namely, internally provided e-assurances and externally provided e-assurances (Karimov et al., 2011). Internally provided e-assurances refer to assurances provided by the online

retailer like privacy policies, guarantees, and return and exchange policies that are not verified by a third party (Evans & Krueger, 2011). Externally provided e-assurances are those that are verified by an independent third-party source and include trust seals, certificates, and endorsements (Bahmanziari, Odom, & Ugrin, 2009; Hu, Wu, Wu, & Zhang, 2010).

Electronic Commerce (e-commerce) – the sharing of business information, maintaining business relationships, and conducting business transactions by means of telecommunications networks (Zwass, 1996).

E-commerce Retailing Environment – a store setting where the environment is located solely on a computer screen, thereby constraining the consumer's ability to browse the store to only their eyes and ears (Koo & Ju, 2010).

Informativeness – "the extensiveness of marketer information available on the site" (Demangeot & Broderick, 2010, p. 127).

Information Asymmetry – condition where information is known to some, but not all, participants (Wang et al., 2006).

Millennials – individuals born between 1979 and 1994 (Obal & Kunz, 2013).

Online Trust – consumer perceptions of how the site would deliver on expectations, how believable the site's information is, and how much confidence the site commands (Bart, Shankar, Sultan, & Urban, 2005).

Prospect Theory – people's decisions in making choices depends largely on the utility of the outcome of that choice and the context of the choices (Bansal et al., 2016).

Purchase Intention – a consumer's deliberate plan to attempt to complete the purchase of a specific brand (Spears & Singh, 2004).

Social-cue Design – design elements of a website that give the impression of social connectedness with the consumer (Karimov & Brengman, 2011).

Theory of Reasoned Action – a theory explaining an individual's motivation to perform an action as determined by attitudes towards behavior and subjective norms like prior

experience and personality traits (Yzer, 2017).

Visual Design – the attention-grabbing, aesthetic, visual quality of individual web pages (Demangeot & Broderick, 2010).

Website Design – the overall design of a website as defined by content design, social-cue design, and visual design (Karimov et al., 2011).

Summary

The emergence of the Internet and the WWW have led to a new medium for conducting business online with many retailers taking advantage of this space to either extend their brick and mortar businesses or to start new businesses online. Despite the convenience and benefits of online shopping, online retail sales accounted for only 8% of total retail sales in the U.S. in 2016 marking an increase of merely 0.8% from the year prior (U.S. Census Bureau, 2018). A key factor responsible for this sluggish growth is cited to be consumers' reluctance to provide personal financial information online due to their lack of trust in the online e-commerce retailer. Online trust remains a critical factor for online e-commerce retailers and the sustenance of their businesses.

A key antecedent of online trust has been identified as website design (Karimov et al., 2011), which comprises three broad constructs namely, visual design, social-cue design, and content design. The primary goal of this study was to explore the effects of website design on the formation of online trust and the subsequent impact on purchase intention. Secondary goals of this study included exploring the effects of age and gender as factors affecting the influence of website design on online trust and the verification of a

conceptual model. The need for this study was emphasized by Karimov et al. (2011) who noted that further empirical testing was necessary to more comprehensively understand the effects of website design on online trust.

The next chapter of this study includes a literature review expounding on the concepts of online trust and the several models in the literature, website design and its dimensions and sub-dimensions, and purchase intention. Further, the moderating impacts of age and gender are also reviewed. The chapters following the literature review outline the methodology employed to conduct the study, the results of the study, and the inferences drawn from the study, respectively.

Chapter 2

Review of the Literature

Overview

The sections of this chapter include a review of the relevant literature involving the constructs and areas of this study. The chapter begins with a discussion of online trust and the various models of online trust that are prevalent in the literature. Next, website design is discussed with explanations on its several dimensions and sub-dimensions. Purchase intention and the moderating effects of age and gender are also expounded upon in this chapter. Finally, the chapter concludes with identifying the contributions of this study.

Online Trust

The concept of trust dates back prior to the emergence of the Internet and e-commerce. In addition to e-commerce, trust has been studied across several disciplines including philosophy, psychology, management, marketing, and human-computer interaction (Corritore, Kracher, & Wiedenbeck, 2003). To-date, trust continues to be a difficult construct to define and measure with a variety of models being proposed in the body of literature (Bansal et al., 2016; Egger, 2003; He, 2013; Kamari & Kamari, 2012; Mayer, Davis, & Schoorman, 1995; McKnight, Choudhury, & Kacmar, 2002). In general terms, Rousseau, Sitkin, Burt, and Camerer (1998) defined trust as “a psychological state comprising the intention to accept vulnerability based on positive expectations of the

intentions or behaviors of another" (p. 395). Bart et al., (2005) extended Rousseau et al.'s definition to the realm of online trust by emphasizing that "online trust includes consumer perceptions of how the site would deliver on expectations, how believable the site's information is, and how much confidence the site commands" (p. 134). Essentially, Bart et al. explain that online trust is the willingness for a consumer to accept vulnerability after forming a positive impression of the online merchant through their website. In the same vein, Hosmer (1995) defined trust as the consumer's expectation that the online merchant will not take advantage of sensitive buyer information and that it will negotiate honestly. Nah and Davis (2002) proposed a similar explanation defining online trust as the willingness of a buyer to be placed in a vulnerable position by choosing to engage in an online transaction with a merchant.

While it is widely known that a universal definition of trust is still pending (Rousseau et al., 1998), a consistent theme around its definition remains the willingness of the trustor to accept vulnerability in the trust transaction. With respect to e-commerce, this entails the willingness of a consumer to engage in an online transaction and provide sensitive information to a website, which is the definition upon which this study is founded. Lack of online trust has been repeatedly cited as one of the major causes behind users' aversion to online transactions (Abbasi, Bigham, & Sarencheh, 2011; Grabner-Kräuter & Kaluscha, 2003; Wang & Emurian, 2005) and a better understanding of the formation of online trust can have positive outcomes for online merchants and their businesses.

Models of Online Trust

Consumer's lack of online trust has been identified as one of the main barriers to the growth of e-commerce. Several studies have been conducted to research this problem with numerous models of trust formation being proposed. In this section, the most prominent models are discussed.

Egger's Model of Trust in E-commerce

The Model of Trust in E-commerce websites (MoTEC) was developed by Egger (2003) to help identify trust-forming elements of e-commerce websites. First developed in 1998, the model went through some iterations before being formalized in 2003 and includes four dimensions of trust namely, pre-interactional filters, interface properties, informational content, and relationship management (Figure 2). Each one of these dimensions contains several components and subcomponents as highlighted in Figure 3.

The *pre-interactional filters* include factors that affect a consumer's trust prior to their interaction with an online website. The *interface properties* include the graphic design elements and ease of use of the website. The *informational content* component comprises of two types of information provided by the website. The first represents information about the company and the product referred to as competence, and the second represents information about consumer security and privacy, referred to as risk. *Relationship management* entails interactions with the online website that occur over time both pre-purchase and post-purchase.

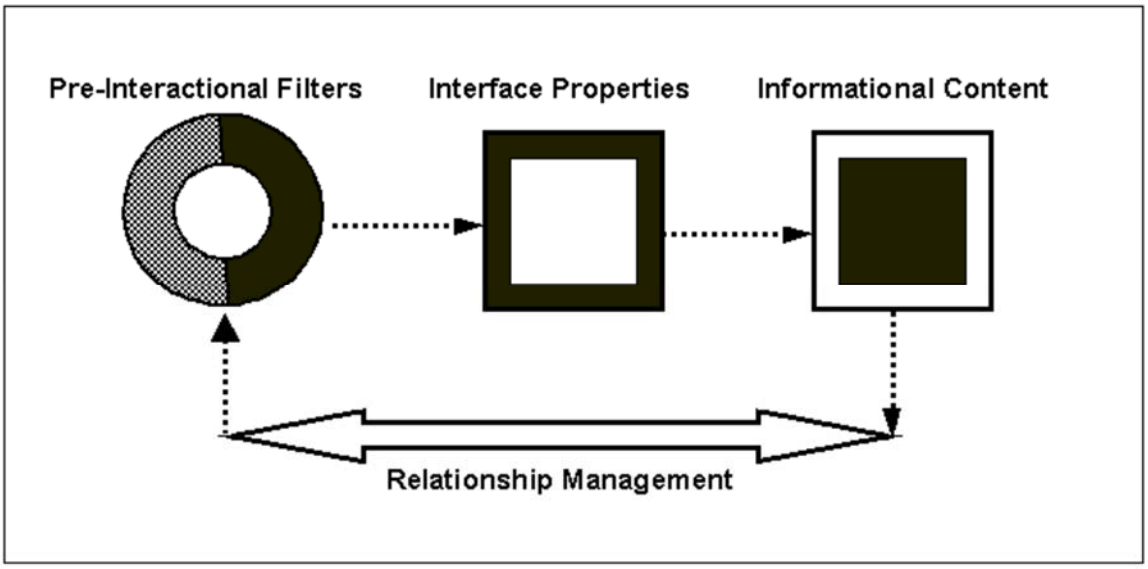


Figure 2. Egger's MoTEC Model. Adapted from "From interactions to transactions: Designing the trust experience for business-to-consumer electronic commerce," by F. N. Egger, 2003, *PhD Thesis*.

Dimension 1: Pre-interactional Filters	
User Psychology	Pre-purchase Knowledge
General propensity to trust	Reputation of the industry
Trust in IT and the Internet	Reputation of the company
General attitude towards e-commerce	Transference (offline and online)

Dimension 2: Interface Properties	
Branding	Usability
Appeal	Organisation
Professionalism	Navigation
	Relevance
	Reliability

Dimension 3: Informational Content			
Competence		Risk	
Company	Products & Services	Security	Privacy
Identity	Description	Policy	Policy
Values	Objectivity	Encryption	Registration
Contact	Costs	Payment method	Data access
Achievements		Third parties	Subscriptions
Partnerships		Samples	
		Contractual terms	
		Consumer redress mechanisms	

Dimension 4: Relationship Management	
Pre-purchase Interactions	Post-purchase Interactions
Means of contact	Order processing
Responsiveness	Fulfilment
Quality of help	After-sales
Personal touch	

Figure 3. Components and Sub-Components of the Four Dimensions of the Egger MoTEC Model. Adapted from "From interactions to transactions: Designing the trust experience for business-to-consumer electronic commerce," by F. N. Egger, 2003, PhD Thesis.

McKnight, Choudhury, and Kacmar's Web Trust Model

McKnight et al. (2002) observed that prior research on trust yielded inconsistent definitions making it difficult to compare results across several studies. Utilizing a multidisciplinary and multidimensional approach, McKnight et al. proposed an integrative model of online trust comprising of four high-level constructs namely, disposition to trust, institution-based trust, trusting beliefs, and trusting intentions. This model is illustrated in Figure 4.

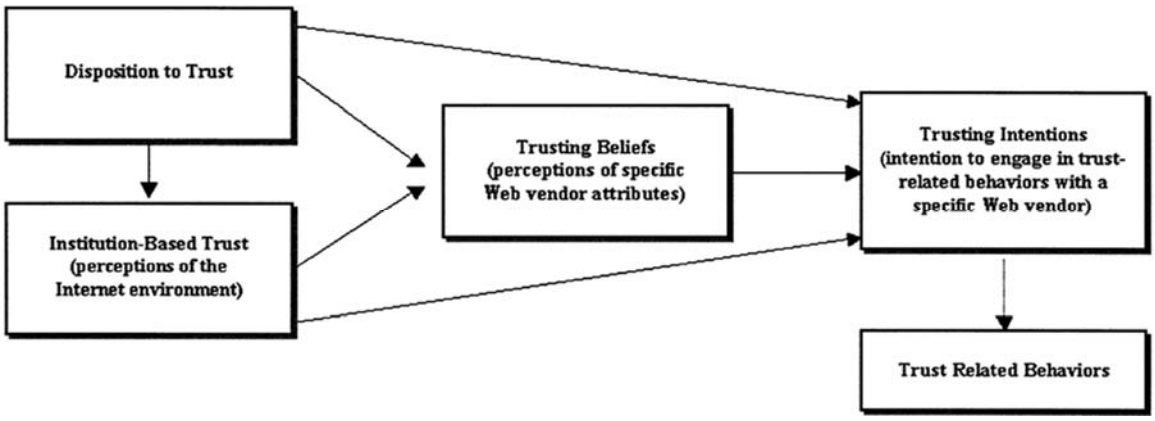


Figure 4. McKnight et al.'s Web Trust Model. Adapted from "Developing and validating trust measures for e-commerce: An integrative typology," by D. H. McKnight, V. Choudhury, and C. Kacmar, 2002, *Information Systems Research, 13,* p. 337. Copyright 2002 by INFORMS.

Disposition to trust refers to an individual's tendency to trust another individual and extends to an online vendor in the case of e-commerce. McKnight et al. (2002) identified two sub-constructs of disposition to trust namely, *faith in humanity*, which refers to the competence, benevolence, and integrity attributes of an entity; and *trusting stance*, which refers to an individual's favorable assumption to trust another party. Rooted in sociology,

institution-based trust refers to an individual's perception of the online website that promotes a feeling of trustworthiness. The construct of *trusting beliefs* refers to the consumer's perception of an online vendor's attributes in terms of competence, benevolence, and integrity. *Trusting intentions* refers to a consumer's willingness to trust an online merchant and comprises *willingness to depend* which is agreeing to be vulnerable to the other party, and *subjective probability of depending* which is the perceived likelihood that a consumer will depend on the online merchant.

Kamari and Kamari Business-to-Consumer Trust Model

One of the more recent web trust models in the body of literature includes Kamari and Kamari's (2012) proposed model for building trust in business-to-consumer (B2C) e-commerce websites. The model is illustrated in Figure 5 and includes four main pillars namely, *professionalism, consideration, technologic incentives,* and *reliability.* Each of these pillars is further comprised of sub-constructs.

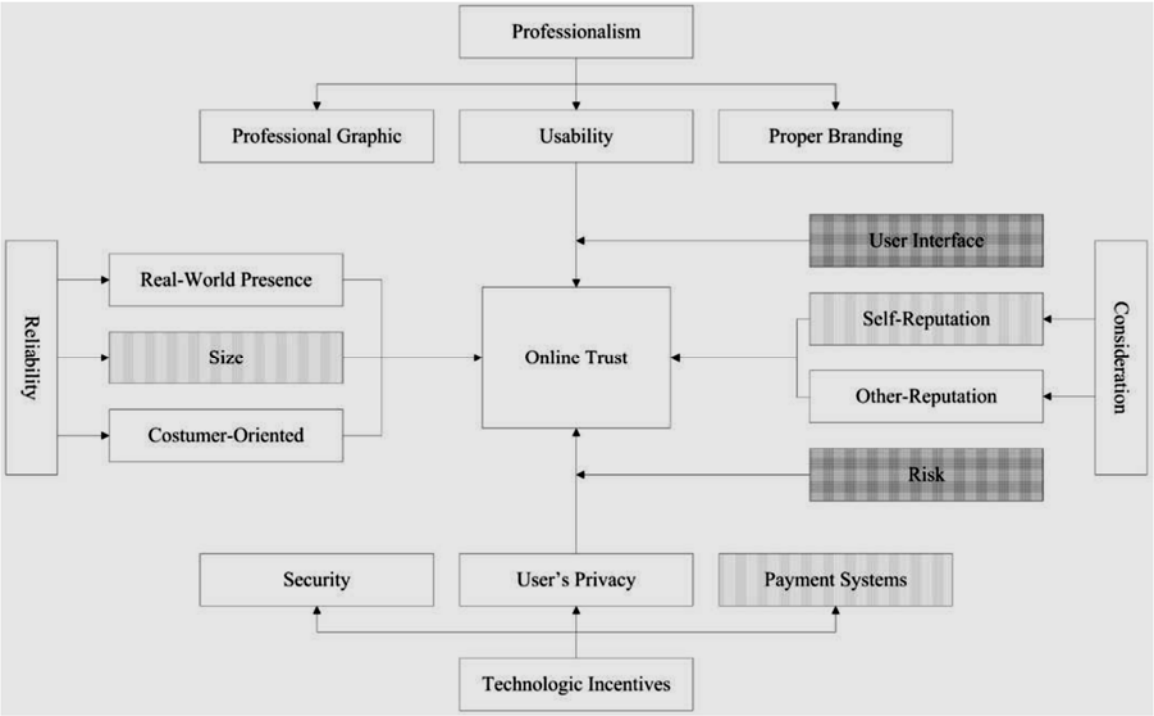


Figure 5. Kamari and Kamari B2C Trust Model. Adapted from "Trust in electronic commerce: A new model for building online trust in B2C," by F. Kamari and S. Kamari, 2012, *European Journal of Business and Management, 4,* p, 133. Copyright 2012 by IISTE.

