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Understanding the Relationship of Trust and Risk in Online Shopping

Stephanie C. Kozina
Cleveland State University

UNDERSTANDING THE RELATIONSHIP OF TRUST & RISK IN ONLINE SHOPPING

STEPHANIE C. KOZINA

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Chatham University

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This thesis has been approved

for the Department of PSYCHOLOGY

and the College of Graduate Studies by

_____

Dr. Brian F. Blake

_____

Department & Date

_____

Dr. Michael Horvath

_____

Department & Date

_____

Dr. Kimberly Neuendorf

_____

Department & Date

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ABSTRACT

This study explores the relationships between online shopping, perceived risk, and trust in an online vendor. Various models have been proposed and studied in previous literature. This study looked at three models: Through, Joint, and Plus to explain how these three constructs relate.

An online study with 173 consumers was conducted and focused on perceived risk and consumer trust in the online vendor. Two types of trust, predictability and integrity, were included. A principal components factor analysis led to two four types of risk – privacy, time, social, and lost resource risk -- all four were included in the analysis. Structural Equation Modeling was used to assess all four conceptual models. The results show that the Through Model, in which risk leads to trust and trust impacts shopping, is the best fit from an empirical perspective. An association was found between two types of risk – privacy and time – and predictability. Trust, more specifically predictability was found to positively impact purchase and browsing an online website. Conversely, integrity does not add to predictability in the context of online shopping.

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CHAPTER I

INTRODUCTION

OBJECTIVES

All consumer textbooks emphasize the importance of trust and risk perception as a significant consideration in online shopping. Trust and risk perception have been widely accepted as worthy topics for consumer research focus. However, is this universal acceptance of the pivotal role of risk and trust valid? Can we take for granted that trust and risk are important drivers of shopping behavior?

Although, both trust and risk have been studied extensively in the context of online shopping, much of the literature focuses on either trust or risk. While some studies have explored both trust and risk, the number of empirical studies with a double focus is fewer than those with a single focus. The primary objective of this research was to understand the relationship between trust and risk and how the two impact shopping. Additionally, this study looks to understand the effects of the multiple dimensions of trust and risk to determine the most important for shopping. Three models were conceptualized based on the literature and previous research findings and this paper aims

to compare the three models to find the best fitting model to explain how the relationship between trust and risk impact shopping behavior.

LITERATURE REVIEW

Trust in Online Shopping

Throughout the past decade, many researchers have investigated trust as it relates to online shopping. Research conducted in the area of trust in online shopping draws on several different definitions of trust. Many researchers have adopted a ubiquitous definition of trust conceptualized by Rousseau et al. (1998) which is "trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviors of another". Another widely used and followed definition of trust was proposed by Lee and Turban (2001) and defines trust in online shopping as "the willingness of a consumer to be vulnerable to the actions of an Internet merchant in an Internet transaction, based on the expectation that the Internet merchant will behave in certain agreeable ways, irrespective of the ability of the consumers to monitor or control that Internet merchant". Both definitions have similarities in that the consumer is in a vulnerable state and expects that the online merchant will behave in a certain manner.

Shankar et al. (2002) further defined trust and made a distinction between online and offline trust. Whereas offline trust involves activities of a vendor and its relationship with its customers and other stakeholders, online trust involves a vendor's business

activities in the electronic medium and its web site. The object of offline trust is typically a human or an entity, while the object of online trust is the technology itself.

Dimensions of Trust

In the area of consumer behavior there are various types of trust, similarly trust in an online shopping context has multiple dimensions. Gefen (2002) identified three dimensions of online trust – ability, integrity, and benevolence. Ability is the idea that the online vendor is competent and capable of providing quality products or services. Benevolence is the notion that the online vendor has good intentions and integrity is the perception that the online vendor adheres to promises and claims stated on the website. These three dimensions were also found to be significant components of overall trust in an online vendor and integrity was found to predict purchase intent (Gefen, 2002).

Correspondingly, Corbitt et al. (2003) uncovered three dimensions of online trust and named them competence, predictability, and goodwill. These three dimensions were combined into an overall trust measure and thus were not investigated independently; rather it was treated as a unidimensional construct. Further expanding on the 2002 research, Gefen and Straub (2004) investigated trust from a multidimensional perspective and looked at the three previously identified dimensions and identified a fourth which was predictability. In this study, integrity and predictability were found to significantly influence purchase intent, however ability and benevolence were not (Gefen & Straub, 2004). Liao et al. (2006) went on to further expand the various trust dimensions and included expertise, information, fairness in transactions, fairness in service, empathy and resolving concerns in a study of trust and online shopping; however the six dimensions

were combined into an overall, unidimensional trust measure rather than explored independently regarding impact on trust.

Other researchers have looked at trust from a unidimensional, overall sense and did not break down the different dimensions, though they used several items to measure trust (Bart et al., 2005; Cheung & Lee, 2006; Comegys et al., 2009; Jarvenpaa, 2000; Van Slyke et al., 2004). The current study uses the dimensions and measures proposed by Gefen & Straub, as it is an established measure and proven to be sufficient in the context of trust in an online vendor.

The Impact of Trust on Purchase

Notably, many researchers have found that trust has an impact on purchase intent (Chang & Chen, 2008; Corbitt et al., 2003; Gefen, 2002; Gefen & Straub, 2004; Van Slyke et al., 2004; Yoon, 2002). Though some had slightly different definitions or looked at various dimensions of trust, there appears to be a strong relationship between trust and online shopping.

Bart et al. (2005) took a slightly different angle and looked at the impact of trust on behavioral intent. In their study, trust was comprised of five measures of overall trust and combined for a single unidimensional trust measure. Behavioral intent is comprised of several different constructs including willingness to continue clicking on a website, abandoning or returning to the site, sending emails, downloading files, and ordering from the site. A strong correlation was found between trust and behavioral intent. Likewise, through structural equation modeling, trust was found to mediate behavioral intent (Bart et al., 2005). This indirect effect of trust on behavioral intent was found to be strongest for computer sites and weakest for financial services sites.

Rather than purchase intent, Comegys et al. (2009) researched purchase volume and the relationship with trust. Trust was explored in as a single dimension. Through regression analysis, it was shown that trust predicts purchase volume. As trust increases, purchase volume also increases.

Liao et al. (2006) also looked at trust and online shopping from a somewhat different perspective. Rather than purchase intent, the research focused on continuance intention which consisted of three items that had to do with expectation to continue using a site, intention to continue using a site, and transacting with a retailer in the near future. A strong positive correlation was found between continuance intention and trust. A structural equation model showed a significant path from trust to continuance intention (Liao et al., 2006).

Chang & Chen (2008) examined both trust and risk and how the two related to purchase intent. Although their study adapted the trust measures from Gefen & Straub (2004), the six measures were combined to form a single trust item. The resulting structural equation model showed that both trust and risk have a significant impact on purchase intent.

Risk Studies

Similar to trust, risk has also been studied extensively. Risk, in an online environment, has been defined as a consumer's belief about the potential uncertain negative outcomes associated with the online transaction (Kim et al., 2007). While some researchers have looked at overall risk, risk is also not homogeneous, rather it is multidimensional. Different types of risk have been researched in many different studies.

Not surprisingly, while there is much overlap in the types of risk included from study to study, there are differences in the types of risk included and how risk was explored.

Product Risk

Performance or product risk is one of the most commonly explored types of risk and has been the focus of many studies on risk and online shopping. Product risk is the chance of the item failing to meet the performance requirements intended of the purchase (Bhatnagar et al., 2000; Bhatnagar & Ghose, 2004; Crespo et al., 2009; Forsythe et al., 2006; Forsythe & Shi, 2003; Korgaonkar & Karson, 2007; Pires et al., 2004; Soopramanien et al., 2007). Conclusions related to product risk and its impact on purchase have been somewhat inconclusive. Research conducted in 2003 by Forsythe and Shi found that product risk negatively impacts the frequency of online shopping purchases. Likewise, Crespo et al. found performance risk to be the second most influential type of risk, behind financial, on overall perceived risk, which was found to significantly predict purchase intention (Crespo et al., 2009). However, research conducted by Soopramanien et al. (2007) found that product risk does not reduce intent to shop. Other research found perceived product risk to vary for certain product classes. Bhatnagar & Ghose (2004) found that product risk is lower for certain product categories, namely, books, software and music purchases while it is higher for others such as electronics, flowers, and magazines.

Financial Risk

Financial risk has also been studied extensively and is the notion that some type of monetary loss will occur from the online transaction. These losses or consequences may result from sharing a credit card number online or other act of fraud (Cases, 2002;

Crespo et al., 2009; Forsythe & Shi, 2003; Lim, 2003) or as result of the absolute cost of a product purchased online being greater than purchasing through conventional shopping (Cases, 2002; Forsythe et al., 2006; Forsythe & Shi, 2003; Lim, 2003; Pires et al., 2004). Crespo et al. found financial risk to have the most influence on overall perceived risk, which in turn was found to predict purchase intention (Crespo et al., 2009). Perceived financial risk was shown to have the most impact on purchase related behaviors in the 2003 study by Forsythe & Shi including negative impacts on the amount of money spent online, frequency of online purchasing, and browsing online with the intent to buy.

Time/Convenience Risk

Time/convenience risk is inconvenience or lost time incurred during online transactions often resulting from difficulty of navigation, submitting orders, or delivery delays in receiving products (Cases, 2002; Crespo et al., 2009; Forsythe et al., 2006; Forsythe & Shi, 2003; Korgaonkar & Karson, 2007; Lim, 2003; Pires et al., 2004). Time risk has been shown to negatively impact browsing with intent to buy and frequency of purchase (Forsythe & Shi, 2003). Conversely, others have found time risk to be one of the least relevant risk dimensions just above social and privacy risk (Crespo et al., 2009).

Security Risk

Security/ privacy risk is the consumer's fear that the open internet network is not secure and their personal information may be compromised when transmitting sensitive information through online transactions (Bhatnagar et al., 2000; Bhatnagar & Ghose, 2004; Cases, 2002; Crespo et al., 2009; Forsythe et al., 2006; Forsythe & Shi, 2003; Jarvenpaa & Todd, 1996; Kim et al., 2009; Korgaonkar & Karson, 2007; Soopramanien

et al., 2007). Kim et al. (2009) found security risk to be the most important risk factor explaining overall risk perception in the purchase of airline tickets online.

Psychological Risk

Psychological risk is the idea that the purchase will be inconsistent with the personal beliefs or self-image of the consumer (Crespo et al., 2009; Pires et al., 2004). Potential loss of self-esteem from not achieving a buying goal may also occasion psychological risk. Pires et al. (2004) found psychological risk to be highest for purchase of services. Although found to be a significant risk types in terms of overall perceived risk perception, Crespo et al. (2009) found psychological risk to be one of the least influential types of risk.

Social Risk

Social risk accounts for how family or friends might react to the purchase and the likelihood that others may view the consumers less favorably due to the purchase (Cases, 2002; Crespo et al., 2009; Forsythe & Shi, 2003; Lim, 2003; Pires et al., 2004). Pires et al. (2004) found social risk to be higher for high involvement products and services than for low involvement products and services. Social risk has been shown to be the least influential perceived risk factor on overall perceived risk for online shopping (Cases, 2002; Crespo et al., 2009).

Physical Risk

Physical risk is one of the less commonly studied types of risk and is the probability of the purchase resulting in physical harm or injury. Pires et al. (2004) included this type of risk in research among five others; however, all six types of risk were combined into an overall risk measure when looking at impact on purchase intent.

Additionally, all types of risk were perceived as being higher for high involvement products and services than for low involvement products and services with the exception of physical risk, which did not follow this same pattern (Pires et al., 2004). Kim et al. (2009) also included perceived physical risk in their study and found that it was the only type of risk in which there was no difference in the level of perceived risk between purchasers and non-purchasers (Kim et al., 2009).