Professionalism indicates that a website is characterized by professional graphic, usability, and proper branding. *Consideration* is comprised of the user interface, self-reputation, other-reputation, and risk. *Technologic incentives*, considered the drivers of trust, comprise e-commerce security to include a sound business network and transaction security, user's privacy, and payment systems. *Reliability*, also known as trustworthiness of a company, refers to the consumer's perception of the ability and motivation of the online vendor to deliver on the service expectations of the consumer. Such a vendor is characterized by having real-world presence, being big in size, and being customer-oriented.

Mayer, Davis, and Schoorman's Model for Trust

A formative measurement model for trust was proposed by Mayer et al. (1995). Cited over 7,000 times (according to Google Scholar), Mayer et al.'s article remains a salient piece of literature on trust. Schoorman, Mayer, and Davis (2007) further affirmed this model and Söllner et al. (2010) confirmed this formative model of measurement as being superior to the reflective model of trust. The formative measurement model identifies the antecedents of trust as ability, integrity, and benevolence. According to Söllner et al.,

> Ability is that group of skills, competencies and characteristics that enable the trustee to have influence within a specific domain. Benevolence is the extent to which the trustee is believed to want to do good to the trustor, in addition to focusing on his own profit. Integrity represents the trustor's perception that the trustee follows a set of principles that the trustor finds acceptable. (p. 67)

He's Integrated Model of Trust

In a meta-analysis of literature that comprised 70 empirical studies on trust, He (2013) found that trust played a crucial role in influencing attitudes and behaviors of consumers in online transactions. The most influential antecedents in the formation of trust were deterrence-based, social and institution-based, and technological attributes-based. From the synthesis of this literature, He proposed an integrated model of trust in e-commerce (Figure 6).

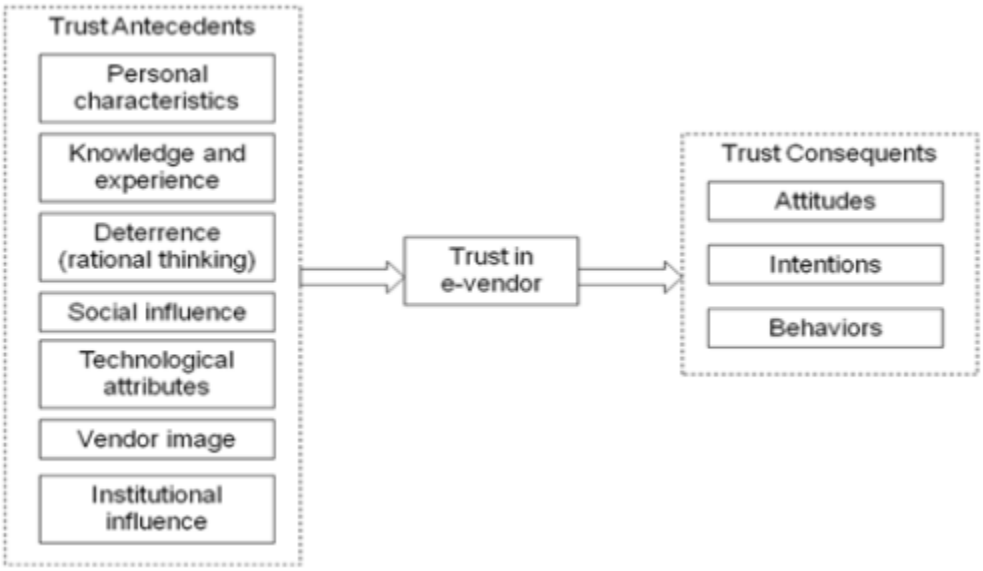


Figure 6. He's Integrated Model of Trust. Adapted from "The vital role of trust in e-Commerce: A meta-analysis," by J. He, 2013, *International Journal of E-Business Development, 3,* p, 99. Copyright 2013 by World Academic Publishing.

Personal characteristics refers to attributes such as age, gender, education, and personality and these characteristics are most relevant during the initial stages of forming trust. *Knowledge and experience* refer to the self-efficacy of an individual with respect to online transactions. These attributes indicate how individuals will behave in a setting where they are required to form trust in an online context. *Deterrence* is an antecedent of trust that assumes individuals are rational beings and will not behave in a manner counterproductive to the formation of trust online. *Social influence* describes the influence of social factors like relationships, culture, politics, and religion on an individual's propensity to form trust. *Technological attributes* refers to a vendor's website and their online transactional system. *Vendor image* includes characteristics of

the vendor such as reputation, company brand and size, and product choices. Finally, *institutional influence* refers to third-party guarantees that are in place to support online transactions.

Bansal, Zahedi, and Gefen's Conceptual Model of Trust

Bansal et al. (2016) explored the elements of personality and context in both, privacy concern and trust, to evaluate their influence on the intention to disclose private information online. Bansal et al. proposed a conceptual model in which context and its moderating effects were motivated by Prospect Theory. Additionally, privacy concern, its influence on trust, and the subsequent impact on information disclosure intention were motivated by the Theory of Reasoned Action (TRA). TRA also motivated the influence of prior online privacy invasion, prior positive experience with the website, and their impact on personality and intention to disclose information online. This conceptual model is presented in Figure 7.

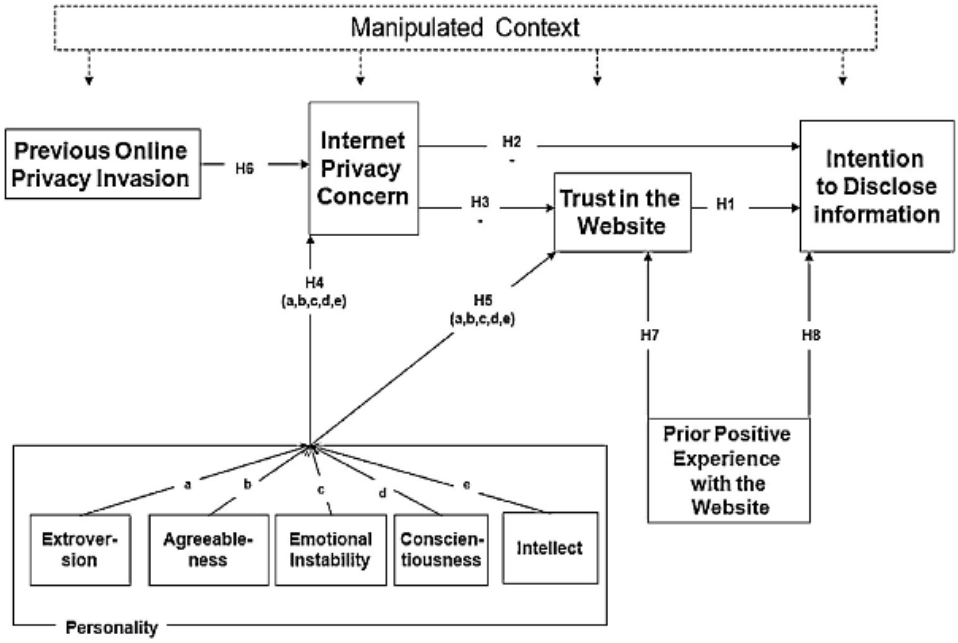


Figure 7. Bansal et al.'s Conceptual Model of Trust. Adapted from "Do context and personality matter? Trust and privacy concerns in disclosing private information online," by G. Bansal, F.M. Zahedi, and D. Gefen 2016, *Information & Management, 53,* p, 3. Copyright 2016 by ScienceDirect.

Website Design

Literature from various empirical studies was analyzed by Karimov et al. (2011) to identify features of website design that contributed to online trust. These features were then categorized into three dimensions to propose a framework of trust-inducing website features. Karimov et al. (2011) classified these dimensions as visual design, social-cue design, and content design. Table 1 lists these dimensions, their sub-dimensions, and associated examples.

Table 1

Framework of Trust-Inducing Features of Website Design

Dimension	Sub-dimension	Examples
Visual design	Graphics	Product image, size, zooming and 3D clipart. Background color, contrast and font.
	Structure	Navigation design: simple and consistent navigation. Navigation reinforcements: guides, tutorials and instructions. Accessibility of information: no broken links or missing pictures. Page design techniques: space and margin, visual density.
Social-cue design	Human-like features	Facial photo: embedded photographs that give a feeling of human contact. Video stream: a rich media cue that transmits visual and audio cues.
	Assistive interface features	Avatar: interactive on-screen characters that are able to use verbal cues. Recommendation agent: software-based advice-giving system. Synchronous communication media: instant messaging, chat/audio lines.
	Social media	Mass media: information that comes from other websites or the press. Customer reviews: a venue where individuals share their experiences. Online social networks: sites where people share ideas, pictures or videos. Blogging: Web community blogs, support forums, or discussion boards.
Content design	Informativeness	Company information: brand-promoting information, company logo. Product information: comprehensive and correct

		product information. Service information: overall support delivered by the web site. Background signals: congruence signals and promotional signals.
	Brand alliances	Brand equity: brands with positive image. Hypertext links: links that create a perception of a relationship.
	e-Assurances	Internally provided assurance structures: company policies. Externally provided assurance structures: third-party seals.

Note. Adapted from "The effect of website design dimensions on initial trust: A synthesis of the empirical literature," by F. P. Karimov, M. Brengman, and L. Van Hove, 2011, *Journal of Electronic Commerce Research*, *12*, p. 275. Copyright 2011 by JECR.

Visual Design

Demangeot and Broderick (2010) define visual design as "the attention-grabbing, aesthetic, visual quality of individual web pages" (p. 127). Visual design deals with the appeal of the website and broadly encompasses the graphical components and presentation of information of the website. The two sub-dimensions of visual design include (a) graphic design and (b) structure design.

Graphic Design

Graphic design refers to the visual elements of a website that are represented by images, animations, line and character spacing, font, color, and symbols (Rosen & Purinton, 2004). Primarily responsible for "website look and feel", graphic design contributes to the overall appeal of a website and to the consumer's online shopping

experience. Rosen and Purinton (2004) found that an attractive website interface has a positive impact on consumers' shopping behavior.

Structure Design

Demangeot and Broderick (2010) defined structure design as "the organization of the different pages as an understandable whole" (p. 127). Structure design refers to elements like navigation, information layout, page load speed, hyperlink validity, search features, site availability, site structure, and ease of access to the site (Ahn, Ryu, & Han, 2007). A good navigational structure and design contributes to the overall experience of the online shopper and can play a key role in the formation of trust (Cyr, 2008).

Social-cue Design

The missing human element in online stores limits the success potential of an e-commerce retailer (Anderson, Steinerte, & Russell, 2010). Social-cue design refers to those elements of a website that give the impression of social connectedness with the consumer and can therefore, have a positive impact on instilling trust (Karimov & Brengman, 2011). The three sub-dimensions of social-cue design include (a) human-like features, (b) assistive interface features, and (c) social media.

Human-like Features

Emulating human-like cues such as facial pictures or video streams can help with establishing a personable and social feel to a website's interface. Such a presence helps to make up for the lack of human contact that is typically experienced in a face-to-face setting. Facial photos and videos can help consumers feel a sense of responsive human

contact via the interface and can subsequently engender trusting beliefs in a consumer (Al-Diri, Hobbs, & Qahwaji, 2008).

Assistive Interface Features

Cues that are generated from assistive interface features like recommendation agents, avatars, and live-help functions can contribute to building a sense of trust with consumers. Weibel, Stricker, Wissmath, and Mast (2010) found that avatars with large pupils and slow eye blink frequency were perceived as more sociable and generated a sense of trust amongst online users. Studies have shown that presence of assistive interface features on websites encourages the development of initial online trust in consumers by encouraging a sense of social presence (Keeling, McGoldrick, & Beatty, 2010; Qiu & Benbasat, 2009).

Social Media

Social media encompasses objective reviews of a website or its products by third party sources like customers, product communities, and the press via mediums like blogs and social networks. Positive reviews can instill confidence in consumers thereby enhancing consumers' trust in an online merchant. Conversely, negative reviews can have a counter-effect on the formation of consumer trust online and be detrimental for an online merchant's business (Mudambi & Schuff, 2010).

Content Design

Information components of an online retailer's website that include elements like company information, product descriptions, service information, privacy policies reflect the willingness of the retailer to be transparent and caring for its consumers. Such a

characteristic can help establish goodwill in the eyes of the consumer and have a positive impact on trusting beliefs (Chang & Chen, 2008). Content design includes three sub-dimensions namely, (a) informativeness, (b) brand alliances, and (c) e-assurances.

Informativeness

Informativeness is defined as "the extensiveness of marketer information available on the site" (Demangeot & Broderick, 2010, p. 127). Given the lack of physical interaction with a product, consumers seek to find as much information on a product as possible. Demangeot and Broderick (2010) explain that consumers prefer online websites that have comprehensive information over those that do not as the former tends to aid in the formation of trust towards the online website.

Brand Alliances

Brand alliance refers to the association of two or more individual brands to produce a singular image or brand. Consumers tend to more easily trust a website of known and reputable brands and are more inclined to make a purchase. The brand image can make up for the lack of other trust-inducing factors like informativeness and design (Benedicktus, Brady, Darke, & Voorhees, 2010).

E-Assurances

Elements of a website that help safeguard consumer interests like personal identity and individual transactions are collectively referred to as e-assurances. These e-assurances comprise institutional cues and are typically part of website content. Presence of such e-assurances is known to increase consumer trust in an online retailer as they help reduce perceived risk (Evans & Krueger, 2011). E-assurances are categorized in two types namely, internally provided e-assurances and externally provided e-assurances

(Karimov et al., 2011). Internally provided e-assurances refer to assurances provided by the online retailer like privacy policies, guarantees, and return and exchange policies that are not verified by a third party (Evans & Krueger, 2011). Externally provided e-assurances are those that are verified by an independent third-party source and include trust seals, certificates, and endorsements (Bahmanziari et al., 2009; Hu et al., 2010).

Purchase Intention

Purchase intention has been a part of several studies within the marketing and social psychology fields of the salient literature. Defined as a form of personal action tendency (Bagozzi, Tybout, Craig, & Sternthal, 1979; Ostrom, 1969), purchase intention is a person's conscious plan to make a purchase (Spears & Singh, 2004) and has been verified to be a reliable predictor of the actual purchase (Jamieson & Bass, 1989; Stapel, 1971). The Theory of Planned Behavior also explains how behavioral intention is the most influential predictor of the actual behavior (Ajzen, 1991).

Extended to the online environment, purchase intention has been widely studied in relation to websites and e-commerce. Liang and Lai (2002) found that the likelihood of consumers purchasing a product from a website is higher when the website is equipped with tools like a product catalog, comparison features, a search engine, and shopping carts. Richard (2005) and Vijayasarathy (2004) found a causal link between website design factors and online purchase intention. Jarvenpaa, Tractinsky, and Vitale (2000) made a clear distinction between online and traditional commerce and highlighted the importance of trust as a precursor to an online transaction. Bono (2012) found that

website aesthetics contributed significantly to the perceived ease of use and perceived usefulness of online retailer websites and subsequently, purchase intention. Website quality and website brand were found to impact consumers' trust online and subsequently, purchase intention by Chang and Chen (2008). In a related study, Hong and Cha (2013) found empirical evidence that reduction in risk improved consumer trust and subsequently, increased purchase intention. Similarly, King, Schilhavy, Chowa, and Chin (2016) recommended that online merchants focus on website attractiveness and product offerings to promote brand identification and engender repeat purchase intention.

Age and Gender as Moderating Factors

Research on the moderating effects of age on purchase intention has been inconclusive to date with several studies finding mixed results (He, 2013). Brashear, Kashyap, Musante, and Donthu (2009) found significant differences in age between U.S. online shoppers and non-shoppers. Rohm and Swaminathan (2004) studied the effect of age on purchase intention across multiple online shopping types and found no relationship. This contrasts Stafford, Turan, and Raisinghani (2004) who found that consumers in the age range of 25-34 were more likely to transact online than those in the age group of 18-24. In a sample with a mean age of 49.6 years, Joines, Scherer, and Scheufele (2003) found younger consumers were more likely to participate in an online transaction. He (2013) noted that age, as a factor in influencing trust, has received little research attention with the few studies in the space yielding frivolous results.

Besides age, gender is another demographic factor studied in relation to user interactions online. Midha (2012) found that empowerment regarding the use of personally identifiable information by e-commerce providers had a more positive effect on trust in males than females. Additionally, privacy concerns had a stronger negative impact on trust in females than males. In an examination of five website design elements across six countries, Cyr and Head (2013) found that gender moderated the relationship between navigation design and trust in countries with higher masculinity. In a study exploring the role of gender in trust formation in firm-sponsored virtual communities, Porter, Donthu, and Baker (2012) found that quality content facilitated trust in men while interaction facilitated trust in women. With particular focus on gender in e-commerce transactions, Murphy and Tocher (2011) note that more empirical evidence is required to better understand the effects of gender on online trust.

Given the incongruous results of the effects of age on online purchase intention and the need for richer evidence regarding the effects of gender on online trust, a closer look at the effect of these constructs on online trust as a precursor of online purchase intention is justified. Recent studies have begun to explore this relationship further. Obal and Kunz (2013) found that the determinants of online trust were different for Millennials and Baby Boomers. While privacy was the stronger determinant for Baby Boomers, presence of feedback mechanisms, navigation, and vendor advice were more important to Millennials. Awad and Ragowsky (2008) found that online trust had a more dominant effect on women than men when deciding to purchase an item online. In a laboratory experiment, Riedl, Hubert, and Kenning (2010) used an fMRI to show that the areas of

the brain that encoded trustworthiness differed in men and women, with women activating more of these areas than men.

Summary

Trust remains an elusive construct to define (Rousseau et al., 1998). However, a consistent theme around its definition remains the willingness of the trustor to accept vulnerability in the trust transaction. With respect to e-commerce, trust is essential to the completion of an online transaction as it involves the trustor having to provide sensitive information to a website. A well-designed user interface elicits positive regard for the designer of the interface (Shneiderman et al., 2016) and can subsequently have a favorable impact on the formation of online trust. The lack of online trust has been consistently cited as one of the major barriers to the growth of e-commerce.

Several models of online trust have been proposed in the salient literature. Egger's (2003) Model of Trust in E-commerce websites (MoTEC) includes four dimensions namely, pre-interactional filters, interface properties, informational content, and relationship management (Figure 2). Each of these dimensions contains several components and subcomponents as illustrated in Figure 3. McKnight et al.'s (2002) Web Trust Model uses a multidisciplinary and multidimensional approach to propose an integrative model of online trust comprising of four high-level constructs namely, disposition to trust, institution-based trust, trusting beliefs, and trusting intentions (Figure 4). A more recent web trust model includes Kamari and Kamari's (2012) proposed model

for building trust in B2C e-commerce websites. The model includes four main pillars namely, professionalism, consideration, technologic incentives, and reliability. Each of these pillars is further comprised of sub-constructs as depicted in Figure 5. One of the more popular models remains Mayer, Davis, and Schoorman's (1995) formative measurement model for trust which identifies the antecedents of trust as ability, integrity, and benevolence. He (2013) proposed an integrated model of trust after synthesizing 70 empirical studies to identify the prominent antecedents of trust as personal characteristics, knowledge and experience, deterrence, social influence, technological attributes, vendor image, and institutional influence (Figure 6). Bansal et al. (2016) utilized Prospect Theory and the Theory of Reasoned Action to outline and test a conceptual model (Figure 7) that considered context, prior online privacy invasion, prior positive experience with the website, and internet privacy concern and their influence on trusting a website enough to elicit the intention to disclose information.

From a comprehensive literature synthesis, Karimov et al. (2011) identified the three dimensions of website design as visual design, social-cue design, and content design. Each dimension consists of multiple sub-dimensions. Visual design comprises graphics and structure; social-cue design comprises human-like features, assistive interface features, and social media; and content design comprises informativeness, brand alliances, and e-assurances. Each dimension and sub-dimension along with relevant examples are listed in Table 1.

Purchase intention has been widely studied in relation to e-commerce and the online environment and has been verified to be a reliable predictor of the actual purchase

(Jamieson & Bass 1989; Stapel 1971). The causal link between website design factors and purchase intention found by Vijayasarathy (2004) and Jarvenpaa et al. (2000) confirmed the importance of trust as a precursor to an online transaction. Hong and Cha (2013) found evidence to support that the reduction of risk positively impacted consumer trust and subsequently, purchase intention. Bono (2012) found that website aesthetics favorably impacted perceived ease of use and perceived usefulness of online retailer websites and consequently, purchase intention.

The moderating effects of age and gender are yet to be conclusively affirmed with respect to online purchase intention and online trust. In a study exploring the determinants of online trust, Obal and Kunz (2013) found that privacy was the stronger determinant for Baby Boomers and the presence of feedback mechanisms, navigation, and vendor advice were more important to Millenials. With respect to gender, Awad and Ragowsky (2008) found that online trust had a more dominant effect on women than men when deciding to purchase on item online.

Contribution of this Study

This study contributed to the current body of knowledge regarding the effects of website design on the formation of online trust. Specifically, website design as defined by visual design, social-cue design, and content design and their respective influence on online trust were investigated. Prior research has found that visual design is an important antecedent of behavioral attitudes and beliefs (Parboteeah, Valacich, & Wells, 2009).

However, the specific impact of visual design in terms of graphic design and structure design on online trust with respect to an e-commerce retailing environment is still lacking (Karimov et al., 2011). The use of social cues in online retailing environments has become increasingly popular as they generate a sense of social connectedness with the consumer and can have a positive effect on the formation of consumer trust online (Karimov & Brengman, 2011). However, empirical literature citing the effects of human-like cues, videos, avatars and recommendation engines, and social networking applications on online trust remains limited (Karimov et al., 2011). Content design elements and their impact on online trust are also in need of further investigation. Karimov et al. found that studies exploring the influence of company identity information, service information quality, branding alliances, and e-assurances on initial trust formation online is limited and have yielded contradictory results.

In addition to exploring the effects of website design constructs on online trust, this study sought to explore the influence of online trust on purchase intention. Demographic factors of age and gender were reviewed to see if moderating effects of these factors exist between website design and online trust. The results from this study were then reported with implications and directions for future research highlighted.

Chapter 3

Methodology

Overview

This study utilized a scenario-based survey research methodology to understand the influence of website design on online trust in e-commerce retailing environments. Participants were asked to complete a survey after engaging in a scenario depicting two fictitious websites. In the scenario, the participants were asked to picture their experience firsthand staying focused on the design aspects of the websites. Upon completion of the scenario, a survey captured participants' feelings about the design elements of the websites and their inclination to trust the websites based on these design elements. The survey instrument was designed using constructs from the salient literature in the field of e-commerce, website design, and online trust.

Based on the identified goals of the study, the following research questions (RQ) and associated null hypotheses (H) were addressed. The null hypotheses suggest that individuals exhibiting a higher level of online trust will not be influenced by website design.

RQ1: What is the effect of website design (visual design, social-cue design, and content design) on online trust in e-commerce retailing environments?

H1: Visual design will have no effect on online trust in e-commerce retailing environments.

H2: Social-cue design will have no effect on online trust in e-commerce retailing environments.

H3: Content design will have no effect on online trust in e-commerce retailing environments.

RQ2: What effect do consumer demographics (age and gender) have on website design's influence on online trust in e-commerce retailing environments?

H4: Age will have no effect on online trust in e-commerce retailing environments.

H5: Gender will have no effect on online trust in e-commerce retailing environments.

RQ3: What effect does online trust have on purchase intention in e-commerce retailing environments?

H6: Online trust will have no effect on purchase intention in e-commerce retailing environments.

The remaining sections of this chapter expound upon the research method employed in the study, the study sample, the development of the survey instrument, the data analysis procedures to include how the results were analyzed in support of answering the research questions, and the resources that were utilized to conduct the study. Finally, the chapter summarizes how the study was completed.

Research Method

This study utilized a scenario-based survey research methodology. Scenarios have been widely used in business and information systems (IS) research to measure intended behavior (Weber, 1992) and are effective at soliciting participants' stimuli to accurately reflect their real life responses (Pettinico & Milne, 2017). Moreover, scenario-based survey research allows for the control of experimental conditions by manipulating variables and reducing random noise (Saunders, 2015; Weijters, Rangarajan, Falk, & Schillewaert, 2007) and has been used in IS studies related to online trust and purchase intention (Chang et al., 2013; Kim & Johnson, 2013; Lyon, Mšllering, & Saunders, 2015). The scenario-based method is also less biased and offers more flexibility than qualitative research methods (Eroglu, 1987; Supprenant & Churchill, 1984). It is regarded as a nonintrusive and unintimidating way to respond to a sensitive issue by capturing specific behaviors of the respondent in a controlled setting (Cheng, Li, Li, Holm, & Zhai, 2013). Overall, the scenario method has been proven to be effective in a wide variety of application areas (Wright, Cairns, & Bradfield, 2013).

Convenience sampling was used to recruit participants for the study, who were recruited from the population of adult Internet users within the U.S. via a solicitation post on LinkedIn (Appendix A) and by utilizing SurveyGizmo's panel services. The scenario depicted two fictitious websites (Appendix B) and asked the participant to picture their experience firsthand staying focused on the design aspects of the websites. A survey to measure the effect of website design on online trust and the influence of online trust on purchase intention was designed from current literature (Appendix C). The survey also

included items to capture participants' age group and gender for analysis of the effects of these items on online trust. Participants were then asked to complete the survey after reviewing the scenario.

Two fictitious bookstore websites, Website A and Website B, were designed using features based on the underlying constructs of website design. Each feature of each construct was manipulated across the two bookstore websites so that one website was relatively stronger than the other in a particular item (Table 2). The contrasting elements were designed at the sub-construct level providing an adequate level of differentiation between the two websites and ensuring that one website was not exclusively stronger in a certain overarching design construct than the other. Modern online shoppers are considered sophisticated since they peruse websites in an attempt to build trust prior to engaging in a transaction (Rutter, 2014). Contrasting the design elements at the sub-construct level ensured that no one website was exclusively deemed untrustworthy based on the higher-level terminal construct. The two fictitious websites were prototypes built using a website development tool called Microsoft Expression Web (https://www.microsoft.com/expression/eng/) and were designed using commercial design principles outlined by Van Duyne, Landay, and Hong (2007), which closely aligned with the website design constructs involved in this study. These principles included creation of a navigational framework, effective home page design, writing content, and building trust and credibility. Table 2 lists the contrasting features for Website A and Website B based on the items comprising the website design constructs of

visual design, social-cue design, and content design with Figures 8 through 13 illustrating these features.

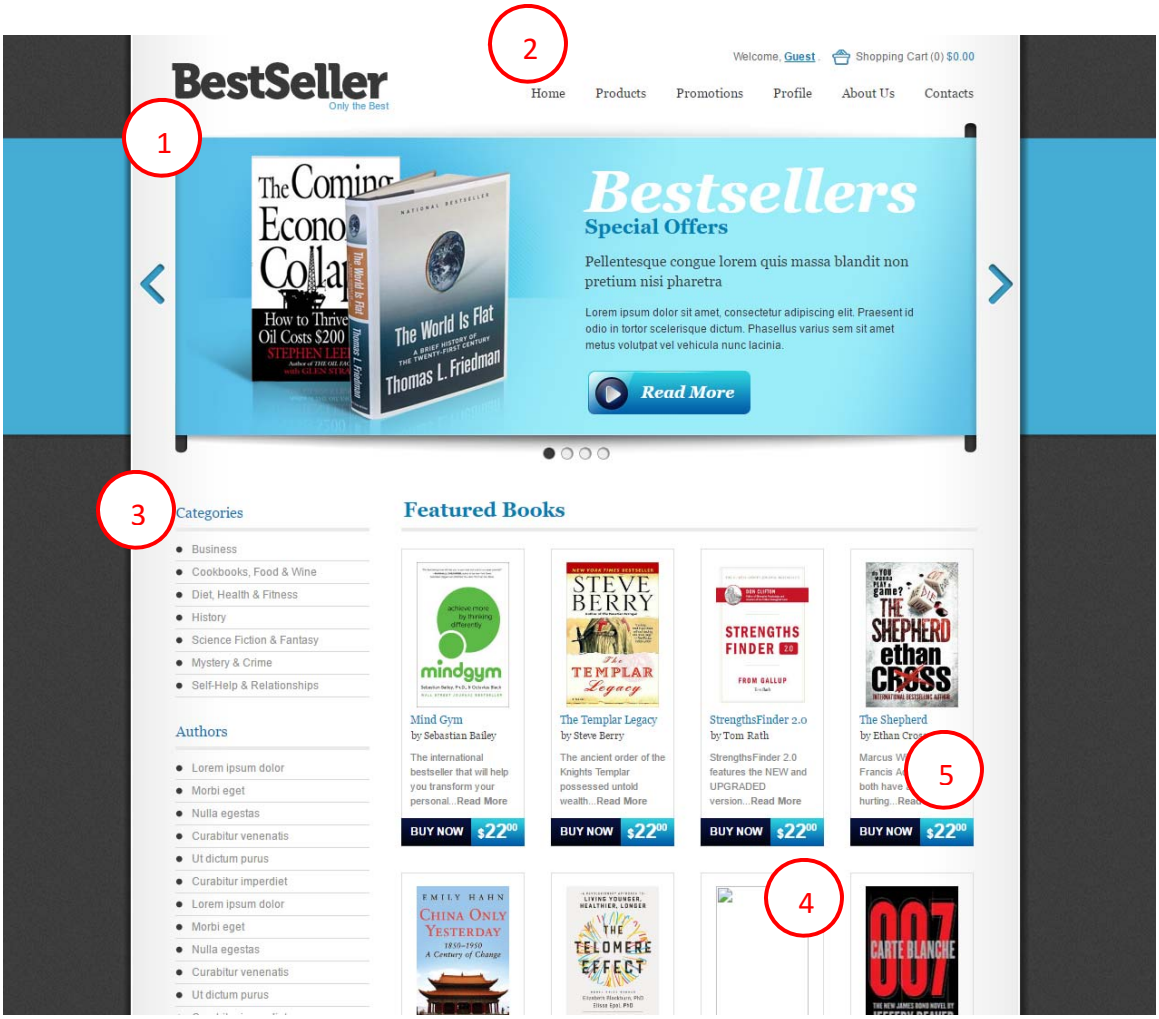
Participants were then presented a scenario in which they were tasked to choose the website from which they would like to purchase a particular book. The task entailed browsing each site to become familiar with the respective site and then deciding the site from which they would have made a purchase. Since the task was self-driven, there was no time limit and participants could take as long as necessary to get comfortable with each site before choosing their preferred site. After participants completed the scenario tasks, they were directed to complete the survey instrument listed in Appendix C.

Table 2

Contrasting Features for Website A and Website B

Construct	Quality	Website A	Website B
Visual design	Strong	Attractive homepage: good color selection and overall layout	Clear and evenly sized images
		Consistent navigation bar	Crisp and easy to read fonts
		Good visual density with proper spacing and margins	
	Weak	Some broken links	Poor color contrast
		Some missing product images	Inconsistent spacing and margins
		Light font color and poor readability	Inconsistent navigation bar
			Unclear and poorly designed menu structures: no logical hierarchy or organization of menu items

Social-cue design	Strong	Samples of products	Photos of human faces
		Recommendation agents	Synchronous communication tools: online chat and toll-free numbers
		Avatar	
		Strong presence of third-party reviews	
		Numerous customer reviews of products	
		Strong social media presence; Facebook, Twitter, and LinkedIn	
	Weak	No synchronous communication tools like online chat or toll-free numbers	No samples or recommendation agents
			No avatar
			No customer reviews of products and no third-party reviews
			No social media presence
Content design	Strong	Detailed company brand information: strong branding with clear value proposition	Frequently Asked Questions (FAQs) section
		Strong product advertising and first impressions	Clearly displayed company policies
			Clearly displayed third-party assurance seals
	Weak	Some blurry product images	Poor branding with no company brand information
		Absence of company policies	Poor product advertising and first impressions
		No third-party assurance seals	

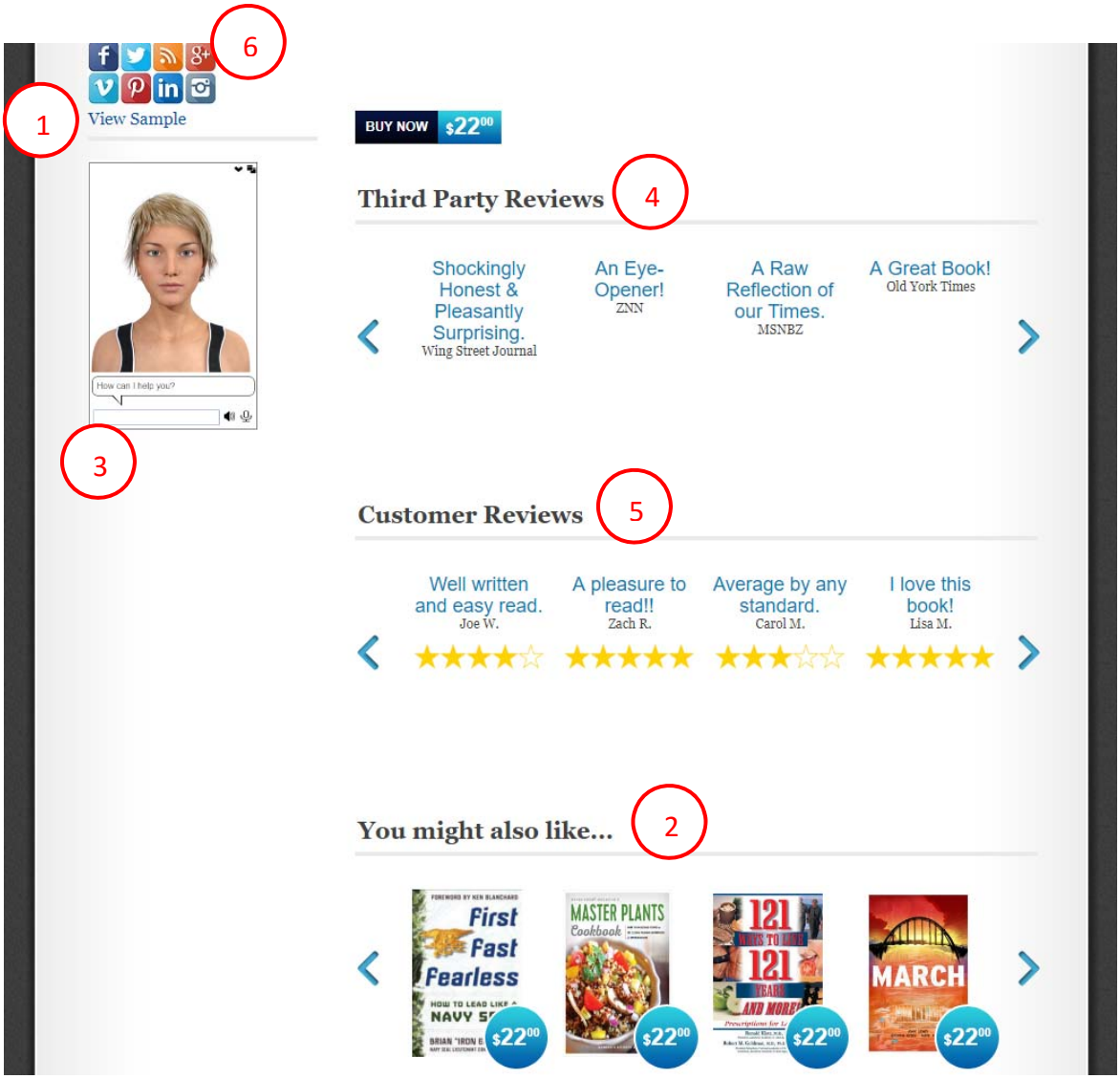


1. Home page is attractive with good color selection and overall layout. Featured highlights presented in rotating reel-style banner.
2. Navigation menu is consistent across all pages on website and is logically structured.
3. Body of page is designed with adequate spacing and margins between the navigation section on the left and the products section on the right in ratio of one-third to two-third.
4. Broken links and missing product images are sporadically present on the website.
5. Gray font on white background presents poor readability throughout the website.