Overall Risk

While most research has identified various types of risk and often combined them to form an overall measure, several studies have identified risk only from an overall perspective. Risk in this sense has been defined as a consumer's perception of uncertainty (Bhatnagar & Ghose, 2004). The uncertainty may be related to the outcome or about the adverse consequences of buying a product or service (Bhatnagar & Ghose, 2004).

Table I – Risk Types Identified in Previous Research

	Financial	Performance	Psychological	Time/ Convenience	Social	Security/ Privacy	Physical	Overall
Forsythe & Shi, 2003	X	X	X	X				
Comegys et al., 2009								X
Cases, 2002	X	X		X	X	X		
Kimery & McCord, 2002								X
Corbitt et al., 2003	X	X	X	X	X			
Chang & Chen, 2008	X	X	X	X	X			
Bhatnagar & Ghose 2004		X				X		
Forsythe et al., 2006	X	X		X				
Crespo et al., 2009	X	X	X	X	X	X		
Pires et al., 2004	X	X	X	X	X		X	
Jarvenpaa et al., 2000								X
Soopramanien et al., 2007		X				X		
Miyazaki &Fernandez, 2001								X
Kim et al., 2009	X	X	X	X		X	X	X

As noted, there is much variance in the types of risk that are most influential on purchase related behaviors. Moreover, the literature is rather inconsistent on whether perceived risk of any type does, in fact, influence purchase. Several studies have noted that overall perceived risk has no impact or association with purchase intent or purchase frequency (Pires et al., 2004) Other research, however has shown perceived risk to be a significant predictor of purchase (Crespo et al., 2009; Forsythe & Shi, 2003).

Relationship between Risk and Trust

Risk and trust have been studied together and separately for many years and in many different contexts. Several researchers have proposed models for risk and trust outside of online shopping. For example, Mitchell (1999) proposed that from a marketing strategy perspective, risk predicts trust. In 2004, Das and Tang proposed a conceptual framework of how trust and risk relate. They proposed that, based on previous literature, trust and risk are mirror images in which an inverse relationship exists. However, a general model for risk and trust may not directly translate to online shopping, since online shopping is different from shopping in a brick and mortar store or even catalog shopping.

Several studies have been published on the relationship between risk and trust specific to the online shopping context. Corbitt et al. (2003) looked at the impact of trust and risk on e-commerce participation. This research included the many different types of risk including performance, financial, psychological, social, and time. No association was found between risk and trust. Similarly Chang and Chen (2008) studied risk and trust in the context of online shopping and found them to be reciprocal. This means that perceived risk negatively affects trust in an online vendor, and likewise, less trust in a vendor negatively affects perceived risk.

POINTS OF DEPARTURE

The current research builds on the previous studies to study both risk and trust in the context of online shopping. As noted, this study adopts the trust measures proposed

by Gefen & Straub (2004) because it is a recognized and reputable measure for trust in an online vendor. It is anticipated that the four trust indices will correlate with each other. This overlap must be accounted for in the analysis. Additionally, based on the prior findings, it is expected that predictability and integrity will influence purchase. Gefen & Straub (2004) found both to be significant predictors of purchase, therefore similar results are expected.

Underlying factors for risk may be different for online shopping than for traditional brick & mortar shopping or social network. Consequently, we look at specific risk factors in the area of online shopping. Several different risk taxonomies were considered and specific types of risk were chosen for this study. The types of risk included were product, financial, security, time, and social. These risk types appear the most relevant given the research conducted in this area to date. The types of risk may not be independent and any overlap must be accounted for. Accordingly, the study must first identify the distinct risk dimensions before the risk-shopping relationship is assessed.

There is still some uncertainty regarding the relationship between trust and risk due to the mixed results of past studies. Risk could potentially decrease trust or trust could potentially decrease risk. Likewise it is possible that trust may be more important than risk when it comes to purchase. Past research has been far more favorable and conclusive showing that trust does impact purchase. This has not been the case with risk, and in fact, one study found trust to have a stronger impact on purchase than risk (Chang & Chen, 2008).

While most studies have looked at overall shopping, and more specifically purchase intent, the current study also aims to explain factors contributing and detracting

from purchase. While many have looked at purchase intent, this study used two purchase frequency items for an overall purchase measure. Finally, we look at browsing online. Browsing should not be equated with purchase as the two are vastly different especially in an online environment. Browsing does not require the level of commitment that actual purchasing does and therefore it is expected that trust and risk will impact browsing differently than purchase. In fact, trust and risk may be irrelevant in the case of online browsing.

CHAPTER II

CONCEPTUAL MODELS

Conceptual Models for Trust, Risk, and Online Shopping

As previously mentioned, various models of how trust and risk relate to shopping have been proposed throughout a wide range of research. We look at these models in detail and propose several models which build on previous findings.

THROUGH MODELS

Through models examine the impact of trust and risk on each other and the impact on purchase/browsing. Two versions of the Through model are possible. The first looks at risk leading to trust which in turn, leads to shopping (i.e., browsing or purchase). In this model, the consumer trusts the vendor as a result of little perceived risk or doesn't trust the vendor due to too much perceived risk. The second version looks at trust which leads to risk then leads to shopping. In this model the consumer trusts the vendor and therefore perceives little risk. On the other hand, if the consumer doesn't trust the vendor,

more risk is perceived. In either model, trust and risk may have an indirect or direct effect on shopping behavior.

Jarvenpaa et al. (2000) examined the trust – risk – purchase (willingness to buy) model. Trust was conceptualized as trustworthiness in a store and although it was assessed using seven measures, the measures were combined for a single overall trust in a store variable. Risk perception was also comprised of multiple measures and the four items were combined to form a single risk variable. Using structural equation modeling, their study found trust was a significant predictor for risk. Risk then negatively impacts willingness to buy for the product categories of books and flight tickets. This model held true for both product categories.

Kimery and McCord (2002) also looked at a trust – risk – purchase model which also focused on third-party assurances. Trust was measured using Gefen's (2000) 3 item trust measure for trust in an online vendor. These items were combined to form a single measure of trust in an online vendor. Perceived risk was measured using four items and was taken from the Jarvenpaa et al. (2000) study. Again, the multiple risk items were combined for a single risk measurement. Using path analysis, trust was found to impact risk perception and likewise, risk was found to impact purchase intent.

Although the Jarvenpaa et al. (2000) study and the Kimery and McCord (2002) research have shown support for the trust – risk – purchase model, several studies have indicated that risk does not lead directly to shopping (Comegys et al., 2009; Pires et al., 2004) and thus this model may not be the most accurate or realistic. There are also several limitations to each study. The Jarvenpaa et al. (2000) and the Kimery and McCord (2002) studies looked at trust from a unidimensional perspective and it has since

been found by Gefen (2002) and Gefen & Straub (2004) that trust is a multidimensional construct and that some of the dimensions of trust do not effect online purchase. Second, the Jarvenpaa et al. (2000) study was focused on two specific product categories and the same model may not hold true for a broad range of purchases. Finally, the Kimery and McCord (2002) study was focused on third-party assurances which could have impacted the trust – risk –purchase model.

Conversely, Corbitt et al. (2003) investigated the risk – trust – purchase model. As was mentioned previously, trust was conceptualized as a multidimensional construct with three dimensions: competence, predictability, and goodwill. These items were then combined to form a single trust measure. Risk was also assessed through several types of risk – performance, financial, social, psychological, and time risk. These were also combined for a single risk item. Although their study found that risk and trust were not related, a positive relationship was found between trust and participation in online shopping. Several factors may have impacted the outcome of this research. As Gefen and Straub (2004) found, benevolence and ability do not lead to purchase (Gefen, 2002; Gefen & Straub, 2004). When comparing this to the dimensions Corbitt et al. (2003) included competence and goodwill are similar or the same as ability and benevolence. Thus two of the three dimensions formed to make the single construct do not have any impact on purchase.

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JOINT MODEL

The Joint model proposes that there is an interaction between risk and trust, which in turn, leads to purchase and/or browsing. This model also suggests that the main effects of trust and risk do not add to the interaction effect, as the variance should be explained by the interaction.

Comegys et al. (2009) suggested a combination effect of risk and trust as related to the online purchase process. Both trust and risk were treated as overall, unidimensional measures, with each being assessed with just one measurement. Though a Joint model was suggested, risk and trust were looked at as independent terms and their impact on purchase. Comegys et al. (2009) used a chi-square test (due to the 3-point scaled, categorical nature of the trust and risk variables) to measure online shopping and trust or perceived risk. Analysis of Variance (ANOVA) using dummy variables was used to assess perceived risk and the amount of online shopping. Risk was found to not have any impact on purchase volume. On the other hand, consumers with high trust in online vendors were found to purchase more than those with low trust (Comegys et al., 2009).

When looking at an interaction or combination effect of risk and trust it is important to explore the two variables as a single factor, therefore accounting for an interaction effect. Although Comegys et al. (2009) suggested this model; the analysis methodology did not support this model fully. Trust and risk were analyzed separately and not looked at from a joint perspective when exploring the influence on purchase.

Given the findings from previous research, there are some interaction terms that may make more sense than others. For example, several studies have found integrity to be

predictive of purchase (Gefen, 2002; Gefen & Straub, 2004). Gefen & Straub also found predictability to predict purchase, therefore, both integrity and predictability should be included as part of the interaction terms. Likewise, benevolence and ability have not been found to predict purchase (Gefen, 2002; Gefen & Straub, 2004). For this reason it may not be relevant to include these items in the interactions. Attempting to include all possible interaction terms in a single analysis may be problematic due to likely strong intercorrelations among the various interaction terms and therefore, multicollinearity issues.

PLUS MODEL

The Plus Model looks at risk and trust as additive, each having its own impact on purchase but when added together having even more impact on purchase. In this model, both trust and risk are important, though one may be more important than another, but both constructs influence purchase separately.

Chang & Chen (2008) proposed a model where both the main effects of risk and trust impact purchase intent. As previously mentioned, trust and risk were both assessed using multiple items; however the multiple items were combined to form a single item for each. Using structural equation modeling, both risk and trust were found to influence purchase, though the impact of trust was stronger than the impact of risk. Additionally, their study revealed that risk negatively impacts trust and trust impacts risk, indicating a reciprocal relationship (Chang & Chen, 2008).

This model may be more appropriate for certain purchase situations than others. For example, an additive effect of risk and trust may not be applicable for online browsing or for certain product classes. Since risk was found to be lower for products high in search attributes like software, books, and music (Bhatnagar & Ghose, 2004), risk may not add any significant impact on trust. Likewise, trust has been shown to have limited effect on behavioral intent (purchase) for financial sites (Bart et al., 2005). In this case, trust may add little value in terms of an additive relationship and impact on purchase.

CHAPTER III

METHODOLGY

The survey instrument, shown in Appendix A, included measures of trust and risk. The trust scale was adapted from Gefen and Straub (2004) and included 14 items in total – 4 integrity, 4 benevolence, 4 ability, and 2 predictability measures. Each item was scaled on a 7 point scale where 1 was strongly disagree and 7 was strongly agree, with a midpoint at 4 - neither agree nor disagree. The items within each trust dimension were summed for composite measures of integrity, benevolence, ability, and predictability. These scores were standardized for comparison.

Table II – Trust Items Included in Instrument

Trust Dimension	Item
Integrity	Generally, promised made by online vendors are likely to be reliable
Integrity	In general, I do not doubt the honesty of online vendors
Integrity	I expect that most of the times online vendors will keep promises they make
Integrity	I expect that usually the advice given by online vendors is their best judgment
Benevolence	I expect that typically I can count on online vendors to consider how their actions affect me
Benevolence	I expect that in general the intentions of online vendors are benevolent
Benevolence	I expect that most of the time online vendors put customers' interests before their own
Benevolence	I expect that usually online vendors are well meaning
Ability	Most online vendors are competent
Ability	The majority of online vendors understand the market they work in
Ability	Most online vendors know about the products and services they sell
Ability	The majority of online vendors know how to provide excellent service
Predictability	In most cases I am quite certain about what online vendors will do
Predictability	Generally, I am quite certain what to expect from online vendors

The instrument also included 14 measures of risk specific to product, time, financial, privacy/security, and social risk. Risk items were scaled using a 1 to 7 scale where 1 was Not at all Probable and 7 was Very Probable.