Figure 8. Visual Design Components of Website A

1. Images are clear and larger with two books presented per row.
2. Font is clear with good contrast against background promoting easy readability.
3. Overall color contrast is not very attractive with yellow headings on brown background.
4. Spacing is inconsistent with increased height of heading row in some cases. Words in preview description are not evenly spaced.
5. Navigation bar is inconsistent across website with the link to the cart appearing sporadically on pages. Menu items on this bar are also not logically structured with 'About US' and 'FAQs' appearing under 'Our Policies' and 'Featured Books' and 'Search' appearing under 'New Releases'.

Figure 9. Visual Design Components of Website B



1. Preview of book sample available.
2. Similar books recommended.
3. Avatar prominently displayed to assist with any inquiries.
4. Objective third party reviews cited on this product details page.
5. Customer reviews of the book displayed.
6. Links to several social media websites present and only a click away.

Figure 10. Social-cue Design Components of Website A

1. Photos of human faces present on each page of site.
2. Both online chat and toll-free number access available as synchronous tools of communication.

Note: No book samples, avatars, recommendation agents, social media links, third-party reviews, or customer reviews present.

Figure 11. Social-cue Design Components of Website B

1. Detailed company and brand information provided on each page.
2. Ad reel presents strong product advertising and first impressions.
3. Some product images are blurry and look unprofessional.

Note: No company policies or third-party assurance seals.

Figure 12. Content Design Components of Website A

1. Frequently Asked Questions section available to assist with customer inquiries.
2. Company policies are prominently displayed on every page.
3. Clearly displayed third-party assurance seals aimed at securing customer trust.
4. Generic company branding with no company information.
5. Product advertising is minimal and not as attractive.

Figure 13. Content Design Components of Website B

Instrument Development and Validation

The survey instrument for the study was developed from constructs defined and validated from existing literature in the domain of e-commerce. This survey instrument was designed using the measurement scale presented in Table 3 and aligned each construct item with its validated literature source. The constructs of visual design, social-cue design, and content design constituting website design were adopted from the framework outlined by Karimov et al. (2011). Online trust was measured using the scales developed and validated by Cyr and Head (2013), and Suh and Han (2003). Purchase intention was measured from the validated scale developed by Chen and Barnes (2007), and Suh and Han.

The survey instrument including the two fictitious websites were reviewed by a panel of three experts selected from the field of academic research. The experts were asked to review the survey for content, clarity, and readability. The review for content included the review of the two fictitious websites to ensure that individual attributes that had been varied across the two websites were appropriately distinguished. Feedback was incorporated following which, the survey was pilot tested with five participants selected from the target population. Pilot participants were similarly asked to review the survey for content, clarity, and readability as well as provide feedback on the execution of the experiment. Feedback collected from the pilot participants was incorporated into the study, following which the study commenced. Pilot participants were not included in the final study. The survey instrument is listed in Appendix C.

Table 3

Measurement Scale for the Influence of Website Design on Online Trust

Construct	Items	Survey Questions	Source
Visual design	GD1	Product image, size, zooming and 3D clipart.	Karimov, Brengman, and Van Hove (2011)
	GD2	Background color, contrast and font.	
	SD1	Navigation design: simple and consistent navigation.	
	SD2	Navigation reinforcements: guides, tutorials and instructions.	
	SD3	Accessibility of information: no broken links or missing pictures.	
	SD4	Page design techniques: space and margin, visual density.	
Social-cue design	HF1	Facial photo: embedded photographs that give a feeling of human contact.	Karimov, Brengman, and Van Hove (2011)
	HF2	Video stream: a rich media cue that transmits visual and audio cues.	
	AI1	Avatar: interactive on-screen characters that are able to use verbal cues.	
	AI2	Recommendation agent: software-based advice-giving system.	
	AI3	Synchronous communication media: instant messaging, chat/audio lines.	
	SM1	Mass media: information that comes from other websites or the press.	
	SM2	Customer reviews: a venue where individuals share their experiences.	
	SM3	Online social networks: sites where people share ideas, pictures or videos.	
	SM4	Blogging: Web community blogs, support forums, or discussion boards.	
Content design	I1	Company information: brand-promoting information, company logo.	Karimov, Brengman, and Van Hove (2011)
	I2	Product information: comprehensive and correct product information.	
	I3	Service information: overall support delivered by the web site.	

	I4	Background signals: congruence signals and promotional signals.	
	BA1	Brand equity: brands with positive image.	
	BA2	Hypertext links: links that create a perception of a relationship.	
	E1	Internally provided assurance structures: company policies.	
	E2	Externally provided assurance structures: third-party seals.	
Online Trust	T1	I can trust this website	Cyr and Head (2013)
	T2	I trust the information presented on this website	
	T3	I trust the transaction process on this website	
	T4	Based on my past experience, I do believe that my online store always protects my best interest	Suh and Han (2003)
	T5	Based on my past experience, I can say that my online store is trustworthy	
Purchase Intention	PI1	I intend to continue using my online store for purchasing a product or service in the future	Chen and Barnes (2007)
	PI2	I would strongly recommend others to use my online store	Suh and Han (2003)
	PI3	I shall transact with my online store in the near future	Chen and Barnes (2007)

Sampling

Convenience sampling was used to recruit participants for the study. Several studies have utilized convenience sampling for the recruitment of Internet users (Hasan, 2010;

Lopatovska, Fenton, & Campot, 2012; Meyen, Pfaff-Rüdiger, Dudenhöffer, & Huss, 2010) and online shoppers (Blake, Neuendorf, & Valdiserri, 2005; Jai, Burns, & King, 2013; Jiang, Yang, & Jun, 2013; Román & Cuestas, 2008). Participants were recruited from the population of adult Internet users within the U.S. via a solicitation post on the social media outlet, LinkedIn (Appendix A), and by utilizing SurveyGizmo's panel services. This population represented any user that could make an online purchase from an e-commerce retailer since they had access to the Internet. Sample size (n) was determined using the formula identified by Mann (2015) and shown in Equation 1 below.

$$n = \frac{z^2 p' q'}{E^2} \qquad (1)$$

where, z is the standard normal distribution for a given confidence level, p' is the population proportion of adults that use the Internet, q' is $1 - p'$, and E is the acceptable margin of error. Based on a 95% confidence interval with a ± 5% margin of error and an 81% population proportion of adult Internet users in the U.S. (Pew Research Center's Internet & American Life Project, 2012), Equation 1 was solved as,

$$n = \frac{(1.97)^2(0.81)(0.19)}{(0.05)^2} \qquad (2)$$

$$n = 238.91 \approx 239$$

Data Analysis

Osborne (2012) posed a strong case for data cleansing prior to conducting analyses in order to reduce statistical errors and prevent inaccurate conclusions. Osborne stated that utilizing statistical power (the ability to correctly reject a false null hypothesis) was paramount as a data cleansing step to ensure a low probability of Type I and Type II errors. To this effect, Osborne proposed that studies ensure adequate power by confirming that the sample size is sufficient a priori. A priori power ensures that the sample size is adequate so as to lower the probability of error and has been calculated for this study based on Mann's (2015) formula for minimum sample size (Equation 1). Beyond statistical cogency, the survey was configured to require participants to answer all questions, thereby reducing the risk of partial responses. The survey was also designed to ensure no invalid responses were provided by restricting participants to the core set of responses set for multiple choice items.

Prior to conducting inferential statistical analysis to test the hypotheses presented, the validity and reliability of the constructs were assessed. Confirmatory Factor Analysis (CFA) was used to test convergent validity and reliability of the constructs and the survey items in order to ensure a satisfactory fit of the measurement model. Additionally, discriminant validity was assessed by measuring the correlation between the constructs of the model. Subsequently, the structural model based on path analysis was estimated and after an evaluation of the goodness of fit indices, the hypotheses were tested. The goodness-of-fit indices were used to determine if the measurement model was reliable in testing the hypotheses. Subsequently, path analysis based on the conceptual model

depicted in Figure 1 examined the relationship between online trust and purchase intention as dependent variables and visual design, social-cue design, and content design as independent variables.

Moderator regression analysis (Sharma, Durand, & Gur-Arie, 1981) was performed to test the respective moderating effects of age and gender between website design and online trust. The mediating effect of online trust between the website design constructs and purchase intention was also tested using the procedure outlined by Baron and Kenny (1986), where both the mediating path (through online trust) and their direct paths (bypassing online trust) were tested. This helped in determining whether online trust mediated the effect of website design on purchase intention.

Resource Requirements

The following resources were integral to the successful completion of this study.

University Library Portal

Literature research was performed using Nova Southeastern University's (NSU) online library portal with access to NovaCat, NSU's library catalog. The catalog included books and academic journals from several technical databases. For literature that was not available in NovaCat, NSU's Interlibrary Loan Service was utilized.

Adult Participants with Computer and Internet Access

Participants who were at least 18 years of age were recruited for the study. Participants had access to the Internet, a computer, and had shopped online before.

Institutional Review Board

Since the survey instrument was administered to human subjects, Institutional Review Board (IRB) approval from NSU's IRB board was secured (Appendix D).

Survey Software

Survey software was purchased (SurveyGizmo) to administer the survey to the participants.

Data Analysis Software

IBM Statistical Package for the Social Sciences (SPSS) was purchased to analyze the data gathered from the survey. Additionally, IBM AMOS was used to perform CFA as SPSS only supported Exploratory Factor Analysis (EFA).

Summary

This chapter expounded upon the research method employed in the study, the study sample, the development of the survey instrument, and the data analysis procedures to include how the results were analyzed in support of answering the research questions. Additionally, the resources that were required to conduct the study were also outlined. Overall, the chapter summarized how the study was completed.

The study utilized scenario-based survey research methodology. The scenario depicted two fictitious websites and asked participants to picture their experience firsthand staying focused on the design elements of the websites. The two fictitious websites were designed with contrasting elements at the sub-construct level of the website design constructs of visual design, social-cue design, and content design. The participants were then asked to complete a survey at the end of the scenario tasks.

The survey was designed around the constructs of website design, online trust, and purchase intention. The constructs of visual design, social-cue design, and content design constituting website design were adopted from the framework outlined by Karimov et al. (2011). Online trust was measured using the scales developed and validated by Cyr and Head (2013), and Suh and Han (2003). Purchase intention was measured from the validated scale developed by Chen and Barnes (2007), and Suh and Han. The survey was screened with a panel of experts and via a pilot test involving participants. Feedback from the expert panel and pilot participants were incorporated into the final survey design.

Convenience sampling was used to recruit participants for the study, who were recruited from the population of adult Internet users within the U.S. via a solicitation post on LinkedIn (Appendix A) and by utilizing SurveyGizmo's panel services. This population represented any user that could make an online purchase from an e-commerce retailer since the user would have access to the Internet. Sample size was determined using the formula identified by Mann (2015), which equated to 239.

Data analysis included inferential statistical analysis to test the hypotheses; confirmatory factor analysis to test convergent validity and reliability of the constructs and the survey items; measurement of the correlation between the constructs of the model to assess discriminant validity; and structural path analysis to examine the relationship between online trust and purchase intention as dependent variables and visual design, social-cue design, and content design as independent variables. Additionally, moderator regression analysis was performed to test the moderating effects of age and gender between website design and online trust. The mediating effect of online trust between the

website design constructs and purchase intention was also tested. Finally, the conceptual model was validated.

Chapter 4

Results

Overview

This chapter presents the results of the study. The data collection and preparation procedures are described before participant demographic data is reported as descriptive statistics. Subsequent data analysis conclusions include reporting the results of validating the measurement model and presenting the outcomes of the hypotheses tests. The moderating effects of age and gender are also reported along with the mediating effect of trust on purchase intention.

Data Collection and Preparation

Data was collected by SurveyGizmo's panel services team who recruited participants for the study and from a participant recruitment post on LinkedIn (Appendix A). Participants were U.S. residents who were 18 years of age or over and had experience shopping on the Internet. A total of 689 responses were received of which 502 were complete and 187 were partial. Partial responses were excluded from the data analysis. The 502 responses used for the data analysis exceeded the minimal sample requirement of 239.

The data file was prepared for analysis. Preparation included merging duplicate columns and rearranging responses to fit a consistent sequence. Merging duplicate columns was necessary due to the manner in which SurveyGizmo generated the export

file given that certain respondents were presented with Website A first and others with Website B first. Rearranging the responses to fit a standard sequence was also necessary due to this randomness. Finally, the individual items of the construct were consolidated since each respondent answered the item twice, once for each of the websites. Therefore, the total number of records in the dataset was 1004. The final data file was imported for analysis using IBM SPSS and AMOS.

Age and gender data were collected from the participants. Of the total 502 participants, 47% were female while 53% were male. Over two-thirds of the participants were from the age ranges of 30-49 and 50-64 accounting for 43.6% and 27.9%, respectively. Table 4 lists the sample characteristics of the respondents.

Table 4

Sample Characteristics

Category		Frequency	Percentage
Gender			
	Female	236	47%
	Male	266	53%
Age Range			
	18-29	85	16.9%
	30-49	219	43.6%
	50-64	140	27.9%
	65+	58	11.6%

n=502

Data Analysis

The Measurement Model

Before conducting inferential statistical analysis, the validity and reliability of the constructs were assessed. Confirmatory Factor Analysis (CFA) was used to test discriminant validity, convergent validity, and reliability of the constructs and the survey items to examine the fit of the measurement model. Table 5 outlines the results of the CFA.

The loadings of each of the individual items on their respective constructs were all well above the accepted benchmark of 0.5 (Tabachnick & Fidell, 2012) indicating a strong alignment of the items to their corresponding construct. Hence, convergent validity was achieved. The reliability for trust and purchase intention was strong with both being above the general requirement of 0.7. The composite reliability for the website design construct items (visual design, social-cue design, and content design) was also strong being just shy of unity. Therefore, reliability of the measurement model was also achieved.

The fit of the five-factor measurement model consisting of the constructs on a correlation matrix of 24 measures was acceptable with χ^2 (454, n = 1004) = 2777.062 ($p < 0.001$); CFI = 0.912; IFI = 0.912; RMSEA = 0.071. The CFI and IFI of 0.912 met the recommended cut-off of 0.90 for a good fit (Hu & Bentler, 1999). The RMSEA of 0.071 was also acceptable falling under the 0.08 cut-off (MacCallum, Browne, & Sugawara, 1996). The chi-square statistic was significant ($p < 0.001$) indicating a difference between the measured model and the saturated model and signifying a less than ideal fit. However, this statistic was drawn from a large sample size ($n = 1004$) where chi-square tests for

goodness-of-fit do not excel (Hammervold and Olsson, 2012). Therefore, the goodness-of-fit indices were appropriate in concluding a good fit of the measurement model.