Table III – Risk Items Included in Instrument

Risk Type	Item
Product	The product will not meet my expectations
Product	The product will not match its description online or on the packaging
Time	Time will be wasted making a poor purchase
Time	Time will be wasted due to a product not being in stock
Financial	Money will be wasted due to making a poor purchase
Financial	Money will be lost due to shipping costs/travel costs
Time	A product will not be received in time
Time	It will take a long time to receive the product
Social	My friends/family will think I was foolish for purchasing a product where I did
Social	My friends/family will think less of me for making a poor purchase
Privacy/Security	Purchasing in this manner will lead to an invasion of my privacy
Privacy/Security	Purchasing in this manner will lead to a loss of my anonymity
Privacy/Security	I will suffer financial loss due to revealing my credit card information
Privacy/Security	My credit card information will be abused by the company selling the product/service

Purchase frequency and browsing behaviors were assessed using several questions. First, overall purchase frequency and browsing behavior consisted of four questions in total. The reason each behavior was assessed using two questions was to ensure respondents were being consistent in their answers. One purchase and one browsing question were asked at the very beginning of the survey, while the remaining two were asked in the middle of the survey. Purchase frequency and browsing were also assessed by product class. Respondents were asked to indicate how often they purchase or browse online for the products or services from various product classes using a scale of 1 to 5 where 1 was never, 3 was sometimes, and 5 was regularly.

Table IV – Purchase/Browse Items Included in Instrument

	Item
Purchase Frequency	How often, if ever, do you go online and make a purchase? (Never / Less than once per month / 1 -2 times per month / 3 -5 times per month / 6 – 9 times per month / 10 or more times per month)
Purchase Frequency	On average, how often do you make a purchase on the Internet? (Never / Rarely / Less than once per month / About once a month / About once a week / Daily)
Browsing Frequency	How often, if ever, do you go online to look for information about products or services without buying anything during that visit? (Never / Less than once per month / 1 -2 times per month / 3 - 5 times per month / 6 – 9 times per month / 10 or more times per month)
Browsing Frequency	On average, how often do you search for product or service information on the Internet without buying anything during that visit? (Never / Rarely / Less than once per month / About once a month / About once a week / Daily)

The survey was hosted online in the spring of 2006 using Perseus survey software. Graduate, undergraduate, and working professionals were invited to take part in the study. A convenience sampling method was utilized whereby approximately 5 graduate students asked friends, family, and acquaintances to take part in the study and inform others in order to increase participation. Convenience sampling was also used to obtain thoughtful, quality responses since the survey was lengthy. A total of 183 usable

data points resulted from the online survey. Ten were excluded due to missing data for a final total of 173.

Upon closing the survey, the data was cleaned and additional composite variables were created for analysis purposes. The overall purchase and overall browsing measures were standardized by creating z-scores to allow comparison for each purchase and browse variable. The two standardized purchase items were summed for a composite purchase item. This was done for the browsing measure as well.

CHAPTER IV

SAMPLE DESCRIPTIVES

There were a total of 173 usable data points representing a broad socio-demographic sampling. Seventy percent of the total was female and nearly three quarters (67.1%) were single or never married. The mean age was 29 years old. The majority (88.4%) completed some college courses or had a college degree. Just under a third (30.6%) was employed full time, while 25.5% were employed part-time and 32.3% were full-time students. Just over half (56.0%) had an annual household income between $30,001 and $100,000. The average household consisted of 3 people.

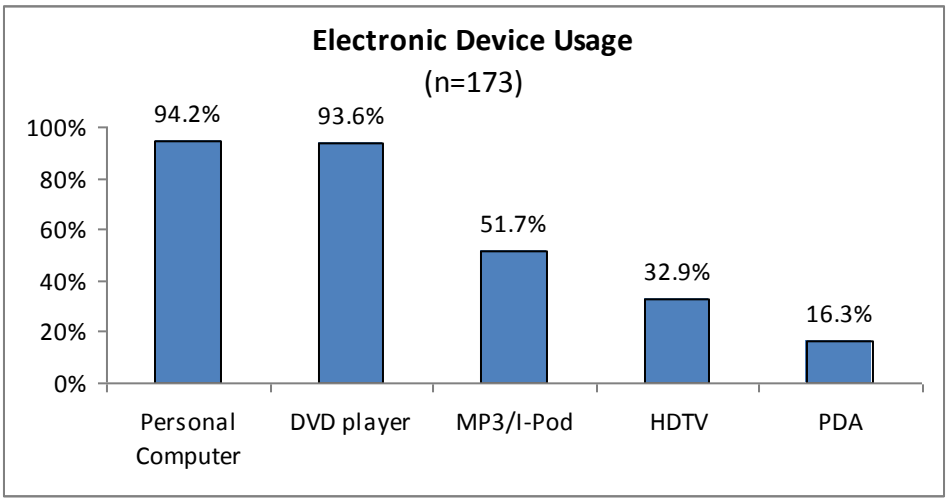
Table V – Sample Demographics

	Percentage (n=173)		Percentage (n=173)
Gender		**Employment Status**	
Male	30.1%	Employed-full time	30.6%
Female	69.9%	Employed-part time	25.5%
		Self employed	4.7%
Education Completed		Temporarily unemployed	3.0%
High school	6.4%	Full time student	32.3%
Some college/university	57.2%	Homemaker/housewife	2.1%
College/university graduate	31.2%	Retired	1.7%
Graduate or professional school	5.2%		
		Household Income	
Occupation		Less than $10,000	9.8%
Professional	22.0%	$10,001 to $20,000	14.5%
Managerial/Executive	4.6%	$20,001 to $30,000	10.4%
Sales	15.6%	$30,001 to $40,000	11.0%
Clerical	12.1%	$40,001 to $50,000	9.2%
Labor with technical training	4.0%	$50,001 to $75,000	23.1%
Labor without technical training	1.2%	$75,001 to $100,000	12.7%
Other	22.5%	More than $100,000	7.5%
Not employed	17.9%	Unreported	1.7%

Nearly all (93.1%) were United States citizens, the majority residing in Ohio (89.0%). Similarly, 77.5% have parents that were both born in the U.S., while 54.9% have all four grandparents that were born in the U.S.

This group tended to be fairly internet savvy with a large portion (86.1%) using a high-speed connection and 79.7% having used the internet 7 years or longer. Respondents were fairly split in terms of internet use per week; about half (52.6%) use the internet 10 hours a week or less while the remaining 48.4% use it at least 11 hours per week. Nearly all respondents indicated owning a computer (94.2%) and a DVD player (93.6%). Fewer owned an I-pod/MP3 player (51.7%), an HDTV (32.9%) and/or PDA (16.3%).

Figure 1 – Electronic Device Usage



Most respondents (82.6%) indicated that 61% to 100% of their family and friends use the internet at least once per week. Nearly three quarters of respondents (74.3%) indicated that between 21% and 80% of the people they know shop online.

Almost three quarters (73.3%) of all respondents go online to browse or look for information about a product or service at least 3 times a month or more. Most indicated this was a monthly (25.1%) or weekly (39.9%) activity, while 13.7% citing browsing on the internet as a daily activity.

SHOPPING BEHAVIORS

Browsing and purchase frequency for twelve product classes were assessed using a five point scale where 1 equals never, 3 equals sometimes, and 5 equals regularly. Means were calculated for both browsing and purchase frequency by product class. The

top four product classes in which respondents browse for online are travel transportation, entertainment, travel destinations, and clothing/accessories. Purchasing on the internet happens far less frequently, with more than half (56.8%) indicating they make an online purchase less than once per month. About 39% said they make a purchase online between one and five times per month. Among the most purchased online product categories are travel transportation, entertainment, clothing/accessories, and books/magazines.

Figure 2 – Browsing by Product Class

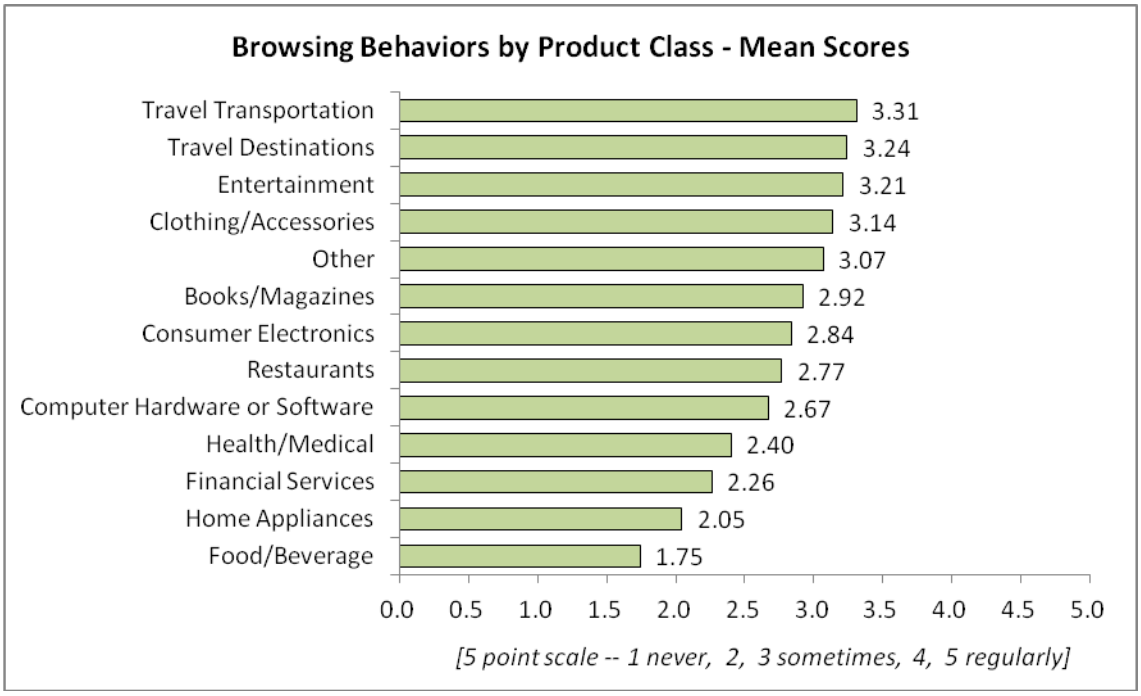
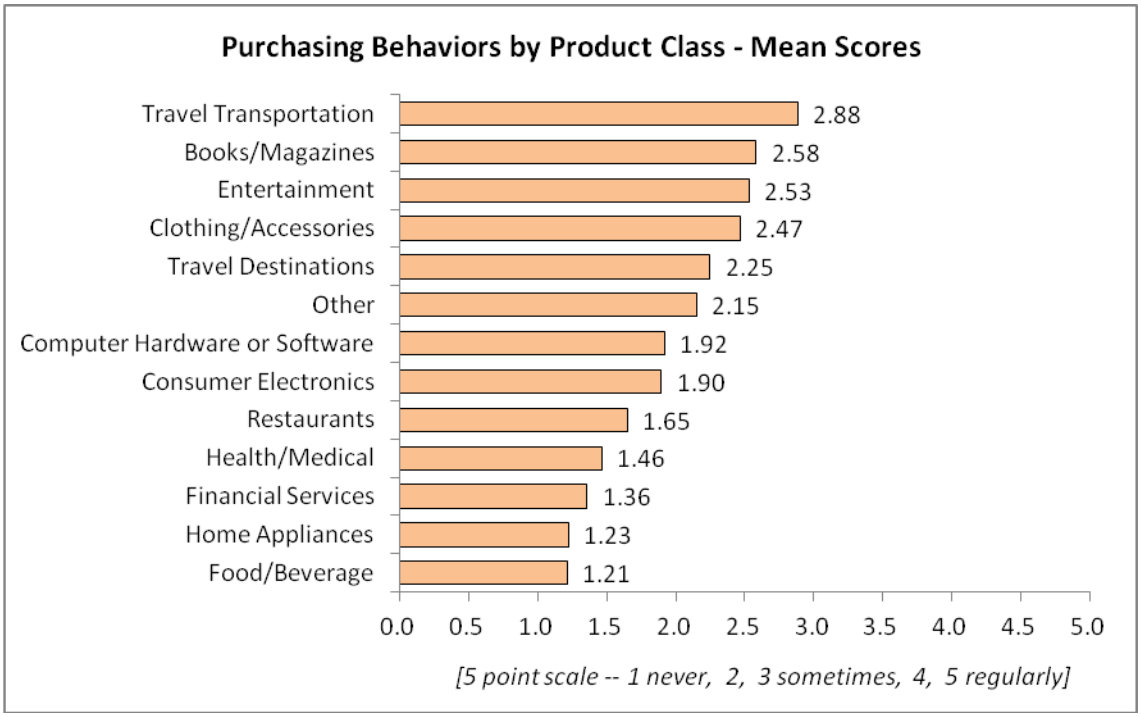