Discriminant validity was also conducted by performing a correlation analysis of the latent variables in the model. Results are presented in Table 6. The correlation coefficients between any two of the constructs were all below unity indicating that the constructs were not perfectly correlated and thereby, distinct from each other. Hence, discriminant validity was achieved.

Table 5

Factor Loadings and Reliability for the Constructs and Items

Variable	Items	Loadings	Mean (Standard Deviation)	Composite Reliability
Visual Design	VD1	0.75	2.90 (0.999)	0.92
	VD2	0.76	2.76 (1.0555)	
	VD3	0.81	2.87 (0.985)	
	VD4	0.79	2.95 (0.938)	
	VD5	0.79	2.93 (0.937)	
	VD6	0.82	2.92 (0.962)	
	VD7	0.84	2.85 (0.996)	
Social-Cue Design	SD1	0.77	2.60 (1.104)	0.91
	SD2	0.73	2.86 (0.949)	
	SD3	0.77	2.60 (1.000)	
	SD4	0.76	2.70 (0.965)	
	SD5	0.73	2.54 (1.032)	
	SD6	0.74	2.64 (0.978)	
	SD7	0.72	2.67 (0.972)	
	SD8	0.75	2.43 (1.098)	
Content Design	CD1	0.73	2.74 (1.061)	0.93
	CD2	0.72	2.85 (0.874)	
	CD3	0.73	2.71 (0.962)	
	CD4	0.73	2.71 (0.971)	
	CD5	0.73	2.54 (1.012)	
	CD6	0.74	2.58 (1.001)	
	CD7	0.74	2.59 (0.997)	
	CD8	0.81	2.63 (0.981)	
	CD9	0.79	2.62 (1.037)	
Trust	T1	0.86	2.77 (0.980)	0.93
	T2	0.84	2.78 (0.914)	
	T3	0.86	2.71 (0.965)	
	T4	0.84	2.65 (0.966)	
	T5	0.84	2.71 (0.983)	
Purchase Intention	PI1	0.90	2.42 (1.156)	0.93
	PI2	0.89	2.46 (1.085)	
	PI3	0.91	2.42 (1.111)	

Table 6

Correlation Matrix of the Constructs

Variable	Visual Design	Social-cue Design	Content Design	Trust	Purchase Intention
Visual Design	1				
Social-cue Design	0.822	1			
Content Design	0.810	0.946	1		
Trust	0.744	0.820	0.871	1	
Purchase Intention	0.601	0.775	0.808	0.839	1

Hypotheses Testing

After satisfactorily achieving a fit of the measurement model, a path analysis of the structural model was performed to test the hypotheses. Path analysis included trust and purchase intention as the endogenous variables and visual design, social-cue design, and content design as the exogenous variables. The structural path model is shown in Figure 14. The results of the path analysis are outlined in Table 7 and indicate that visual design, social-cue design, and content design are significant predictors of online trust with all but one of the path coefficients having *p* values less than 0.001 and the sole exception having a *p* value equal to 0.001. Content design was observed to be the most significant of these predictors when examining the path separately for the websites and when doing so collectively as well. Hypotheses H1, H2, and H3 were rejected.

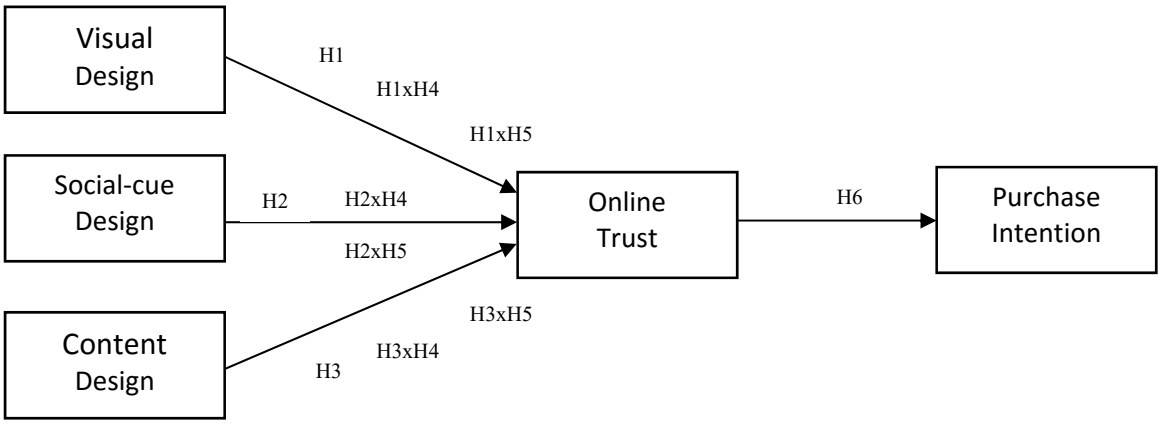


Figure 14. Structural Path Model

Table 7

Effect of Website Design on Trust

Path	Path Coefficient (Website A)	Path Coefficient (Website B)	Path Coefficient (Pooled)
Visual Design to Trust	0.094*	0.189	0.137
Social-cue Design to Trust	0.187	0.178	0.189
Content Design to Trust	0.626	0.591	0.609
Trust to Purchase Intention	1.067	1.030	1.050

*$p<0.001$; *$p=0.001$*

Tests for moderator effects of age and gender

The moderating effects of age and gender were examined by incrementally introducing them into the regression analysis with the predictor variables (visual design, social-cue design, and content design). Initially, regression analysis was performed with the predictor variables. The moderator variables were then added and the change in R^2 noted. Subsequent steps included investigating the interaction effects of age and gender with each of the predictor variables on trust and noting the change in R^2. Results are presented in Table 8.

Table 8 highlights that the proposed moderating variables, age and gender, were found to have no significant direct impact on online trust with $\beta = 0.003$, $p = 0.898$ and $\beta = 0.032$, $p = 0.123$, respectively. Additionally, the moderating effect of age on visual design ($\beta = -0.047$, $p = 0.022$), social-cue design ($\beta = -0.039$, $p = 0.056$), and content design ($\beta = -0.045$, $p = 0.028$) to online trust was found to be insignificant. The moderating effect of gender on visual design ($\beta = 0.015$, $p = 0.459$), social-cue design ($\beta = -0.006$, $p = 0.776$), and content design ($\beta = -0.024$, $p = 0.245$) to online trust was also found to be insignificant. Therefore, hypotheses H4 and H5 could not be rejected.

Table 8

Moderator Regression Analysis Between Website Design and Trust

Independent Variable	Moderating Variable	R^2	R^2 change	Standardized Coefficient
Visual Design				0.215*
Social-cue Design		0.578	-	0.207*
Content design				0.414*
Age		0.579	0.001	0.003
Gender				0.032
Visual Design				
	Age	0.580	0.002	-0.047
	Gender	0.578	0.000	0.015
Social-cue Design				
	Age	0.579	0.001	-0.039
	Gender	0.578	0.000	-0.006
Content Design				
	Age	0.580	0.002	-0.045
	Gender	0.578	0.000	-0.024

** $p<0.001$*

Test for mediating effect of trust

The final step in data analysis examined the mediating effect of trust on the relationship between website design and purchase intention. Both the direct effect (bypassing trust) and indirect effect (through trust) of the website design variables were explored on purchase intention. The direct effect analysis was achieved by not mediating the path between the website design variables and purchase intention i.e. trust was not included in the relationship between the website design variables and purchase intention. In the indirect effect analysis, the path from the website design constructs to purchase intention was mediated i.e. trust was an intermediary in the relationship between the website design variables and purchase intention. Figure 15 and Figure 16 illustrate these two effect models.

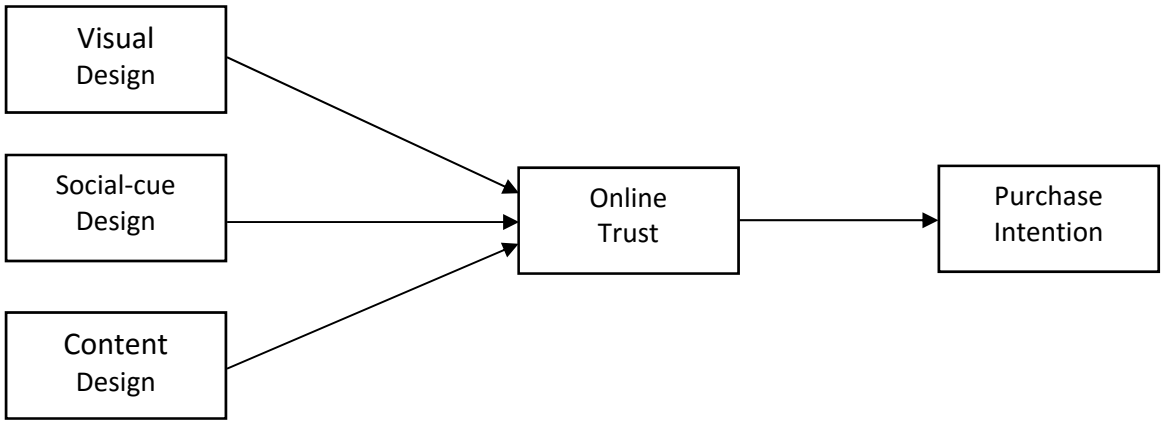


Figure 15. Mediator Effect Model Through Trust

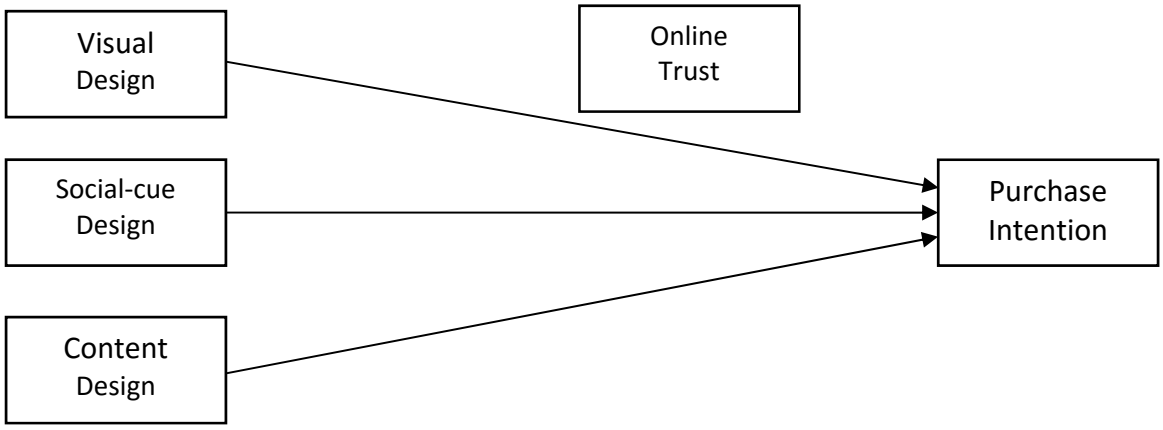


Figure 16. Mediator Effect Model Bypassing Trust

Table 9

Mediating Effect of Online Trust on Purchase Intention

Path	Path Coefficient (Bypassing Trust)	Path Coefficient (Through Trust)
Visual Design to Purchase Intention	-0.091	0.124
Social-cue Design to Purchase Intention	0.261	0.123
Content Design to Purchase Intention	0.331	0.247

$p<0.001$

Table 9 outlines the results of the analysis of the mediating effect of trust on purchase intention. When the path between the website design variables was mediated by trust, the difference in the effect of the design variables on purchase intention was statistically significant. This indicated that trust played a role in the relationship between website design and purchase intention. Therefore, hypothesis H6 was rejected.

Summary

This chapter reported the data analysis procedures and results of the study. Data was initially primed for analysis by removing partial responses and subsequently preparing the data file for statistical analysis. Data analysis began by first reporting the descriptive statistics of the sample. The measurement model was then validated using Confirmatory Factor Analysis after which inferential statistics were performed to test the hypotheses. The results of the hypotheses are summarized in Table 10.

Table 10

Results of Null Hypotheses Testing

Hypothesis		Statistical Method	Result
H1	Visual Design will have no effect on online trust in e-commerce retailing environments	Path analysis	Rejected
H2	Social-cue Design will have no effect on online trust in e-commerce retailing environments	Path analysis	Rejected
H3	Content Design will have no effect on online trust in e-commerce retailing environments	Path analysis	Rejected
H4	Age will have no effect on online trust in e-commerce retailing environments	Moderator regression analysis	Failed to reject
H5	Gender will have no effect on online trust in e-commerce retailing environments	Moderator regression analysis	Failed to reject
H6	Online trust will have no effect on online purchase intention in e-commerce retailing environments	Mediation analysis	Rejected

The effects of age and gender were examined using moderator regression analysis by incrementally introducing them into the regression analysis involving the website design variables and the null hypotheses could not be rejected. Finally, mediation analysis was conducted to test the mediating effect of trust between the website design variables and purchase intention. Both the direct effect (path bypassing trust) and the indirect effect (path via trust) were compared to reach the conclusion that trust mediated the effect of website design on purchase intention.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

Overview

This chapter presents the conclusions of the study from the stated research goals and the analysis performed from the data collected and the results reported. The study limitations are also outlined and implications for academic and professional practice are discussed. Subsequently, recommendations for future research and for professional adoption are also presented. Finally, the chapter summarizes the entire study in the final section.

Conclusions

The goals of this research study were (a) to investigate the influence of website design on online trust in e-commerce retailing environments, (b) to investigate the influence of age and gender as factors affecting the influence of website design on online trust in e-commerce retailing environments, and (c) to propose and test a conceptual model of the influence of website design on online trust and the influence of online trust on purchase intention in e-commerce retailing environments. The study utilized a scenario-based survey research methodology where participants were asked to review two fictitious websites and decide the website from which they would make a purchase. Participants were then asked to complete a survey that captured their feelings about the design

elements of the website and their inclination to trust the websites. A conceptual model was also tested using path analysis.

The examination of the influence of website design on online trust was performed using three subconstructs of website design namely, visual design, social-cue design, and content design. All three subconstructs were found to be significant predictors of online trust with content design having a relatively stronger influence than visual design and social-cue design. This is consistent with the findings from the literature synthesis by Karimov et al. (2011) that reported that all three aspects of website design have an influence on online trust. Additionally, the correlations between these design subconstructs, while below unity, were found to be close to unity. This could indicate that website users are maturing in their perceptions of website design and do not perceive website design in terms of its granular subconstructs but as a whole construct in itself. This is aligned with Rutter's (2014) note that modern online shoppers are sophisticated in their browsing habits.

Age's effect on website design when examined collectively from the subconstructs of visual design, social-cue design, and content design, and when examined individually was found to be inconclusive. While Rohm and Swaminathan (2004) found that age did not have a relationship on purchase intention, other studies have found conflicting results (Stafford, Turan, and Raisinghani, 2004; Joines, Scherer, and Scheufele, 2003). As proposed by He (2013), further research on the influence of age on online trust continues to be warranted.

Similarly, gender's effect on website design when examined collectively as a whole and individually as part of the subconstructs of website design was found to be

inconclusive. This contrasts the findings of Cyr and Head (2013) who found that gender moderated the relationship between navigation design and trust in countries with higher masculinity. This is also contradictory to the findings of Porter et al. (2012) who found that content quality facilitated trust in men while interaction facilitated trust in women. Consequently, further empirical evidence is required to better understand the effects of gender on online trust as recommended by Murphy and Tocher (2011).

Online trust was examined for mediating the effect of visual design, social-cue design, and visual design on purchase intention, respectively. The results indicated that a statistically significant relationship between online trust and website design factors existed to impact the outcome with respect to purchase intention. This is complementary with Hong and Cha's (2013) empirical finding that an improvement in online trust increased the intention of the online shopper to make a purchase.

Finally, the proposed conceptual model was validated. The model expressed the relationship between the website design constructs on online trust and the mediating effect of online trust on purchase intention. While age and gender were purported to have a moderating effect between website design and online trust, the null hypotheses were unable to be rejected suggesting that further research in this area is justified.

Study Limitations

Certain limitations were acknowledged as part of this study to keep it manageable. The first limitation included the use of a scenario-based methodology. While widely used in the field of academic research, the scenario-based method has been recognized to have limited generalizability of results when compared to field studies (Chang et al., 2013).

This is due to the participants' lack of perceived realism of the scenarios, which limits their ability to view the scenarios in the context of the real world.

In a similar vein, another limitation of this study involved the tendency for participants to respond in a manner that positioned them in a favorable light. Termed social desirability bias (SDB), this kind of response bias involves participants feeling the urge to provide responses that make them appear socially desirable (Grimm, 2010). SDB can impact the results of a study as responses may not be reflective of participants' true feelings. However, SDB is most critical in studies involving sensitive issues like religion, politics, drug use, and smoking.