Figure 3 – Purchasing by Product Class



CHAPTER V

RESULTS

Cronbach's alpha was calculated for each dimension of the trust scale as well as the combined scale to measure the scale's reliability. The combined trust scale resulted in an alpha of .932. Table VI details the alphas for each dimension of the trust scale. All of the trust scales are moderately to strongly correlated (detailed in Table VII) with benevolence and ability being the strongest correlation at .642 and integrity and predictability had the lowest correlation at .493.

Table VI – Trust Scale Reliability

Trust Item	Alpha	Number of Items
Integrity	.892	4
Benevolence	.859	4
Ability	.872	4
Predictability	.895	2
Total (Combined Trust Measures)	.932	14

Table VII – Trust Dimension Correlations

		Correlation
Integrity	Benevolence	.619**
Integrity	Ability	.624**
Integrity	Predictability	.493**
Benevolence	Ability	.642**
Benevolence	Predictability	.543**
Ability	Predictability	.550**

** Correlation is significant at the 0.01 level

In addition, alphas and correlations (Tables VIII and IX) were also calculated for the purchase and browse measures. The overall purchase and overall browse measures both yielded strong alphas of .755 and .733 respectively. The two purchase and two browsing measures are moderately correlated, as are overall purchase and overall browse.

Table VIII – Purchase and Browse Scale Reliability

	Alpha	Number of Items
Overall Purchase	.755	2
Overall Browse	.733	2

Table IX – Purchase and Browse Correlations

		Correlation
Purchase 1 (How often, if ever, do you go online to make a purchase?)	Purchase 2 (On average, how often do you make a purchase on the Internet?)	.607**
Browse 1 (How often, if ever, do you go online to look for information about products or services without buying anything during the visit?)	Browse 2 (On average, how often do you search for product or service information on the Internet without buying anything during the visit?)	.588**
Overall Purchase (combined, 2-item measure)	Overall Browse (combined, 2-item measure)	.432**

** Correlation is significant at the 0.01 level

A Principal Components factor analysis with Varimax rotation was done on the 14 risk scale items for online risk. Most of the risk items proved to be significantly correlated, as shown in Table IX. The online risk factor analysis resulted in 4 dimensions, which were named Privacy Risk, Lost Resources Risk, Time Risk, and Social Risk. Table

XI shows the factor loadings on each dimension. The four factors accounted for nearly 70% of the total variance. The 4 risk factors were saved as variables and used in subsequent Structural Equation Modeling.

Table X – Risk Correlations

	Correlations												
	2.	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**	**14.**
1. The product will not meet my expectations	.533**	.441**	.317**	.425**	.293**	.291**	.339**	.238**	.209**	.273**	.217**	.404**	.403**
2. The product will not match its description online or on the packaging		.571**	.243**	.539**	.306**	.419**	.398**	.359**	.213**	.265**	.161*	.346**	.367**
3. Time will be wasted making a poor purchase			.33**	.583**	.293**	.448**	.496**	.328**	.231**	.272**	.219**	.393**	.369**
4. Time will be wasted due to a product not being in stock				.301**	.418**	.268**	.276**	-.017	.074	.154*	.121	.259**	.244**
5. Money will be lost due to making a poor purchase					.507**	.464**	.501**	.318**	.260**	.300**	.186**	.359**	.375**
6. Money will be lost due to shipping costs/travel costs						.549**	.506**	.125	.006	.299**	.191**	.387**	.349**
7. A product will not be received in time							.781**	.333**	.166*	.242**	.127*	.359**	.275**
8. It will take a long time to receive the product								.387**	.186**	.243**	.073	.312**	.259**
9. My friends/family will think I was foolish for purchasing a product where I did									.545**	.221**	.135*	.298**	.161*
10. My friends/family will think less of me for making a poor purchase										.099	.134*	.21**	.189**
11. Purchasing in this manner will lead to an invasion of privacy											.753**	.616**	.596**
12. Purchasing in this manner will lead to a loss of my anonymity												.537**	.493**
13. I will suffer financial loss due to revealing my credit card information													.809**
14. My credit card information will be abused by the company selling the product/service													

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Table XI – Risk Items, Means, Standard Deviations, and Factor Loadings

			Factor Loadings			
	Mean	Standard Deviation	Risk 1 (Privacy)	Risk 2 (Lost Resources)	Risk 3 (Time)	Risk 4 (Social)
1. The product will not meet my expectations	4.30	1.40	.217	**.760**	.057	.116
2. The product will not match its description online or on the packaging	4.38	1.59	.124	**.719**	.213	.264
3. Time will be wasted making a poor purchase	4.06	1.63	.158	**.662**	.311	.236
4. Time will be wasted due to a product not being in stock	3.82	1.66	.098	**.573**	.260	-.320
5. Money will be lost due to making a poor purchase	4.23	1.82	.162	**.582**	.451	.193
6. Money will be lost due to shipping costs/travel costs	4.95	1.66	.248	.266	**.718**	-.213
7. A product will not be received in time	4.84	1.65	.111	.192	**.860**	.171
8. It will take a long time to receive the product	4.62	1.66	.059	.240	**.838**	.224
9. My friends/family will think I was foolish for purchasing a product where I did	2.92	1.95	.120	.112	.257	**.826**
10. My friends/family will think less of me for making a poor purchase	2.14	1.81	.089	.190	-.014	**.780**
11. Purchasing in this manner will lead to an invasion of privacy	3.77	1.96	**.870**	.072	.164	.070
12. Purchasing in this manner will lead to a loss of my anonymity	3.20	1.88	**.859**	.023	-.003	.060
13. I will suffer financial loss due to revealing my credit card information	3.64	1.93	**.778**	.295	.211	.121
14. My credit card information will be abused by the company selling the	3.34	1.86	**.760**	.360	.119	.037

Table XII – Risk Factor Analysis – Communalities

	Initial	Extraction
The product will not meet my expectations	1.000	.641
The product will not match its description online or on the packaging	1.000	.647
Time will be wasted making a poor purchase	1.000	.616
Time will be wasted due to a product not being in stock	1.000	.508
Money will be lost due to making a poor purchase	1.000	.605
Money will be lost due to shipping costs/travel costs	1.000	.693
A product will not be received in time	1.000	.819
It will take a long time to receive the product	1.000	.813
My friends/family will think I was foolish for purchasing a product where I did	1.000	.776
My friends/family will think less of me for making a poor purchase	1.000	.653
Purchasing in this manner will lead to an invasion of my privacy	1.000	.793
Purchasing in this manner will lead to a loss of my anonymity	1.000	.741
I will suffer financial loss due to revealing my credit card information	1.000	.753
My credit card information will be abused by the company selling the product/service	1.000	.723

Table XIII – Risk Factor Analysis – Eigenvalues and Variance

Component	Initial Eigenvalue	% of Variance	Cumulative %
1	5.418	38.70	38.70
2	1.900	13.57	52.70
3	1.436	10.26	62.53
4	1.027	7.34	69.87

Preliminary multiple regression analyses were done to understand potential relationships between the different types of risk and the different types of trust, and how each impacts purchase frequency. The various trust and risk measures were also looked at

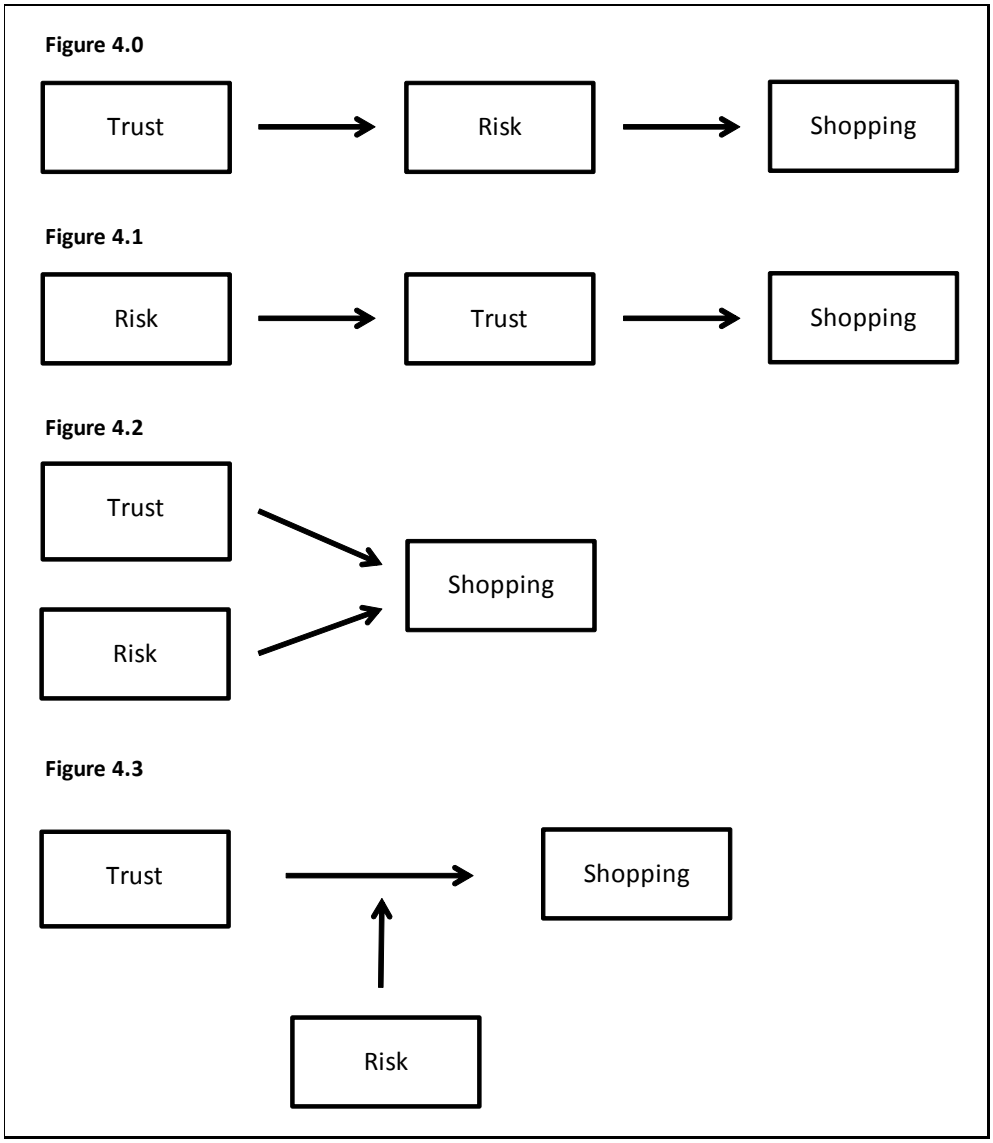
in relation to product categories and trust/risk measures were used as dependent variables in the regressions to understand whether any may impact browsing/purchase for a particular product class.

Demographic information, such as gender, age, income, education, and several other variables were also collected in the study. None of the demographics were associated with online shopping behavior or trust. Three of the risk factors were weakly correlated with some of the demographic measures. Time risk weakly correlated with gender, age, and education, while lost resource risk slightly correlated with gender. Social risk also slightly correlated with age. See Appendix for detailed correlation matrix.

STRUCTURAL EQUATION MODELS

The four models regarding the ways trust and risk interrelate and lead to purchase and browsing were assessed using structural equation modeling and were analyzed with AMOS 18.0 for SPSS. Again, due to inconsistent support in previous literature, the Through Model was conceptualized in two ways. The first (figure 4.0) says that risk leads to trust which then leads to shopping. Conversely, a variation of the Through Model (figure 4.1) is the trust leads to risk then leads to purchase. The Plus Model (figure 4.2) states that trust and risk have an additive impact and together lead directly to shopping. Lastly, the Joint Model (figure 4.3) states that the interaction between trust and risk leads to shopping.

Figure 4 – Conceptual Models for Trust, Risk, and Shopping



All four risk factors were included in the SEM models; however, only two trust dimensions were included based on the findings from previous research that have shown predictability and integrity are the only trust predictors for online purchase (Gefen, 2002; Gefen & Straub, 2004). Each model also included the overall purchase and overall browse measures.

A Principal Components factor analysis with Varimax rotation was also done on the items included in the Through and Plus SEM models. Since risk factor scores,

combined trust measures, and combined shopping measures were used in the models, the individual measures were used in the factor analysis. The factor analysis resulted in 6 components. Table XIV details the factor loadings on each component. These 6 components account for nearly 68% of the total variance. The trust, risk, shopping factor analysis resulted in 3 risk factors, rather than 4 as the initial risk factor analysis showed. This can be attributed to the larger number of items included in the second factor analysis. The 4 risk factors will be used in the subsequent models since the idea behind the factor analysis is to find and explore the dimensions within the risk domain.

Table XIV – Trust, Risk, and Shopping Variables Factor Loadings

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Risk - Lost resources	Trust - Integrity	Risk - Privacy	Online Shopping	Risk - Social	Trust - Predictability
Trust (Integrity) Generally, promises made by online vendors are likely to be reliable.	-.086	**.826**	-.108	.184	-.070	.101
Trust (Integrity) In general, I do not doubt the honesty of online vendors.	-.043	**.788**	-.149	.110	-.265	.090
Trust (Integrity) I expect that most of the times online vendors will keep promises they make.	-.074	**.896**	-.092	.102	-.109	.074
Trust (Integrity) I expect that usually the advice given by online vendors is their best judgment.	-.082	**.846**	.034	-.053	-.008	.134
Trust (Predictability) In most cases I am quite certain about what online vendors will do.	-.146	.437	-.177	.210	.017	**.699**
Trust (Predictability) Generally, I am quite certain what to expect from online vendors.	-.167	.368	-.081	.237	-.107	**.744**
Risk -- The product will not meet my expectations	**.529**	-.198	.287	-.177	.031	.350
Risk -- The product will not match its description online or on the packaging	**.613**	-.185	.168	-.171	.226	.285
Risk -- Time will be wasted making a poor purchase	**.638**	-.235	.180	-.194	.188	.219
Risk -- Time will be wasted due to a product not being in stock	**.551**	.008	.128	-.143	-.278	-.151
Risk -- Money will be lost due to making a poor purchase	**.689**	-.105	.180	-.198	.199	.071
Risk -- Money will be lost due to shipping costs/travel costs	**.712**	.124	.215	-.072	-.131	-.217
Risk -- A product will not be received in time	**.786**	-.025	.069	.046	.178	-.209
Risk -- It will take a long time to receive the product	**.778**	-.092	.018	-.036	.230	-.248
Risk -- My friends/family will think I was foolish for purchasing a product where I did	.240	-.176	.106	-.068	**.812**	-.083
Risk -- My friends/family will think less of me for making a poor purchase	.105	-.145	.118	.028	**.767**	.015
Risk -- Purchasing in this manner will lead to an invasion of my privacy	.154	-.029	**.851**	-.068	.076	-.124
Risk -- Purchasing in this manner will lead to a loss of my anonymity	-.004	-.104	**.842**	-.016	.048	-.138
Risk -- I will suffer financial loss due to revealing my credit card information	.342	-.088	**.779**	-.051	.126	.038
Risk -- My credit card information will be abused by the company selling the product/service	.313	-.097	**.776**	-.073	.036	.109
Shopping -- How often, if ever, do you go online to look for information about products or services without buying	-.103	.094	.088	**.765**	-.072	.038
Shopping -- How often, if ever, do you go online and make a purchase?	-.118	.083	-.163	**.687**	.162	-.031
Shopping -- On average, how often do you search for product or service information on the Internet without	-.088	.024	.043	**.735**	-.160	.129
Shopping -- On average, how often do you make a purchase on the Internet?	-.126	.107	-.182	**.743**	.049	.112

Table XV - Trust, Risk, and Shopping Variables Factor Analysis – Communalities

	Initial	Extraction
Trust—(Integrity) Generally, promises made by online vendors are likely to be reliable.	1.000	.750
Trust—(Integrity) In general, I do not doubt the honesty of online vendors.	1.000	.735
Trust—(Integrity) I expect that most of the times online vendors will keep promises they make.	1.000	.844
Trust—(Integrity) I expect that usually the advice given by online vendors is their best judgment.	1.000	.744
Trust—(Predictability) In most cases I am quite certain about what online vendors will do.	1.000	.777
Trust—(Predictability) Generally, I am quite certain what to expect from online vendors.	1.000	.792
The product will not meet my expectations	1.000	.555
The product will not match its description online or on the packaging	1.000	.600
Time will be wasted making a poor purchase	1.000	.616
Time will be wasted due to a product not being in stock	1.000	.441
Money will be lost due to making a poor purchase	1.000	.602
Money will be lost due to shipping costs/travel costs	1.000	.638
A product will not be received in time	1.000	.700
It will take a long time to receive the product	1.000	.730
My friends/family will think I was foolish for purchasing a product where I did	1.000	.770
My friends/family will think less of me for making a poor purchase	1.000	.636
Purchasing in this manner will lead to an invasion of my privacy	1.000	.774
Purchasing in this manner will lead to a loss of my anonymity	1.000	.741
I will suffer financial loss due to revealing my credit card information	1.000	.752
My credit card information will be abused by the company selling the product/service	1.000	.728
Shopping--(Browse) How often, if ever, do you go online to look for information about products or services without buying anything during that visit?	1.000	.619
Shopping—(Purchase) How often, if ever, do you go online and make a purchase?	1.000	.546
Shopping—(Browse) On average, how often do you search for product or service information on the Internet without buying anything during that visit?	1.000	.592
Shopping--(Purchase) On average, how often do you make a purchase on the Internet?	1.000	.628

Table XVI - Trust, Risk, and Shopping Variables Factor Analysis – Eigenvalues and Variance

Component	Initial Eigenvalue	% of Variance	Cumulative %
1	6.810	28.38	28.38
2	2.966	12.36	40.73
3	2.105	8.77	49.50
4	1.899	7.91	57.41
5	1.396	5.82	63.23
6	1.135	4.73	67.96

Interaction terms for the Joint Model were created by reversing the risk factor scores (by multiplying each risk factor score by -1) and multiplying the reversed risk and standardized trust scores. Descriptive statistics for each variable included in the four models are listed in Table XVII. Correlations for the variables included in the models are shown in Tables XVIII and XX. Since the risk items are factor scores, there are no intercorrelations among the risk measures. Predictability and Integrity as well as Overall Purchase and Overall Browse are significantly correlated and therefore, a covariance between the two items must be accounted for in the model. Tolerances for the variables included in the Plus and Joint Models are shown in Tables XIX and XXI. Tolerances for both the Plus Model and Joint Model indicate no multicollinearity.

Table XVII - Trust, Risk, Interaction, and Shopping Variable Descriptive Statistics

	Mean	Standard Deviation	Range	Minimum	Maximum
Integrity (z score)	.002	1.004	5.07	-2.92	2.15
Predictability (z score)	-.022	.997	4.54	-2.58	1.96
Risk Factor 1	.005	1.001	4.50	-2.28	2.22
Risk Factor 2	-.001	1.003	4.97	-2.32	2.65
Risk Factor 3	.002	1.003	5.49	-3.00	2.49
Risk Factor 4	.002	1.003	5.45	-1.63	3.83
Reversed Risk 1	-.005	1.001	4.501	-2.221	2.280
Reversed Risk 2	.001	1.003	4.969	-2.652	2.317
Reversed Risk 3	-.002	1.003	5.492	-2.491	3.001
Reversed Risk 4	-.002	1.003	5.454	-3.828	1.626
Reversed risk 1 X Integrity (z score)	.154	1.260	12.002	-6.647	5.355
Reversed risk 2 X Integrity (z score)	.159	1.082	7.757	-3.330	4.427
Reversed risk 3 X Integrity (z score)	.090	1.098	9.185	-4.464	4.721
Reversed risk 4 X Integrity (z score)	.307	1.455	16.099	-4.940	11.158
Reversed risk 1 X Predictability (z score)	.174	1.223	11.526	-5.878	5.649
Reversed risk 2 X Predictability (z score)	.102	1.136	7.414	-3.196	4.218
Reversed risk 3 X Predictability (z score)	.226	1.018	6.717	-2.948	3.769
Reversed risk 4 X Predictability (z score)	.114	1.424	16.982	-7.114	9.868
Browse (z score)	.033	1.791	6.62	-3.94	2.69
Purchase (z score)	-.001	1.791	7.75	-2.08	5.67

Table XVIII - Correlations for Risk, Trust, and Shopping Variables included in Through and Plus Models

	Correlations						
	2.	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**
1. Predictability	.493**	-.176*	-.103	-.228**	-.115	.265**	.290**
2. Integrity		-.154*	-.158*	-.090	-.306**	.203**	.198**
3. Risk 1 (Privacy)			.001	-.002	-.001	-.005	-.171*
4. Risk 2 (Lost Resources)				.000	.000	-.227**	-.233**
5. Risk 3 (Time)					.000	-.124	-.140
6. Risk 4 (Social)						-.035	.023
7. Overall Browse							.432**
8. Overall Purchase							

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Table XIX - Plus Model Tolerances

Plus Model Tolerances	
	Tolerance
Integrity (z score)	.675
Predictability (z score)	.711
Risk Factor 1	.958
Risk Factor 2	.970
Risk Factor 3	.945
Risk Factor 4	.899

Table XX - Correlations for Trust & Risk Interactions, Risk, Trust, and Shopping Variables included in Joint Model

	Correlations														
	2.	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**	**13.**	**14.**	**15.**	**16.**
1. Rev Risk 1	.001	-.002	-.001	-.023	-.071	-.068	.099	-.122	-.006	.046	.144	.154*	.176*	.005	.171*
2. Rev Risk 2		.000	.000	-.062	-.021	.022	-.154*	-.007	.019	-.015	-.018	.158*	.103	.227**	.233**
3. Rev Risk 3			.000	-.059	.022	-.087	.064	.037	-.013	-.005	-.017	.090	.228**	.124	.140
4. Rev Risk 4				.113	-.206**	.084	-.247**	.167*	-.023	-.023	-.072	.306**	.115	.035	-.023
5. Rev Risk 1 x Integrity					.078	.074	-.191*	.720**	.055	.116	-.112	.006	-.040	-.044	.059
6. Rev Risk 2 x Integrity						-.048	.309**	.050	.593**	.057	.058	-.147	-.071	.111	.055
7. Rev Risk 3 x Integrity							-.226**	.125	.072	.501**	.103	-.094	-.140	-.030	-.073
8. Rev Risk 4 x Integrity								-.133	.046	.069	.460**	-.269**	-.060	-.027	-.012
9. Rev Risk 1 x Predictability									.025	.142	-.158*	-.044	-.062	-.054	.044
10. Rev Risk 2 x Predictability										-.116	.064	-.070	-.180*	.116	.113
11. Rev Risk 3 x Predictability											-.055	-.152*	-.020	.050	.020
12. Rev Risk 4 x Predictability												-.066	-.057	-.052	-.001
13. Integrity													.493**	.203**	.198**
14. Predictability														.265**	.290**
15. Browse															.432**
16. Purchase															