Another limitation of this study related to a variance that stems from the measurement method called common method variance (CMV). CMV is a variance where the measures between two constructs that are hypothesized to have a relationship may have a confounding effect on the correlations of the constructs due to similarities in their measurement methods (Podsakoff et al., 2003). In this study, this was possible directly as a result of SDB, one of the key causes of CMV (Kline, Sulsky, & Rever-Moriyama, 2000).

Yet another limitation of this study involved the approach taken to measure the visual aesthetics of website design. Two common approaches exist namely, objective and subjective (Seckler et al., 2015). Being mutually exclusive, the objective approach measures the elements of the object being perceived while the subjective approach captures the perception of the object in the eyes of the subject. This study utilized the objective approach in measuring the visual aesthetics of website design and did not consider the subjective perception of website design and its effect on online trust.

Implications

In spite of the limitations of this study, the implications from the study are noteworthy and contribute to the body of knowledge in areas related to e-commerce and human-computer interaction. The study provided further insight into the effect of website design on online trust and the influence of online trust on purchase intention. Additionally, the study explored the moderating effects of age and gender on the effect of website design to online trust. A conceptual model was also outlined and validated that illustrated these effects quantifiably.

Website design as measured by its subconstructs of visual design, social-cue design, and content design was found to be a significant predictor of online trust. Amongst the three subconstructs, content design was found to have the strongest impact on online trust. This could be indicative of the growing sophistication of online users (Rutter, 2014), as consumers begin to look beyond the aesthetic elements of the website to the core content they seek from the website like product, service, and company information thereby, giving content design greater significance – a key finding for e-commerce retailers to consider as they enhance their online retail presence.

The moderating effects of age and gender on website design to online trust were found to be statistically insignificant. In testing the impact of age and gender collectively and individually on the three subconstructs of website design, the impact was not found to be material and the null hypotheses could not be rejected. Nevertheless, this finding further illustrates the need for additional research in studying the effects of age and gender on website design, online trust, and purchase intention.

Trust was examined for its effect on website design to purchase intention and was found to mediate the relationship between each of the website design subconstructs (visual design, social-cue design, and content design) and purchase intention. This illustrates the transitive effect of website design on purchase intention through trust. Trust remains a critical aspect for e-commerce retailers to consider in the design of their online stores and the subsequent revenues realized from these stores.

Recommendations

This study investigated the influence of website design on online trust in e-commerce retailing environments, and the subsequent impact on purchase intention. Participants were asked to complete a fictitious scenario where they were asked to choose the website from which they would make a purchase. Their feelings and thoughts with respect to the design elements of the website were captured via an online survey. Results concluded that website design has an influence on online trust and that online trust mediates the influence of website design on purchase intention. Opportunities for further research and recommendations for practitioners are evident.

From an academic research perspective, website design has largely settled on being defined in terms of its subconstructs of visual design, social-cue design, and content design. However, opportunities lie in exploring the impact of these elements on online trust using diverse research methodologies such as factorial design across the design constructs or conducting interviews with participants to collect more qualitative observations. Utilizing a variety of research methodologies would further confirm or bring into question the influence of these constructs on online trust. Furthermore, given

the relatively higher impact of content design on online trust, future research can focus on the maturing consumer base and the manner in which they are influenced to form trust towards an e-commerce retailer. Further research can also dive deeper into the relationship of website design, online trust, and purchase intention by examining the finer subconstructs of online trust like ability, integrity, and benevolence (Söllner et al., 2010).

From a practitioner perspective and given that content design had a relatively greater impact on online trust than the other two subconstructs, e-commerce retailers would be well served by having content that is reassuring to their customers. Such reassurance can be conveyed through the use of the company logo, company information, service policy terms, and detailed product information and by aligning their digital presence with their overall company brand. Externally provided assurance elements like third-party seals will further enhance these reassurances thereby, promoting an environment that is conducive to the formation of online trust for their targeted consumers.

Culture has been found to be a significant confounding variable in examining the influence of website design on online trust (Karimov et al., 2011). While this study delimited the impact of culture on the relationship between website design and online trust, future studies can expand the scope of research by sampling participants from different countries or geographies. As online retail sales continue to grow across the globe from North America to Asia to Eastern Europe (eMarketer, 2017), insights into the influence of culture on website design, trust, and purchase intention would be beneficial to the academic and commercial groups, at large.

Mobile commerce (m-commerce) has rapidly grown as a form of online retails sales and is expected to account for 72.9% of the e-commerce market by 2021 (eMarketer,

2018). The growth of m-commerce offers further research opportunities in the space of website design, online trust, and purchase intention by introducing new factors like screen size, portability, and the ubiquitous access of mobile devices (Maity & Dass, 2014). Future research should explore the impact of website design on online trust and the subsequent influence on purchase intention in m-commerce settings.

Summary

The study conducted in this dissertation examined the influence of website design on online trust in e-commerce retailing environments. E-commerce sales continue to grow significantly from year to year and e-commerce remains a lucrative sales channel for online merchants. However, despite the growth of e-commerce over the past decade, the share of e-commerce sales as a percentage of retail sales has been dismal. In 2016, e-commerce sales accounted for 8% of total retail sales in the U.S., growing merely by 0.8% from the year prior (U.S. Census Bureau, 2018). A key indicator of this sluggish growth has been cited as a lack of trust by online shoppers with several studies providing empirical evidence of the same (He, 2013; Kim & Peterson, 2017).

One of the critical factors in the formation of online trust has been identified as website design. In a meta-analysis of the literature, Karimov et al. (2011) found that website design had evolved through several founding constructs and had widely come to be measured by three broad constructs namely, visual design, social-cue design, and content design. Karimov et al. (2011) noted that the positive effect of these trust-inducing factors on online trust merits further research and further empirical testing is required.

Therefore, the goals of this research study along with their consequent research questions and null hypotheses were outlined as follows:

G1: Investigate the influence of website design on online trust in e-commerce retailing environments.

RQ1: What is the effect of website design (visual design, social-cue design, and content design) on online trust in e-commerce retailing environments?

H1: Visual design will have no effect on online trust in e-commerce retailing environments.

H2: Social-cue design will have no effect on online trust in e-commerce retailing environments.

H3: Content design will have no effect on online trust in e-commerce retailing environments.

G2: Investigate the influence of consumer demographics (age and gender) as factors affecting the influence of website design on online trust in e-commerce retailing environments.

RQ2: What effect do consumer demographics (age and gender) have on website design's influence on online trust in e-commerce retailing environments?

H4: Age will have no effect on online trust in e-commerce retailing environments.

H5: Gender will have no effect on online trust in e-commerce retailing environments.

G3: Propose and test a conceptual model of the influence of website design on online trust and the influence of online trust on purchase intention in e-commerce retailing environments.

RQ3: What effect does online trust have on purchase intention in e-commerce retailing environments?

H6: Online trust will have no effect on purchase intention in e-commerce retailing environments.

A review of the literature surfaced key insights and context into online trust, website design, purchase intention, and the effects of age and gender in online retail environments. Online trust has been found to be an elusive construct to define conclusively (Rousseau et al., 1998) but researchers agree that a consistent theme around its definition remains the willingness of the trustor to accept vulnerability in the trust transaction. Several models of online trust from the extant literature were summarized in this study. Website design was also explored further and a framework for trust-inducing features of website design was identified (Karimov et al., 2011). This framework outlined the sub-dimensions of the website design sub-constructs and was instrumental in the development of the survey that was used in this study. Purchase intention was explored as a successor to online trust and confirmed to be a behavioral intention influenced by the formation of online trust. Age and gender were studied for their effects on online trust and purchase intention, and while a few studies explored their impact, their moderating effects are yet to be conclusively affirmed.

The research approach employed in this study involved a scenario-based survey methodology. The scenario depicted two websites that had been designed with variations across the sub-dimensions of the constructs of website design. These variations included contrasting features across visual design, social-cue design, and content design across the two websites. After perusing each website, participants were asked to choose the website from which they would make a purchase. Participants were then directed to a survey that captured their feelings with respect to the design elements of the website and their inclination to trust and subsequently, purchase from the website. Convenience sampling was used to recruit participants for the study. The sample represented any user who was 18 years or older, had access to the Internet, and could make a purchase from an e-commerce retailer.

A total of 502 valid responses were received of which 47% were female and 53% were male. Over two-thirds of the participants were from the age ranges of 30-49 and 50-64 accounting for 43.6% and 27.9%, respectively. The remaining 16.9 % and 11.6% were from the age groups of 18-29 and 65+, respectively. Before testing the hypotheses, the measurement model was validated, and reliability of the constructs was assessed using confirmatory factor analysis (CFA). Reliability of the constructs was achieved along with convergent and discriminant validity. A goodness-of-fit test was also performed on the measurement model with acceptable results.

Based on the data analysis that was performed, the research goals of the study were achieved. The results indicated that website design had a statistically significant relationship to online trust in e-commerce retailing environments. This is consistent with

the findings of Karimov et al. (2011) who reported that all three sub-constructs of website design have an influence on online trust. Additionally, the correlation between the three sub-constructs of website design were found to be close to unity, which could indicate a consumer base that is maturing in their perceptions of design by viewing website design holistically and not as a sum of its sub-constructs. This aligns with Rutter's (2014) note that modern online shoppers have increasingly become sophisticated in their browsing habits. Another indicator of this maturing consumer base is the relatively higher influence that content design had on online trust than its two counterparts. Online shoppers are likely looking beyond the aesthetic elements of website design to the core content they seek from the online retailer like product, service, and company information.

The moderating effects of age and gender on website design to online trust were also tested. Both were found to have no statistically significant influence and the corresponding null hypotheses could not be rejected. Further research continues to be warranted in this area especially with the continued growth of e-commerce worldwide (eMarketer, 2017).

Online trust was found to have a mediating effect on the influence of website design to online purchase intention. This confirms the significance of online trust for e-commerce retailers and emphasizes the need for continued attention to developing online stores that encourage the formation of trust in consumers. Trust remains a critical element for e-commerce retailers to consider as they continue to leverage online stores as a sales channel.

Finally, the proposed conceptual model outlining the relationship between website design, online trust, and purchase intention was sketched from the results of the path analysis. Website design, in the form of it three subconstructs, was illustrated as being a significant predictor of online trust. Online trust was also shown to mediate the relationship between website design and purchase intention.

In its entirety, this study examined the effects of website design on online trust and the subsequent effect on purchase intention. Findings, implications, and suggestions for academic and professional practice were outlined. Website design remains a significant predictor of online trust with noteworthy consequences for e-commerce retailers. As the e-commerce landscape grows globally, the importance of shaping trust in online consumers continues to be a critical factor for the sustained profitability of e-commerce retailers.

Appendix A

Participant Recruitment Post

Colleagues and Friends,

I am at the final stretch of completing my dissertation in fulfillment of the requirements for a Ph.D. in Information Systems from Nova Southeastern University. I am looking for participants for my research study that examines the influence of website design on online trust in e-commerce retailing environments. This study has been approved by Nova Southeastern University's Institutional Review Board (IRB).

Participation involves a fictitious scenario where you will be asked to browse two websites and decide which website you would choose to purchase a book. Following the browsing of both websites, you will be asked to complete a short survey. The entire activity should take approximately 20-30 minutes to complete. Please note that you will not actually be purchasing the book and will not be asked to use your credit card or any personally identifiable information in the participation of this study. Your responses to the survey are completely anonymous.

If you are interested in participating, please click on the link below where you will be asked to consent to your participation and begin the study.

http://sgiz.mobi/s3/d1bdc7a58ac1

Thank you.

Dinesh Khialani
Doctoral Student
College of Engineering and Computing
Nova Southeastern University

Appendix B

Scenario and Websites

Scenario:
You need a book for your upcoming weekend reading and have decided to purchase one from an online bookstore that you have never used before. You have narrowed your selection of online bookstores to two different websites. The selection and cost of the books are the same on both websites. Using the two provided bookstore websites below, decide which website you will use to make your purchase.

Instructions:
Please click on the first website link below to navigate to the respective website. You will be taken to a separate browser page or tab where you will be able to navigate the website independently. Once you have completed reviewing the website, please close your browser window/tab to return to this screen and review the second website in a similar fashion.

As you navigate each website, please:

- Review the website for general company information and policies.
- Browse through the different categories of books.
- Visit the product detail pages of a few books.
- Leave the website with a general impression of your inclination to trust the website and your intention to make a purchase from the website.

Once you have completed reviewing both websites, please click 'Next' below to be taken to the survey.

Website Links:
Best Seller: http://www.nova.edu/~khialani/PhD/BestSeller/

Book Store: http://www.nova.edu/~khialani/PhD/BookStore/

Appendix C

Survey Instrument

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Research Study Overview

Research Study Title: The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

IRB Protocol Number: 2016-469

Contacts:

Principal Investigator	Co-Investigator/Faculty Advisor	Institutional Review Board
Dean Khialani, Ph.D. Candidate	Maxine Cohen, Ph.D., Professor	Nova Southeastern University
khialani@mynsu.nova.edu	cohenm@nova.edu	Office of Grants and Contracts
		954-262-5369 or 866-499-0790
		IRB@nova.edu

Research Study Description: Dean Khialani is a doctoral student at Nova Southeastern University engaged in research for the purpose of satisfying a requirement for the Doctor of Philosophy degree in Information Systems. The purpose of the research study is to examine the influence of website design on online trust and subsequent purchase intention in e-commerce retailing environments. The study will involve a scenario and a survey. As a participant, you will be presented with two fictitious websites and asked to choose the website from which you would make a purchase (no credit card or payment information is required). A survey following the scenario will capture your responses with respect to the design elements of the website, your inclination to trust the website, and your intention to make a purchase from the website. Results will be analyzed and reported.

Time Commitment: It will take approximately 20-30 minutes to complete the entire activity.

Risk/Benefits to the Participant: The study presents no risk nor benefits to you.

Costs/Payments to the Participant: There is no cost for participation in this study. Participation is completely voluntary and no payment will be provided.

Confidentiality and Privacy: Information you provide within the survey is anonymous and cannot be tracked back to you. Information obtained in this study is strictly confidential unless disclosure is required by law. All data will be secured electronically in a password-protected location. No personally identifiable information is collected and results will only be reported in aggregate form.

Participant's Right to Withdraw from this Study: You have the right to refuse to participate in this study or withdraw from it at any point. In either case, there is no penalty to you.

Please note:

- Questions with a * are required.
- The survey must be completed in one sitting. Once you have exited the survey, you will not be able to resume it at a later time.

Age Requirement *

☐ By checking this box, I acknowledge that I am at least 18 years of age.

Participation Agreement *

☐ By checking this box, I acknowledge that I have read the research study above and voluntarily agree to be a participant in this research study.

Next

0%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Scenario and Websites

Scenario:

You need a book for your upcoming weekend reading and have decided to purchase one from an online bookstore that you have never used before. You have narrowed your selection of online bookstores to two different websites. The selection and cost of the books are the same on both websites. Using the two provided bookstore websites below, decide which website you will use to make your purchase.

Instructions:

Please click on the first website link below to navigate to the respective website. You will be taken to a separate browser page or tab where you will be able to navigate the website independently. Once you have completed reviewing the website, please close your browser window/tab to return to this screen and review the second website in a similar fashion.

As you navigate each website, please:

- Review the website for general company information and policies.
- Browse through the different categories of books.
- Visit the product detail pages of a few books.
- Leave the website with a general impression of your inclination to trust the website and your intention to make a purchase from the website.

Once you have completed reviewing both websites, please click 'Next' below to be taken to the survey.

Website Links:

Best Seller: http://www.nova.edu/~khialani/PhD/BestSeller/

Book Store: http://www.nova.edu/~khialani/PhD/BookStore/

Back Next

13%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Survey Instructions

The following survey will ask you about your experience with each of the two websites and to rate your level of agreement or disagreement with statements related to:

- The design elements of the website (visuals, social cues*, and content)
- Your inclination to trust the website
- Your intention to make a purchase from the website

Please click 'Next' to continue.