*

Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Table XXI - Joint Model Tolerances

Joint Model Tolerances	
	Tolerance
Reversed risk 1 X Integrity (z score)	.437
Reversed risk 1 X Predictability (z score)	.435
Reversed risk 2 X Integrity (z score)	.502
Reversed risk 2 X Predictability (z score)	.545
Reversed risk 3 X Integrity (z score)	.546
Reversed risk 3 X Predictability (z score)	.593
Reversed risk 4 X Integrity (z score)	.487
Reversed risk 4 X Predictability (z score)	.644
Reversed Risk 1	.884
Reversed Risk 2	.934
Reversed Risk 3	.918
Reversed Risk 4	.814
Integrity (z score)	.621
Predictability (z score)	.672

Variations of each model were run in AMOS and the initial models revealed several important lessons. The initial models included product classes in each of the models along with overall browse and overall purchase. The addition of the product class purchase and browse variables seemed to cloud the models and added too many degrees of freedom, therefore leading to models that didn't fit. Second, the initial models did not allow the trust items to covary. Since predictability and integrity are significant correlated, it is important that the two covary in the SEM models. After taking these things into consideration, four models were considered.

All models were assessed for statistical fit using several fit indices which included the chi-square with degrees of freedom, comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Acceptable levels for the CFI and TLI indices are greater than or equal to .95 and the accepted level for RMSEA is less than .06 (Schreiber et al., 2006).

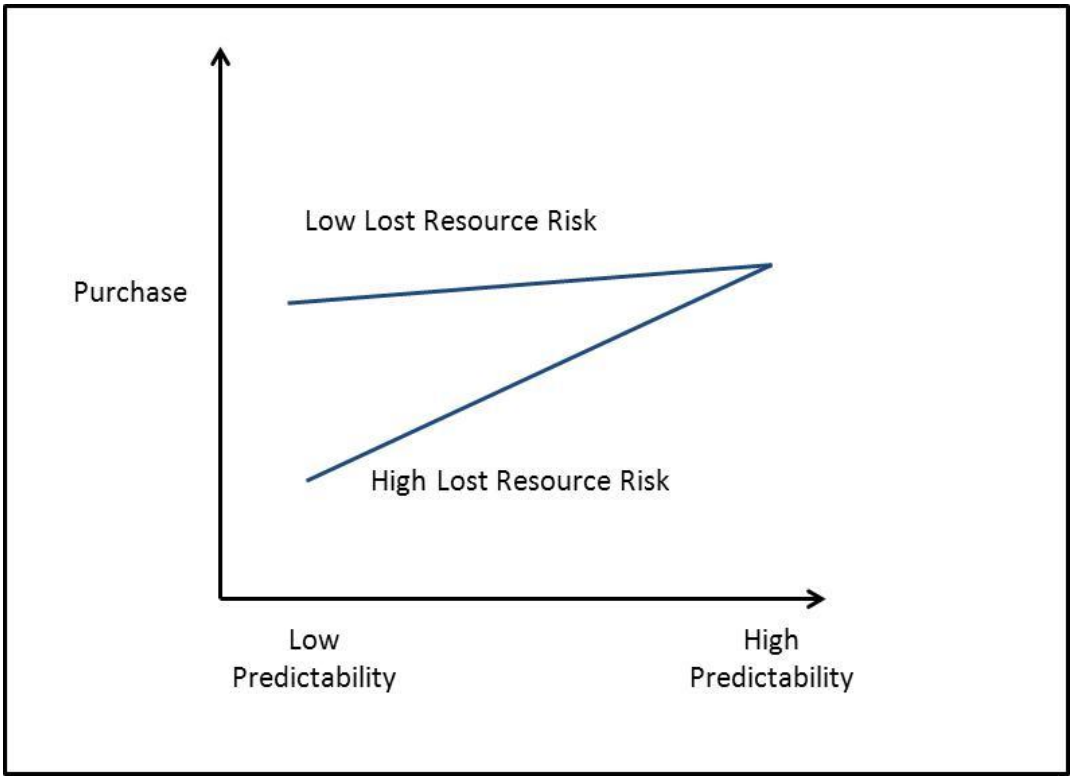
JOINT MODEL

The interaction terms in the Joint model were calculated by multiplying the standardized trust scores and the reversed risk factor scores. The interaction terms were limited to two-factor trust and risk interactions and higher order interactions were not included. The reason for this is that there is no conceptual basis upon which to establish the interaction terms and therefore the lower order interactions needed to be established before looking at the higher order interactions. Further, only the trust dimensions that

have been shown to influence shopping were included in the interaction terms. However all four risk factors were included since previous research has not shown conclusive evidence of the impact of each risk dimension. The four risk factors and two trust items resulted in eight interaction terms. The main effects of trust and risk were also included in the model.

Figure 5 further illustrates how an interaction may work. When consumers feel they know what a vendor will do, they may feel that the amount of resources (e.g., money) in play is inconsequential, since, due to their insight into the vendor's behavior, they will not do anything to lose those resources. Thus, lost resource risk does not impact purchase at high predictability. At low predictability, though, they do not know how the vendor will act and, so, they will be influenced by how risky the purchasing is. Here, they purchase less when there is more at risk than when there is less at risk.

Figure 5 – Example Interaction in Joint Model



The resulting Joint model's chi-square was 504.503 with 90 degrees of freedom. Given the ratio, it can be concluded that the Joint model is not an acceptable model in terms of fit since the ratio of x^2 to *df* should be less than or equal to 2 or 3 (Schreiber et al., 2006). Additionally, the CFI at .206, TLI at -.059, and RSMEA at.164 were all outside the accepted levels.

In the following Structural Equation Models, observed variables are depicted using rectangles or squares. Error is shown using circles above endogenous variables. Variables that are allowed to covary are indicated with a two-sided arrow, for example Figure 6 shows a covariance between purchase and browse since there is a significant correlation between the two. Arrows from one variable to another show measurement of a component and the numbers along the lines indicate standardized coefficients. Significant structural components are indicated with an asterisk.

Significant coefficients in the Joint Model include the interaction between risk 2 (lost resources) and predictability to both purchase and browse, predictability to both purchase and browse, and risk 2 (lost resources) to purchase and browse. These are shown in Table XXII.

Figure 6 – Joint Model

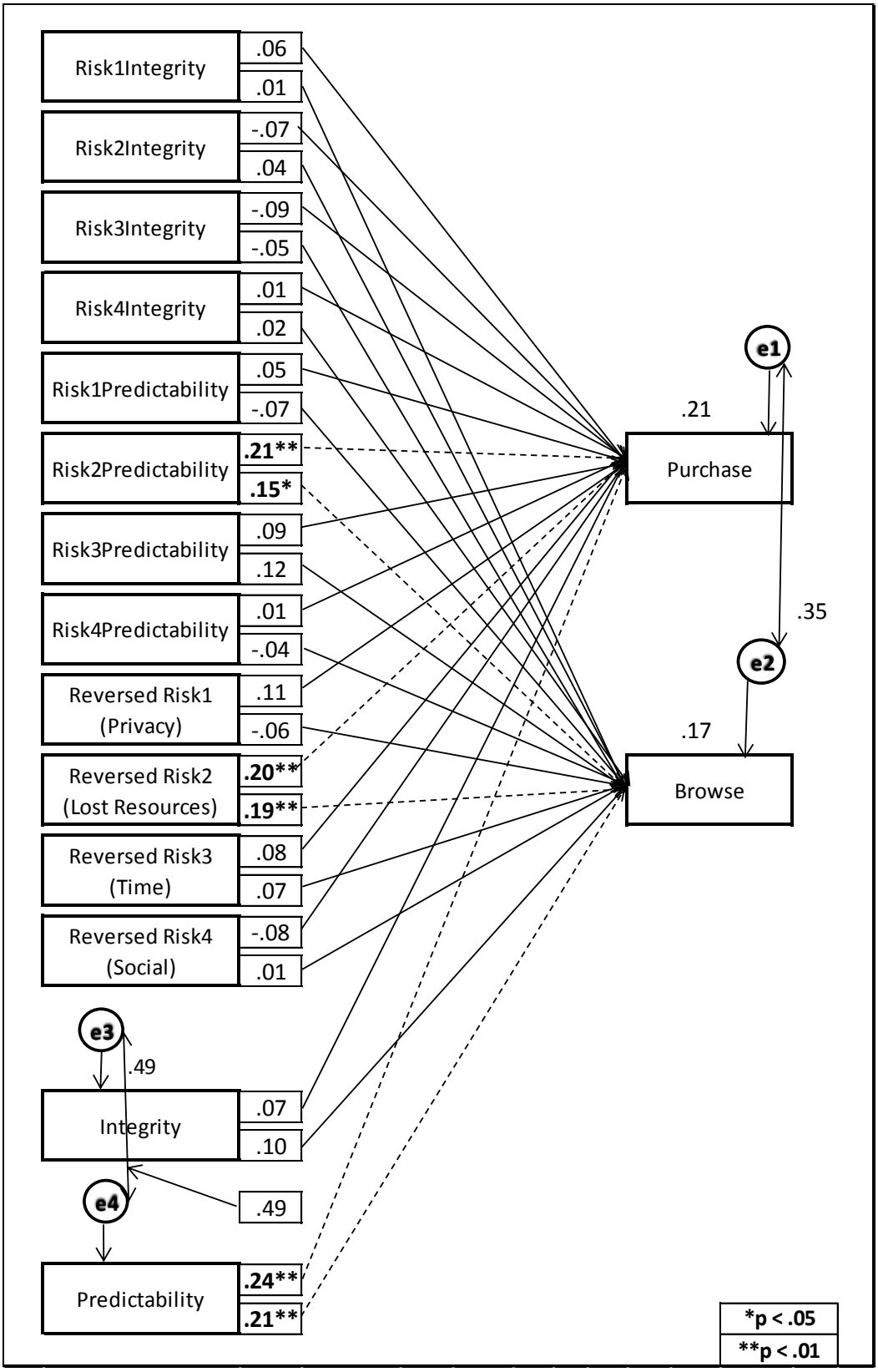


Table XXII - Joint Model Coefficients and Significance Levels

Joint Model		
	Standardized Regression Weights	**P**
Risk 1 (Privacy) X Integrity → Purchase	.057	.401
Risk 2 (Lost Resources) X Integrity → Purchase	-.068	.319
Risk 3 (Time) X Integrity → Purchase	-.089	.191
Risk 4 (Social) X Integrity → Purchase	.010	.879
Risk 1 (Privacy) X Predictability → Purchase	.045	.507
Risk 2 (Lost Resources) X Predictability → Purchase	.206	.002**
Risk 3 (Time) X Predictability → Purchase	.090	.183
Risk 4 (Social) X Predictability → Purchase	.014	.839
Risk 1 (Privacy) → Purchase	.108	.112
Risk 2 (Lost Resources) → Purchase	.200	.003**
Risk 3 (Time) → Purchase	.077	.256
Risk 4 (Social) → Purchase	-.080	.238
Integrity →Purchase	.065	.403
Predictability → Purchase	.235	.003**
Risk 1 (Privacy) X Integrity → Browse	.005	.938
Risk 2 (Lost Resources) X Integrity → Browse	.040	.564
Risk 3 (Time) X Integrity → Browse	-.048	.489
Risk 4 (Social) X Integrity → Browse	.017	.809
Risk 1 (Privacy) X Predictability → Browse	-.072	.303
Risk 2 (Lost Resources) X Predictability → Browse	.154	.026*
Risk 3 (Time) X Predictability → Browse	.120	.083
Risk 4 (Social) X Predictability → Browse	-.039	.574
Risk 1 (Privacy) → Browse	-.057	.416
Risk 2 (Lost Resources) → Browse	.192	.006**
Risk 3 (Time) → Browse	.065	.349
Risk 4 (Social) → Browse	.013	.856
Integrity →Browse	.096	.230
Predictability → Browse	.212	.008**

* $p < .05$
** $p < .01$

Table XXIII - Joint Model SEM Fit Indices

	X^2	*Df*	Prob.	TLI	CFI	RMSEA
	504.503	90	.000	-.059	.206	.164
Joint Model Fit Indices	**AIC**	**BCC**	**BIC**	**CAIC**	**RMR**	**NFI**
	596.503	606.593	741.554	787.554	.194	.214
	IFI	**PRATIO**	**PNFI**	**PCFI**	**PGFI**	**GFI**
	.249	.750	.161	.154	.511	.772

PLUS MODEL

The Plus Model, which conceptualized trust and risk as having the same impact and effect in the model, did not meet the cutoff criteria for the TLI (.626), CFI (.813) or RMSEA (.102) fit indices. The ratio of x^2 (38.99) to *df* (14) also did not meet acceptance criteria. Thus, it can be concluded that this model is not an appropriate model to explain the relationship between risk and trust in the context of online shopping. Significant coefficients included predictability to both purchase and browse and risk 2 (lost resources) to both purchase and browse, which are shown in Table XXIV.

Figure 7 – Plus Model

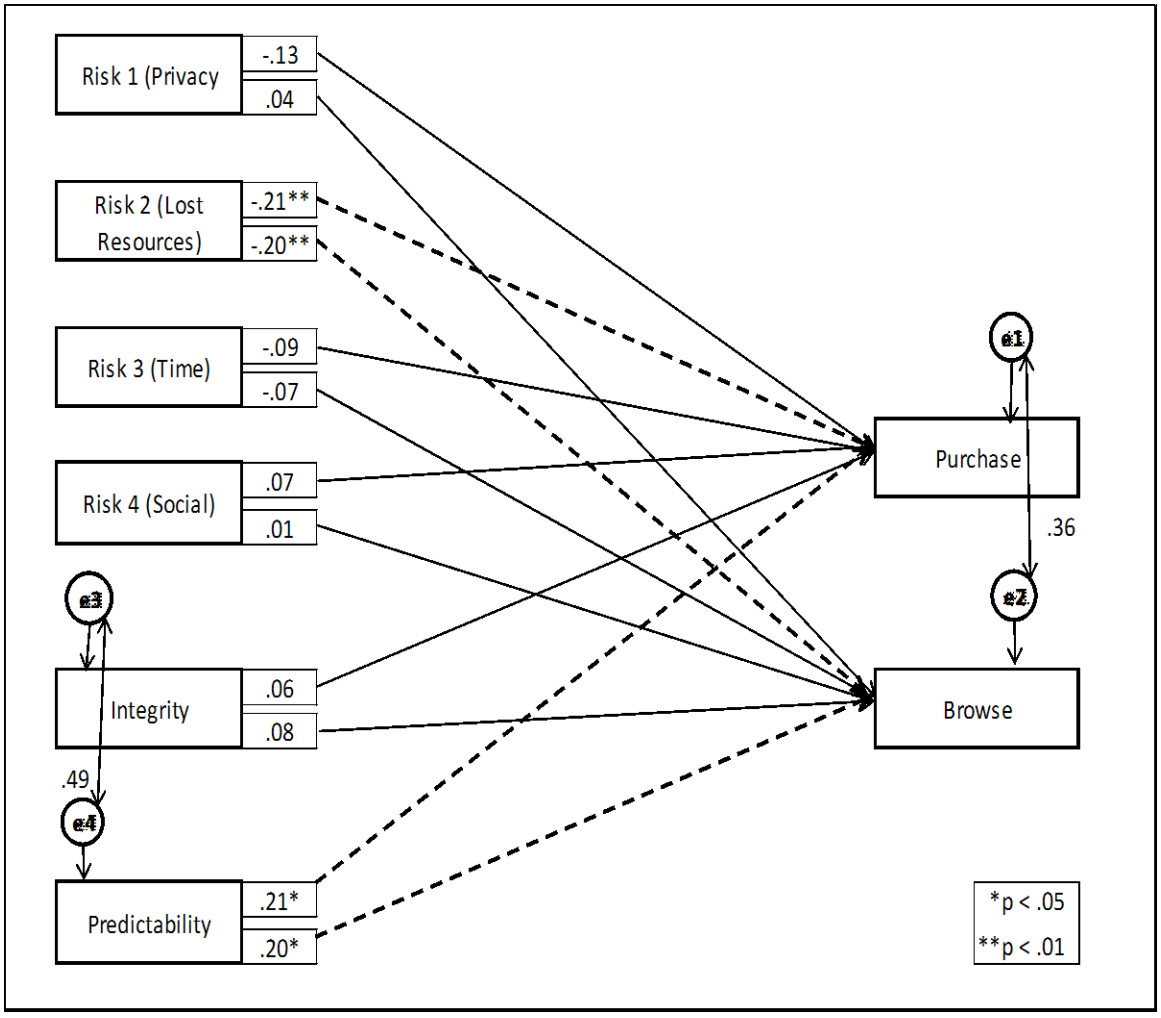


Table XXIV - Plus Model Coefficients and Significance Levels

Plus Model		
	Standardized Regression Weights	**P**
Risk 1 (Privacy) → Purchase	-.128	.073
Risk 1 (Privacy) → Browse	.042	.557
Risk 2 (Lost Resources) → Purchase	-.206	.004**
Risk 2 (Lost Resources) → Browse	-.196	.007**
Risk 3 (Time) → Purchase	-.089	.212
Risk 3 (Time) → Browse	-.072	.319
Risk 4 (Social) → Purchase	.065	.359
Risk 4 (Social) → Browse	.012	.871
Integrity→ Purchase	.058	.479
Integrity → Browse	.078	.345
Predictability → Purchase	.209	.011*
Predictability → Browse	.201	.015*

* p < .05
** p <.01

Table XXV - Plus Model SEM Fit Indices

	X^2	*Df*	**Prob.**	**TLI**	**CFI**	**RMSEA**
	38.990	14	.000	.626	.813	.102
	AIC	**BCC**	**BIC**	**CAIC**	**RMR**	**NFI**
Plus Model Fit Indices	82.990	85.420	152.363	174.363	.097	.759
	IFI	**PRATIO**	**PNFI**	**PCFI**	**PGFI**	**GFI**
	.831	.500	.379	.406	.369	.950

As previously noted, two variations of the Through Model were explored. The trust to risk model had an acceptable chi-square (15.890), degrees of freedom (10) ratio. The CFI (.956) and RMSEA (.059) were also within the acceptable range. However the TLI (.877) was lower than the accepted level of ≥.95. Significant coefficients for the trust to trust to risk Through Model include predictability to risk 3 (time), integrity to risk 4 (social), risk 1 (privacy) to purchase, and risk 2 (lost resources) to both purchase and browse. These are shown in Table XXVI.

Figure 8 – Through Model – Trust to Risk

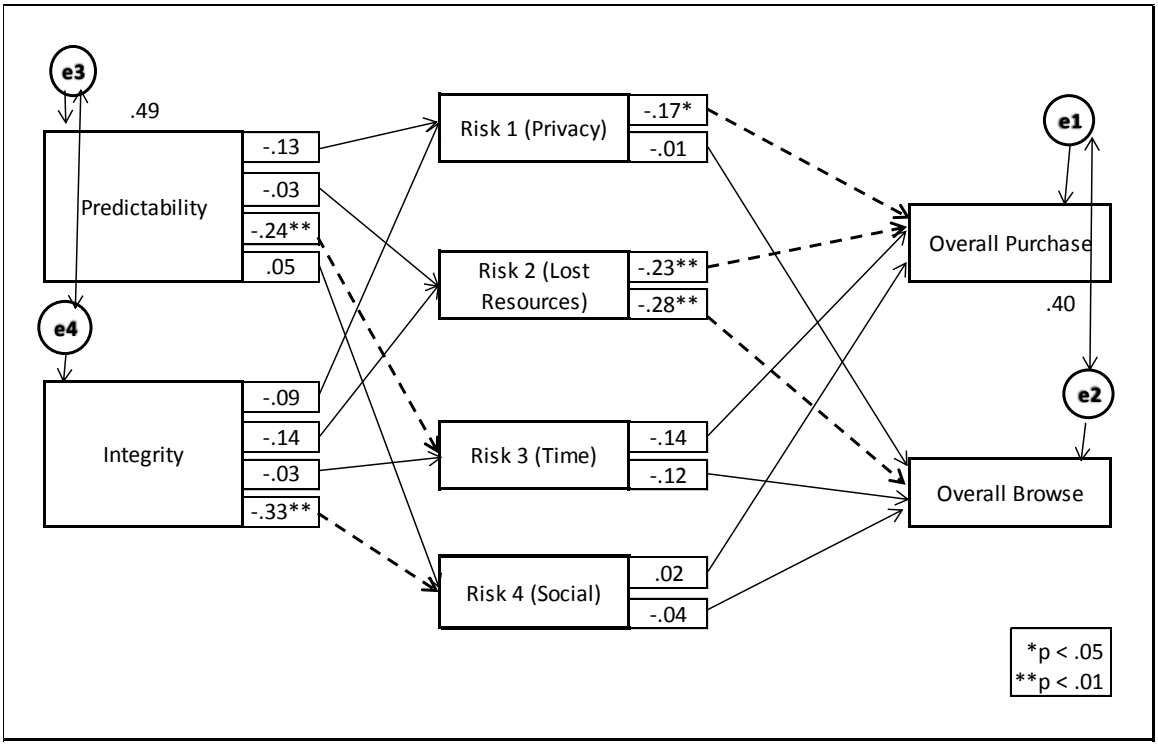


Table XXVI - Through Model – Trust to Risk -- Coefficients and Significance Levels

Through Model - Trust to Risk		
	Standardized Regression Weights	**P**
Predictability → Risk 1 (Privacy)	-.132	.126
Predictability → Risk 2 (Lost Resources)	-.033	.707
Predictability → Risk 3 (Time)	-.242	.005**
Predictability → Risk 4 (Social)	.048	.563
Integrity → Risk 1 (Privacy)	-.089	.298
Integrity → Risk 2 (Lost Resources)	-.142	.100
Integrity → Risk 3 (Time)	.029	.733
Integrity → Risk 4 (Social)	-.330	.001**
Risk 1 (Privacy) → Purchase	-.171	.018*
Risk 2 (Lost Resources) → Purchase	-.232	.001**
Risk 3 (Time) → Purchase	-.139	.053
Risk 4 (Social) → Purchase	.023	.748
Risk 1 (Privacy) → Browse	-.005	.944
Risk 2 (Lost Resources) → Browse	-.227	.002**
Risk 3 (Time) → Browse	-.123	.093
Risk 4 (Social) → Browse	-.035	.634

* p < .05
** p <.01

Table XXVII - Through Model – Trust to Risk -- SEM Fit Indices

	X^2	*Df*	Prob.	TLI	CFI	RMSEA
	15.890	10	.103	.877	.956	.059
Through Model - Trust -> Risk -> Shopping Fit Indices	**AIC**	**BCC**	**BIC**	**CAIC**	**RMR**	**NFI**
	67.890	70.761	149.876	175.876	.106	.902
	IFI	**PRATIO**	**PNFI**	**PCFI**	**PGFI**	**GFI**
	.961	.357	.322	.341	.272	.979

The risk to trust Through Model however had acceptable CFI (.970), and RMSEA (.041) levels as well as an accepted ratio of x^2 (18.005) to *df* (14). The TLI was slightly below the accepted level of .95 (Schreiber et al., 2006). Therefore, from a statistical standpoint, the risk to trust Through Model is the more appropriate model for comparison. The significant coefficients include risk 1 (privacy) and risk 3 (time) to predictability, risk 1 (privacy) to integrity, risk 2 (lost resources) to integrity, risk 4 (social) to integrity, and predictability to both purchase and browse. Table XXVIII details significant coefficients.