** Social cues include features that make the website feel more "human". For example: photos of people, chat interface, interactive on-screen characters, customer reviews, and social media links, to name a few.*

Back Next

13%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

First Website Check

1. Which website did you review first? *


Best Seller


Book Store

Back Next

20%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Visual Design

2. With respect to the visual aesthetic elements of a website, please reflect back on your experience when browsing each of the two websites. Now, based on your thoughts and feelings, please rate your agreement or disagreement with each of the statements listed below. *

	Best Seller					Book Store				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The product images on the website were professionally designed.	○	○	○	○	○	○	○	○	○	○
The website's colors were attractive.	○	○	○	○	○	○	○	○	○	○
The website used crisp easy-to-read fonts.	○	○	○	○	○	○	○	○	○	○
The website was easy to navigate.	○	○	○	○	○	○	○	○	○	○
Navigation design (navigation bar and menus) of the website was consistent.	○	○	○	○	○	○	○	○	○	○
Information on the website was easily accessible.	○	○	○	○	○	○	○	○	○	○
The web pages of the website were well designed.	○	○	○	○	○	○	○	○	○	○

Back Next

27%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Social-Cue Design

3. With respect to the social-cue elements of a website, please reflect back on your experience when browsing each of the two websites. Now, based on your thoughts and feelings, please rate your agreement or disagreement with each of the statements listed below. *

	Best Seller					Book Store				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I liked the presence of facial photos on the website.	○	○	○	○	○	○	○	○	○	○
I liked the presence of product samples on the website.	○	○	○	○	○	○	○	○	○	○
I liked the presence of on-screen characters on the website.	○	○	○	○	○	○	○	○	○	○
I liked the recommendations the website provided to me.	○	○	○	○	○	○	○	○	○	○
The web chat feature on the website was very helpful.	○	○	○	○	○	○	○	○	○	○
Reviews from third party sources about the products on the website proved to be helpful.	○	○	○	○	○	○	○	○	○	○
Customer reviews about the products on the website proved to be helpful.	○	○	○	○	○	○	○	○	○	○
Social media presence on the website was rich.	○	○	○	○	○	○	○	○	○	○

Back Next

33%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Content Design

4. With respect to the content elements of a website, please reflect back on your experience when browsing each of the two websites. Now, based on your thoughts and feelings, please rate your agreement or disagreement with each of the statements listed below. *

	Best Seller					Book Store				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The website had clearly displayed information about the company.	○	○	○	○	○	○	○	○	○	○
Product information on the website was comprehensive.	○	○	○	○	○	○	○	○	○	○
The website had clearly displayed support and service information (FAQs).	○	○	○	○	○	○	○	○	○	○
The website invested significantly in product advertising.	○	○	○	○	○	○	○	○	○	○
The website included references to third-party reputable brands.	○	○	○	○	○	○	○	○	○	○
The website included links to trusted websites.	○	○	○	○	○	○	○	○	○	○
The website had clearly displayed company policies.	○	○	○	○	○	○	○	○	○	○
The website emphasized trust.	○	○	○	○	○	○	○	○	○	○
The website emphasized security.	○	○	○	○	○	○	○	○	○	○

Back Next

40%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Trust

5. With respect to your inclination to trust each of the two websites, please rate your level of agreement or disagreement with statements below. *

	Best Seller					Book Store				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can trust the website.	○	○	○	○	○	○	○	○	○	○
I trust the information presented on the website	○	○	○	○	○	○	○	○	○	○
I would trust the transaction process on the website.	○	○	○	○	○	○	○	○	○	○
Based on my past experiences with other websites, I do believe that the website protects my best interest.	○	○	○	○	○	○	○	○	○	○
Based on my past experiences with other websites, the website is trustworthy.	○	○	○	○	○	○	○	○	○	○

Back Next

47%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Purchase Intention

6. With respect to your intention to purchase from each of the two websites, please rate your level of agreement or disagreement with statements below. *

	Best Seller					Book Store				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I intend to use this website to make a purchase in the future.	○	○	○	○	○	○	○	○	○	○
I would strongly recommend others to use this website to make an online purchase.	○	○	○	○	○	○	○	○	○	○
I would transact with this website in the near future.	○	○	○	○	○	○	○	○	○	○

Back Next

53%

The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments

Demographics

7. Are you a U.S. resident? *

- ◯ Yes
- ◯ No

8. What is your age? *

- ◯ 18-29
- ◯ 30-49
- ◯ 50-64
- ◯ 65+

9. What is your gender? *

- ◯ Male
- ◯ Female

Back Submit

93%

Appendix D

Institutional Review Board Approval

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board

MEMORANDUM

To: **Dinesh Khialani, M.S.**
College of Engineering and Computing

From: **Ling Wang, Ph.D.,**
Center Representative, Institutional Review Board

Date: **October 18, 2016**

Re: **IRB #: 2016-469; Title, "The Influence of Website Design on Online Trust in Electronic Commerce Retailing Environments"**

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review under **45 CFR 46.101(b) (Exempt Category 2)**. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms, they must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and Ling Wang, Ph.D., respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: **Maxine Cohen, Ph.D.**

References

Abbasi, P., Bigham, B. S., & Sarencheh, S. (2011). Good's history and trust in electronic commerce. *Procedia Computer Science*, *3*, 827–832.

Ahn, T., Ryu, S., & Han, I. (2007). The impact of web quality and playfulness on user acceptance of online retailing. *Information & Management*, *44*(3), 263–275. https://doi.org/10.1016/j.im.2006.12.008

Ahuja, M., Gupta, B., & Raman, P. (2003). An empirical investigation of online consumer purchasing behavior. *Communications of the ACM*, *46*(12), 145–151.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Al-Diri, K., Hobbs, D., & Qahwaji, R. (2008). The human face of e-business: Engendering consumer initial trust through the use of images of sales personnel on e-commerce web sites. *International Journal of E-Business Research*, *4*(4).

Anderson, A., Steinerte, E., & Russell, E. (2010). The nature of trust in virtual entrepreneurial networks. *International Journal of E-Entrepreneurship and Innovation*, *1*(1), 1–21. https://doi.org/10.4018/jeei.2010010101

Awad, N. F., & Ragowsky, A. (2008). Establishing trust in electronic commerce through online word of mouth: An examination across genders. *Journal of Management Information Systems*, *24*(4), 101–121. https://doi.org/10.2753/MIS0742-1222240404

Ba, S., & Pavlou, P. (2002). Evidence of the effect of trust building technology in electronic markets: Price premiums and buyer behavior. *MIS Quarterly*, *26*(3), 243–268.

Bagozzi, R. P., Tybout, A. M., Craig, C. S., & Sternthal, B. (1979). The construct validity of the tripartite classification of attitudes. *Journal of Marketing Research*, *16*(1), 88–95. https://doi.org/10.2307/3150879

Bahmanziari, T., Odom, M. D., & Ugrin, J. C. (2009). An experimental evaluation of the effects of internal and external e-Assurance on initial trust formation in B2C e-commerce. *International Journal of Accounting Information Systems*, *10*(3), 152–170. https://doi.org/10.1016/j.accinf.2008.11.001

Bansal, G., Zahedi, F. M., & Gefen, D. (2016). Do context and personality matter? Trust and privacy concerns in disclosing private information online. *Information & Management*, *53*(1), 1–21. https://doi.org/10.1016/j.im.2015.08.001

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Bart, Y., Shankar, V., Sultan, F., & Urban, G. L. (2005). Are the drivers and role of online trust the same for all web sites and consumers? A large-scale exploratory empirical study. *Journal of Marketing*, 133–152.

Bauer, H. H., Albrecht, C.-M., Neumann, M. M., & Haber, T. E. (2015). Enhancing customer trust in e-commerce through web portals. In H. E. Spotts (Ed.), *Revolution in Marketing: Market Driving Changes* (pp. 57–61). Springfield, USA: Springer International Publishing. https://doi.org/10.1007/978-3-319-11761-4_30

Beatty, P., Reay, I., Dick, S., & Miller, J. (2011). Consumer trust in e-commerce web sites: A meta-study. *ACM Computing Surveys*, *43*(3), 14:1–14:46. https://doi.org/10.1145/1922649.1922651

Becerra, E. P., & Korgaonkar, P. K. (2011). Effects of trust beliefs on consumers' online intentions. *European Journal of Marketing*, *45*(6), 936–962. https://doi.org/10.1108/03090561111119921

Beldad, A., de Jong, M., & Steehouder, M. (2010). How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust. *Computers in Human Behavior*, *26*(5), 857–869. https://doi.org/10.1016/j.chb.2010.03.013

Benbasat, I. (2010). HCI research: Future challenges and directions. *AIS Transactions on Human-Computer Interaction*, *2*(2), 16–21.

Benedicktus, R. L., Brady, M. K., Darke, P. R., & Voorhees, C. M. (2010). Conveying trustworthiness to online consumers: Reactions to consensus, physical store presence, brand familiarity, and generalized suspicion. *Journal of Retailing*, *86*(4), 322–335. https://doi.org/10.1016/j.jretai.2010.04.002

Blake, B. F., Neuendorf, K. A., & Valdiserri, C. M. (2005). Tailoring new websites to appeal to those most likely to shop online. *Technovation*, *25*(10), 1205–1214. https://doi.org/10.1016/j.technovation.2004.03.009

Bono, J. (2012). *The influence of web site aesthetics on impulse purchase behavior within online retailing environments* (Ph.D., Information Systems (DISS)). Nova Southeastern University, United States -- Florida.

Brashear, T. G., Kashyap, V., Musante, M. D., & Donthu, N. (2009). A profile of the internet shopper: Evidence from six countries. *The Journal of Marketing Theory and Practice*, *17*(3), 267–282. https://doi.org/10.2753/MTP1069-6679170305

Chang, H. H., & Chen, S. W. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review*, *32*(6), 818–841. https://doi.org/10.1108/14684520810923953

Chang, M. K., Cheung, W., & Tang, M. (2013). Building trust online: Interactions among trust building mechanisms. *Information & Management*, *50*(7), 439–445. https://doi.org/10.1016/j.im.2013.06.003

Chen, S. J., & Chang, T.-Z. (2003). A descriptive model of online shopping process: Some empirical results. *International Journal of Service Industry Management*, *14*(5), 556–569. https://doi.org/10.1108/09564230310500228

Chen, Y. H., & Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial Management & Data Systems*, *107*(1), 21–36. https://doi.org/10.1108/02635570710719034

Cheng, L., Li, Y., Li, W., Holm, E., & Zhai, Q. (2013). Understanding the violation of IS security policy in organizations: An integrated model based on social control and deterrence theory. *Computers & Security*, *39*(Part B), 447–459. https://doi.org/10.1016/j.cose.2013.09.009

Cook, D. P., & Luo, W. (2003). The role of third-party seals in building trust online. *E-Service Journal*, *2*(3), 71–84. https://doi.org/10.2979/ESJ.2003.2.3.71

Corritore, C. L., Kracher, B., & Wiedenbeck, S. (2003). On-line trust: Concepts, evolving themes, a model. *International Journal of Human-Computer Studies*, *58*(6), 737–758.

Cyr, D. (2008). Modeling web site design across cultures: Relationships to trust, satisfaction, and e-loyalty. *Journal of Management Information Systems*, *24*(4), 47–72. https://doi.org/10.2753/MIS0742-1222240402

Cyr, D., & Head, M. (2013). Website design in an international context: The role of gender in masculine versus feminine oriented countries. *Computers in Human Behavior*, *29*(4), 1358–1367. https://doi.org/10.1016/j.chb.2013.01.050

Demangeot, C., & Broderick, A. J. (2010). Consumer perceptions of online shopping environments: A gestalt approach. *Psychology and Marketing*, *27*(2), 117–140. https://doi.org/10.1002/mar.20323

Dillard, J. E., & Johnson, M. (2015). The moderating role of consumer education on the intention to buy a high risk product online. *Academy of Marketing Studies Journal; Arden*, *19*(2), 17–36.

Dollinger, S. J., & Malmquist, D. (2009). Reliability and validity of single-item self-reports. *The Journal of General Psychology*, *136*(3), 231–242.

Egger, F. N. (2003). *From interactions to transactions: Designing the trust experience for business-to-consumer electronic commerce*. Retrieved from http://www.uxeurope.com/fichier/articles/egger2003trust.pdf

eMarketer. (2011). *US Retail Ecommerce Forecast: Growth Opportunities in a Maturing Channel*. New York, NY. Retrieved from http://mncomarketing.files.wordpress.com/2011/07/usa-e-commerce-trend3.pdf

eMarketer. (2015a). *Commerce Snapshot*. New York, NY. Retrieved from https://www.emarketer.com/public_media/docs/eMarketer_Commerce_Snapshot.pdf

eMarketer. (2015b). *Retail Roundup*. New York, NY. Retrieved from https://www.emarketer.com/public_media/docs/eMarketer_Retail_Roundup_2015.pdf

eMarketer. (2015c). *Worldwide retail ecommerce sales: Emarketer's updated estimates and forecast through 2019*. New York, NY.

eMarketer. (2017). *Worldwide retail and ecommerce sales: eMarketer's estimates for 2016–2021*. New York, NY. Retrieved from https://www.emarketer.com/Report/Worldwide-Retail-Ecommerce-Sales-eMarketers-Estimates-20162021/2002090

eMarketer. (2018). *Worldwide retail and ecommerce sales: eMarketer's updated forecast and new mcommerce estimates for 2016—2021*. New York, NY. Retrieved from https://www.emarketer.com/Report/Worldwide-Retail-Ecommerce-Sales-eMarketers-Updated-Forecast-New-Mcommerce-Estimates-20162021/2002182

Eroglu, S. (1987). *The Scenario method: A theoretical, not theoretical approach*. (S. P. Douglas, M. R. Solomon, V. Mahajan, M. I. Alpert, W. M. Pride, G. L. Frazier, … P. Doyle, Eds.). Chicago: American Marketing Association.

Evans, A. M., & Krueger, J. I. (2011). Elements of trust: Risk and perspective-taking. *Journal of Experimental Social Psychology*, *47*(1), 171–177. https://doi.org/10.1016/j.jesp.2010.08.007

Fang, Y., Qureshi, I., Sun, H., McCole, P., Ramsey, E., & Lim, K. H. (2014). Trust, satisfaction, and online repurchase intention: The moderating role of perceived effectiveness of e-commerce institutional mechanisms. *MIS Quarterly*, *38*(2), 407–427.

Ganguly, B., Dash, S. B., Cyr, D., & Head, M. (2010). The effects of website design on purchase intention in online shopping: The mediating role of trust and the moderating role of culture. *International Journal of Electronic Business*, *8*(4), 302–330. https://doi.org/10.1504/IJEB.2010.035289

Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, *27*(1), 51–90. https://doi.org/10.2307/30036519

Grabner-Kraeuter, S., & Kaluscha, E. A. (2008). Consumer trust in electronic commerce: Conceptualization and classification of trust building measures. In T. Kautonen & H. Karjaluoto (Eds.), *Trust and New Technologies: Marketing and Management on the Internet and Mobile Media* (pp. 3–22). Northhampton, MA: Edward Elgar Publishing Ltd.

Grabner-Kräuter, S., & Kaluscha, E. A. (2003). Empirical research in on-line trust: A review and critical assessment. *International Journal of Human-Computer Studies*, *58*(6), 783–812. https://doi.org/10.1016/S1071-5819(03)00043-0

Grimm, P. (2010). Social Desirability Bias. In *Wiley International Encyclopedia of Marketing*. John Wiley & Sons, Ltd.

Ha, S., & Stoel, L. (2009). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research*, *62*(5), 565–571. https://doi.org/10.1016/j.jbusres.2008.06.016

Hammervold, R., & Olsson, U. H. (2012). Testing structural equation models: The impact of error variances in the data generating process. *Quality and Quantity; Dordrecht*, *46*(5), 1547–1570. http://dx.doi.org.ezproxylocal.library.nova.edu/10.1007/s11135-011-9466-5

Hasan, B. (2010). Exploring gender differences in online shopping attitude. *Computers in Human Behavior*, *26*(4), 597–601. https://doi.org/10.1016/j.chb.2009.12.012

Hasan, B. (2016). Perceived irritation in online shopping: The impact of website design characteristics. *Computers in Human Behavior*, *54*, 224–230. https://doi.org/10.1016/j.chb.2015.07.056

He, J. (2013). The vital role of trust in e-commerce: A meta-analysis. *International Journal of E-Business Development*, *3*(3), 97–107.

Heinze, J., Thomann, M., & Fischer, P. (2017). Ladders to m-commerce resistance: A qualitative means-end approach. *Computers in Human Behavior*, *73*, 362–374. https://doi.org/10.1016/j.chb.2017.03.059

Hong, I. B., & Cha, H. S. (2013). The mediating role of consumer trust in an online merchant in predicting purchase intention. *International Journal of Information Management*, *33*(6), 927–939. https://doi.org/10.1016/j.ijinfomgt.2013.08.007

Hosmer, L. T. (1995). Trust: The connecting link between organizational theory and philosophical ethics. *Academy of Management Review*, *20*(2), 379–403.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55.

Hu, X., Wu, G., Wu, Y., & Zhang, H. (2010). The effects of Web assurance seals on consumers' initial trust in an online vendor: A functional perspective. *Decision Support Systems*, *48*(2), 407–418. https://doi.org/10.1016/j.dss.2009.10.004

Hwang, Y., & Lee, K. C. (2012). Investigating the moderating role of uncertainty avoidance cultural values on multidimensional online trust. *Information & Management*, *49*(3–4), 171–176. https://doi.org/10.1016/j.im.2012.02.003

Internet Users - Top 20 Countries - Internet Usage. (2015, June 30). Retrieved October 25, 2015, from http://www.internetworldstats.com/top20.htm

Jai, T.-M., Burns, L. D., & King, N. J. (2013). The effect of behavioral tracking practices on consumers' shopping evaluations and repurchase intention toward trusted online retailers. *Computers in Human Behavior*, *29*(3), 901–909. https://doi.org/10.1016/j.chb.2012.12.021

Jamieson, L. F., & Bass, F. M. (1989). Adjusting stated intention measures to predict trial purchase of new products: A comparison of models and methods. *Journal of Marketing Research*, *26*(3), 336–345. https://doi.org/10.2307/3172905

Jarvenpaa, S. L., Tractinsky, N., & Vitale, M. (2000). Consumer trust in an internet store. *Information Technology and Management*, *1*(1–2), 45–71. https://doi.org/10.1023/A:1019104520776

Jiang, L., Yang, Z., & Jun, M. (2013). Measuring consumer perceptions of online shopping convenience. *Journal of Service Management*, *24*(2), 191–214. https://doi.org/10.1108/09564231311323962

Joines, J. L., Scherer, C. W., & Scheufele, D. A. (2003). Exploring motivations for consumer Web use and their implications for e-commerce. *Journal of Consumer Marketing*, *20*(2), 90–108. https://doi.org/10.1108/07363760310464578

Kamari, F., & Kamari, S. (2012). Trust in electronic commerce: A new model for building online trust in B2C. *European Journal of Business and Management*, *4*(10), 125–133.

Karimov, F., & Brengman, M. (2011). Adoption of social media by online retailers: Assessment of current practices and future directions. *International Journal of E-Entrepreneurship and Innovation*, *2*(1), 26–45.

Karimov, F. P., Brengman, M., & Van Hove, L. (2011). The effect of website design dimensions on initial trust: A synthesis of the empirical literature. *Journal of Electronic Commerce Research*, *12*(4), 272–301.

Keeling, K., McGoldrick, P., & Beatty, S. (2010). Avatars as salespeople: Communication style, trust, and intentions. *Journal of Business Research*, *63*(8), 793–800. https://doi.org/10.1016/j.jbusres.2008.12.015

Kim, J. E., & Johnson, K. (2013). The Impact of moral emotions on cause-related marketing campaigns: A cross-cultural examination. *Journal of Business Ethics*, *112*(1), 79–90. https://doi.org/10.1007/s10551-012-1233-6

Kim, Y. H., & Kim, D. J. (2005). A study of online transaction self-efficacy, consumer trust, and uncertainty reduction in electronic commerce transaction. In *System Sciences, 2005. HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on* (pp. 170c–170c). Retrieved from http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=1385578

Kim, Y., & Peterson, R. A. (2017). A meta-analysis of online trust relationships in e-commerce. *Journal of Interactive Marketing*, *38*, 44–54. https://doi.org/10.1016/j.intmar.2017.01.001

King, R. C., Schilhavy, R. A. M., Chowa, C., & Chin, W. W. (2016). Do customers identify with our website? The effects of website identification on repeat purchase intention. *International Journal of Electronic Commerce*, *20*(3), 319–354. https://doi.org/10.1080/10864415.2016.1121762

King, T. M., & Malhotra, N. K. (2015). The influence of common method variance in marketing research: Reanalysis of past studies Using a marker-variable technique. In H. E. Spotts (Ed.), *Revolution in Marketing: Market Driving Changes* (pp. 269–269). Springfield, USA: Springer International Publishing. https://doi.org/10.1007/978-3-319-11761-4_119

Kline, T. J. B., Sulsky, L. M., & Rever-Moriyama, S. D. (2000). Common method variance and specification error: A practical approach to detection. *The Journal of Psychology; Provincetown*, *134*(4), 401–421.

Koo, D.-M., & Ju, S.-H. (2010). The interactional effects of atmospherics and perceptual curiosity on emotions and online shopping intention. *Computers in Human Behavior*, *26*(3), 377–388. https://doi.org/10.1016/j.chb.2009.11.009

Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., … Wolff, S. (2009). A brief history of the internet. *ACM SIGCOMM Computer Communication Review*, *39*(5), 22–31.

Liang, T.-P., & Lai, H.-J. (2002). Effect of store design on consumer purchases: An empirical study of on-line bookstores. *Information & Management*, *39*(6), 431–444. https://doi.org/10.1016/S0378-7206(01)00129-X

Liao, S.-H., & Chung, Y.-C. (2011). The effects of psychological factors on online consumer behavior. In *Industrial Engineering and Engineering Management (IEEM), 2011 IEEE International Conference* (pp. 1380–1383). IEEE. Retrieved from http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=6118142

Lopatovska, I., Fenton, M. R., & Campot, S. (2012). Examining preferences for search engines and their effects on information behavior. *Proceedings of the American Society for Information Science and Technology*, *49*(1), 1–11. https://doi.org/10.1002/meet.14504901110

Lyon, F., Mšllering, G., & Saunders, M. (2015). *Handbook of research methods on trust*. Northhampton, MA: Edward Elgar Publishing.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*(2), 130–149.

Maity, M., & Dass, M. (2014). Consumer decision-making across modern and traditional channels: E-commerce, m-commerce, in-store. *Decision Support Systems*, *61*, 34–46. https://doi.org/10.1016/j.dss.2014.01.008

Mann, P. S. (2015). *Introductory Statistics* (9th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *The Academy of Management Review*, *20*(3), 709–734. https://doi.org/10.2307/258792

McCole, P., Ramsey, E., & Williams, J. (2010). Trust considerations on attitudes towards online purchasing: The moderating effect of privacy and security concerns. *Journal of Business Research*, *63*(9–10), 1018–1024. https://doi.org/10.1016/j.jbusres.2009.02.025

McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, *13*(3), 334–359.

Meyen, M., Pfaff-Rüdiger, S., Dudenhöffer, K., & Huss, J. (2010). The internet in everyday life: A typology of internet users. *Media, Culture & Society*, *32*(5), 873–882. https://doi.org/10.1177/0163443710374792

Midha, V. (2012). Impact of consumer empowerment on online trust: An examination across genders. *Decision Support Systems*, *54*(1), 198–205. https://doi.org/10.1016/j.dss.2012.05.005

Moshagen, M., & Thielsch, M. T. (2010). Facets of visual aesthetics. *International Journal of Human-Computer Studies*, *68*(10), 689–709.

Mudambi, S. M., & Schuff, D. (2010). What makes a helpful online review? A study of customer reviews on amazon.com. *MIS Quarterly*, *34*(1), 185–200.

Murphy, G. B., & Tocher, N. (2011). Gender differences in the effectiveness of online trust building information cues: An empirical examination. *The Journal of High Technology Management Research*, *22*(1), 26–35. https://doi.org/10.1016/j.hitech.2011.03.004

Nah, F. F.-H., & Davis, S. (2002). HCI research issues in e-commerce. *Journal of Electronic Commerce Research*, *3*(3), 98–113.

Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2018). The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society*, *53*, 79–90. https://doi.org/10.1016/j.techsoc.2018.01.003

NCC Group. (2015). *Trust in the internet 2014 survey*. USA. Retrieved from https://www.nccgroup.trust/uk/about-us/resources/trust-in-the-internet-2014-survey

Obal, M., & Kunz, W. (2013). Trust development in e-services: A cohort analysis of millennials and baby boomers. *Journal of Service Management*, *24*(1), 45–63. https://doi.org/10.1108/09564231311304189

Osborne, J. W. (2012). *Best practices in data cleaning: A complete guide to everything you need to do before and after collecting your data*. Sage.

Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of Experimental Social Psychology*, *5*(1), 12–30. https://doi.org/10.1016/0022-1031(69)90003-1

Parboteeah, D. V., Valacich, J. S., & Wells, J. D. (2009). The influence of website characteristics on a consumer's urge to buy impulsively. *Information Systems Research*, *20*(1), 60–78.

Pennington, R., Wilcox, H. D., & Grover, V. (2004). The role of system trust in business-to-consumer transactions. *Journal of Management Information Systems*, *20*(3), 197–226.

Pettinico, G., & Milne, G. R. (2017). Living by the numbers: Understanding the "quantification effect." *Journal of Consumer Marketing*, *34*(4), 281–291. https://doi.org/10.1108/JCM-06-2016-1839

Pew Research Center's Internet & American Life Project. (2012). *Who's online: Internet user demographics*. Retrieved from http://pewinternet.org/Trend-Data-(Adults)/Whos-Online.aspx

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903.

Porter, C. E., Donthu, N., & Baker, A. (2012). Gender differences in trust formation in virtual communities. *Journal of Marketing Theory & Practice*, *20*(1), 39–58.

Qiu, L., & Benbasat, I. (2009). Evaluating anthropomorphic product recommendation agents: A social relationship perspective to designing information systems. *Journal of Management Information Systems*, *25*(4), 145–182.

Reinecke, K., Yeh, T., Miratrix, L., Mardiko, R., Zhao, Y., Liu, J., & Gajos, K. Z. (2013). Predicting users' first impressions of website aesthetics with a quantification of perceived visual complexity and colorfulness. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 2049–2058). New York, NY, USA: ACM. https://doi.org/10.1145/2470654.2481281

Richard, M.-O. (2005). Modeling the impact of internet atmospherics on surfer behavior. *Journal of Business Research*, *58*(12), 1632–1642. https://doi.org/10.1016/j.jbusres.2004.07.009

Riedl, R., Hubert, M., & Kenning, P. (2010). Are there neural gender differences in online trust? An fMRI study on the perceived trustworthiness of ebay offers. *MIS Quaterly*, *34*(2), 397–428.

Rohm, A. J., & Swaminathan, V. (2004). A typology of online shoppers based on shopping motivations. *Journal of Business Research*, *57*(7), 748–757. https://doi.org/10.1016/S0148-2963(02)00351-X

Román, S., & Cuestas, P. J. (2008). The perceptions of consumers regarding online retailers' ethics and their relationship with consumers' general internet expertise and word of mouth: A preliminary analysis. *Journal of Business Ethics*, *83*(4), 641–656. https://doi.org/10.1007/s10551-007-9645-4

Rosen, D. E., & Purinton, E. (2004). Website design: Viewing the web as a cognitive landscape. *Journal of Business Research*, *57*(7), 787–794. https://doi.org/10.1016/S0148-2963(02)00353-3

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, *23*(3), 393–404.

Rutter, R. N. (2014). A retailer perspective of e-commerce brand management. In *E-commerce Platform Acceptance* (pp. 101–128). Norwich, UK: Springer. Retrieved from http://link.springer.com/chapter/10.1007/978-3-319-06121-4_6

Samuel, L. H. S., Balaji, M. S., & Wei, K. K. (2015). An Investigation of online shopping experience on trust and behavioral intentions. *Journal of Internet Commerce*, *14*(2), 233–254. https://doi.org/10.1080/15332861.2015.1028250

Saunders, S. G. (2015). Service employee evaluations of customer tips: An expectations-disconfirmation tip gap approach. *Journal of Service Theory and Practice*, *25*(6), 796–812.

Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, *32*(2), 344–354.

Seckler, M., Opwis, K., & Tuch, A. N. (2015). Linking objective design factors with subjective aesthetics: An experimental study on how structure and color of websites affect the facets of users' visual aesthetic perception. *Computers in Human Behavior*, *49*, 375–389. https://doi.org/10.1016/j.chb.2015.02.056

Sharma, S., Durand, R. M., & Gur-Arie, O. (1981). Identification and analysis of moderator variables. *Journal of Marketing Research*, *18*(3), 291–300. https://doi.org/10.2307/3150970

Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., Elmqvist, N., & Diakopoulos, N. (2016). *Designing the user interface: Strategies for effective human-computer interaction* (6th edition). Boston: Pearson.

Simonin, B. L., & Ruth, J. A. (1998). Is a company known by the company it keeps? Assessing the spillover effects of brand alliances on consumer brand attitudes. *Journal of Marketing Research*, *35*(1), 30–42.

Söllner, M., Hoffmann, A., Hirdes, E. M., Rudakova, L., Leimeister, S., & Leimeister, J. (2010). Towards a formative measurement model for trust. *BLED 2010 Proceedings*. Retrieved from www.unikassel.de/fb7/ibwl/leimeister/pub/JML_180.pdf

Spears, N., & Singh, S. N. (2004). Measuring attitude toward the brand and purchase intentions. *Journal of Current Issues & Research in Advertising (CTC Press)*, *26*(2), 53–66.

Stafford, T. F., Turan, A., & Raisinghani, M. S. (2004). International and cross-cultural influences on online shopping behavior. *Journal of Global Information Technology Management*, *7*(2), 70–87.

Stapel, J. (1971). Sales effect of print ads. *Journal of Advertising Research*, *1*(3), 32–36.

Suh, B., & Han, I. (2003). The impact of customer trust and perception of security control on the acceptance of electronic commerce. *International Journal of Electronic Commerce*, *7*(3), 135–161.

Supprenant, C., & Churchill, G. A. (1984). Can role playing be substituted for actual consumption? In *Advances in Consumer Research* (pp. 122–126). Ann Arbor, MI: Association for Consumer Research.

Tabachnick, B. G., & Fidell, L. S. (2012). *Using multivariate statistics* (6th edition). Boston, MA: Pearson.

Urban, G. L., Amyx, C., & Lorenzon, A. (2009). Online trust: State of the art, new frontiers, and research potential. *Journal of Interactive Marketing*, *23*(2), 179–190. https://doi.org/10.1016/j.intmar.2009.03.001

U.S. Census Bureau. (2012). *E-Commerce 2010*. Retrieved from https://www.census.gov/content/dam/Census/library/publications/2012/econ/2010reportfinal.pdf

U.S. Census Bureau. (2016). *E-Stats 2014: Measuring the electronic economy*. Retrieved from https://www.census.gov/content/dam/Census/library/publications/2016/econ/e14-estats.pdf

U.S. Census Bureau. (2018). *E-Stats 2016: Measuring the electronic economy*. Retrieved from https://www.census.gov/library/publications/2018/econ/2016-e-stats.html

Van Duyne, D. K., Landay, J. A., & Hong, J. I. (2007). *The design of sites: Patterns for creating winning web sites* (2nd ed.). Upper Saddle River, NJ: Prentice Hall Professional.

Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: The case for an augmented technology acceptance model. *Information & Management*, *41*(6), 747–762. https://doi.org/10.1016/j.im.2003.08.011

Wang, H., & Hu, Z. (2009). Online trust between inexperienced consumers and experienced consumers: An empirical study. In *Future Information Technology and Management Engineering, International Seminar on* (pp. 167–170). Los Alamitos, CA, USA: IEEE Computer Society. http://doi.ieeecomputersociety.org/10.1109/FITME.2009.47

Wang, J. W., & Wu, H.-L. (2011). Understanding repeat purchase intentions and uncertainty in the context of online shopping. In *Proceedings Pacific Asia Conference on Information Systems (PACIS)*.

Wang, X. L., Shi, K., & Fan, H. X. (2006). Psychological mechanisms of investors in chinese stock markets. *Journal of Economic Psychology*, *27*(6), 762–780. https://doi.org/10.1016/j.joep.2006.06.007

Wang, Y. D., & Emurian, H. H. (2005). An overview of online trust: Concepts, elements, and implications. *Computers in Human Behavior*, *21*(1), 105–125. https://doi.org/10.1016/j.chb.2003.11.008

Wang, Y., Wang, S., Fang, Y., & Chau, P. Y. K. (2012). Store survival in online marketplace: An empirical investigation. *Decision Support Systems*. https://doi.org/10.1016/j.dss.2012.11.005

Weber, J. (1992). Scenarios in business ethics research: Review, critical assessment, and recommendations. *Business Ethics Quarterly*, *2*(2), 137–160. https://doi.org/10.2307/3857568

Weibel, D., Stricker, D., Wissmath, B., & Mast, F. W. (2010). How socially relevant visual characteristics of avatars influence impression formation. *Journal of Media Psychology: Theories, Methods, and Applications*, *22*(1), 37–43. https://doi.org/10.1027/1864-1105/a000005

Weijters, B., Rangarajan, D., Falk, T., & Schillewaert, N. (2007). Determinants and outcomes of customers' use of self-service technology in a retail setting. *Journal of Service Research*, *10*(1), 3–21.

Wright, G., Cairns, G., & Bradfield, R. (2013). Scenario methodology: New developments in theory and practice. *Technological Forecasting and Social Change*, *80*(4), 561–565. https://doi.org/10.1016/j.techfore.2012.11.011

Yzer, M. (2017). Theory of reasoned action and theory of planned behavior. In *The International Encyclopedia of Media Effects*. John Wiley & Sons, Inc. https://doi.org/10.1002/9781118783764.wbieme0075

Zwass, V. (1996). Electronic commerce: Structures and issues. *International Journal of Electronic Commerce*, *1*(1), 3–23.