Figure 9 – Through Model – Risk to Trust

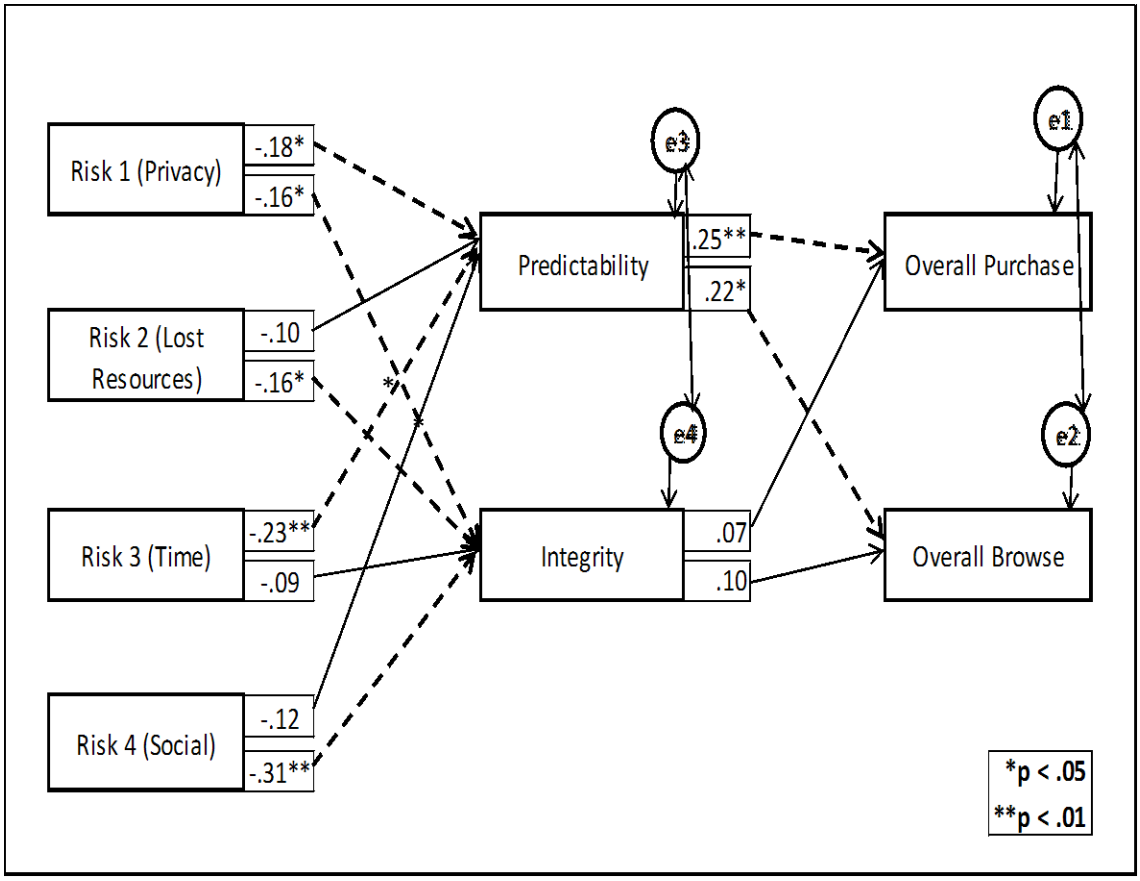


Table XXVIII - Through Model – Risk to Trust -- Coefficients and Significance Levels

Through Model - Risk to Trust		
	Standardized Regression Weights	**P**
Risk 1 (Privacy) → Predictability	-.176	.014*
Risk 2 (Lost Resources) → Predictability	-.102	.156
Risk 3 (Time) → Predictability	-.228	.002**
Risk 4 (Social) → Predictability	-.115	.111
Risk 1 (Privacy) → Integrity	-.155	.028*
Risk 2 (Lost Resources) → Integrity	-.158	.024*
Risk 3 (Time) → Integrity	-.090	.198
Risk 4 (Social) → Integrity	-.307	.001**
Predictability → Purchase	.253	.002**
Predictability → Browse	.218	.010*
Integrity → Purchase	.073	.381
Integrity → Browse	.096	.256

* p < .05
** p <.01

Table XXIX - Through Model – Risk to Trust – SEM Fit Indices

	X^2	*Df*	Prob.	TLI	CFI	RMSEA
	18.005	14	.207	.940	.970	.041
Through Model – Risk -> Trust -> Purchase Fit Indices	**AIC**	**BCC**	**BIC**	**CAIC**	**RMR**	**NFI**
	62.005	64.434	131.377	153.377	.097	.889
	IFI	**PRATIO**	**PNFI**	**PCFI**	**PGFI**	**GFI**
	.973	.500	.444	.485	.379	.975

Table XXX - Comparison of Key Fit Indices for SEM Models

	X^2	*df*	Prob.	TLI	CFI	RMSEA
Through Model - Trust -> Risk -> Purchase	15.890	10	.103	.877	.956	.059
Through Model - Risk -> Trust -> Purchase	18.005	14	.207	.940	.970	.041
Plus Model	38.990	14	.000	.626	.813	.102
Joint Model	504.503	90	.000	-.059	.206	.164

In comparing the four models, we conclude that the risk to trust Through Model is the best fitting model. It should be noted that this judgment is largely qualitative as there are no statistical significance tests indicating one model is better than another. However, based on the fit statistics the Through Trust to Risk model appears to be the best of the four, as it meets the accepted fit criteria. The results of the SEM indicate that less perceived privacy risk and time risk impact predictability. Likewise, less perceived privacy, social, and lost resource risk leads to integrity. Contrary to the hypothesis, integrity does not contribute to purchase or browsing after controlling for predictability. However, earlier research has indicated that both predictability and integrity impact purchase (Gefen, 2002; Gefen & Straub, 2004). Further inspection of the current study results show that predictability is correlated with purchase, thus there is a relationship among the two. Predictability leads to both overall purchase and overall browsing, which is consistent with past research results which show predictability leads to purchase (Gefen, 2002; Gefen & Straub, 2004).

In a similar fashion, the risk-to-trust-to-purchase Through Model was explored by Corbitt et al. (2003) and risk and trust were found to be unrelated. Their study however included five types of risk: financial, performance, psychological, time, and social along with their relationship to overall trust. Looking at trust in different ways – overall versus

by specific dimensions, as in the current study, could have an impact on the outcome of the research, since several types of trust have been shown to have no impact on purchase (Gefen, 2002; Gefen & Straub, 2004).

CHAPTER VI

DISCUSSION AND IMPLICATIONS

The Through Risk to Trust model shows that privacy and time risk lead to predictability; however, social and lost resource risk do not add to predictability for online shopping. Predictability has to do with expectations; and privacy and time risks, in the context of online shopping, are likely to be lessened through setting the proper expectations for the consumer. Likewise, privacy, social, and lost resource risk lead to integrity, while time risk does not. Intuitively, this makes sense as integrity is about honesty and keeping promises. Time to receive a product is often beyond the control of the vendor and can be impacted by other extraneous factors. This study concludes that integrity does not add to predictability in the context of shopping. A possible explanation for this is that predictability directly impacts the product and time in which it is received. Integrity is less related to the product itself and much more about the vendor in which it comes from. Consumers may be willing to trade-off or accept less vendor reliability and honesty provided that they receive the product as expected in the manner that they anticipate.

Preliminary analyses were conducted to see if trust/risk/purchase/browse scores were related to the demographic characteristics described earlier. A zero-order intercorrelation matrix of all demographics and model variables was reviewed. No meaningful or substantial correlations were found. Hence, there is no reason to think that the results obtained here are confounded by the demographic profile of the sample respondents.

The results of this study are important for many reasons and have several practical applications. First, trust, and even more importantly predictability, impact purchasing and browsing online. The more a vendor can minimize unpredictability and limit risk perception, the greater likelihood for a consumer to make a purchase from the site. Second, two types of risk, privacy and time, impact predictability. Online vendors should focus on implementing strategies to lessen the perception of risk with online shopping on their sites. Although the lost resource risk does not directly impact predictability, it is negatively correlated with both purchase and browsing. Hence, lost resource risk should not be ignored. Similarly, integrity did not prove to impact purchase and browse in the model, but it is positively correlated with both overall purchase and overall browse. This association should be considered as online vendors market their sites and develop their brand identity. Finally, this study showed that the impacts of trust and risk are similar for both purchasing and browsing. Both purchasing and browsing are correlated with predictability, integrity, and lost resource risk. One difference worth noting is that purchasing is associated with privacy risk, whereas browsing is not. This may be due to the fact that consumers are not required to divulge any personal data or

information in order to browse on an online shopping site. However, in order to purchase a product or service, credit card and other personal information must be shared with the online vendor.

This research is not without limitations and there are several opportunities for future research worth noting. First, this research utilized self-reported measures to capture shopping behaviors, trust, and risk perceptions. While self-reported data are valid and very often utilized for consumer research, it would be worth exploring whether external data measures would lead to the same result.

Second, regarding the trust measures, benevolence and ability were both dropped from the models since the literature indicated neither impacted shopping behavior. For simplicity of the models, these variables were not included. However, there is a possibility that the trust dimensions of benevolence and ability may add to risk as interaction terms and could be used in a modified Joint Model. Further, as noted, the current research focused on trust and risk dimensions that have been shown to influence purchase and the Joint Model was not modified to exclude interaction terms that did not add to the model. As a future direction, this model may be looked at more critically and modified to include selected interaction terms. This may or may not lead to a better model fit.

Third, this research explored risk and trust in a general sense, i.e., that are not tied to a particular vendor. It would be worth investigating to understand whether experience with a particular vendor, for example Amazon, impacts risk perception and trust and subsequently influences purchase.

Finally, a convenience sample was used, which may not be representative of the online shopping population in the United States. This was done to elicit thoughtful response and while many studies sample college students, it was thought that a student population would be even less representative of the online shopping population. Additionally, it would be nearly impossible to get a purely representative sample since the nation's online shopping population is unspecified.

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APPENDICES

APPENDIX A

DEMOGRAPHIC CORRELATION MATRIX

	Gender	*Age*	*Marital Status*	*Education Level*	*Income*
Purchase	-.063	.080	.093	.033	.101
Browse	-.075	.071	.013	.043	.007
Integrity	.022	.048	-.037	.069	0.152
Benevolence	.061	.019	-.023	-.076	.022
Ability	.018	-.004	.051	.033	.134
Predictability	-.099	-.049	-.034	.014	.100
Risk 1 - Privacy	.043	.116	.080	.037	-.077
Risk 2 - Lost Resources	.282**	-.017	.059	-.032	-.025
Risk 3 - Time	.255**	-.251**	-.075	-.184*	-.024
Risk 4 - Social	-.004	-.178*	-.077	-.059	-.091

APPENDIX B

QUESTIONNAIRE

International Study of Internet Usage and Online Shopping

SECTION I: INTERNET USE AND SHOPPING

A1. About how long have you been using the Internet?

- ○ 3 months or less
- ○ 4-12 months
- ○ 1-3 years
- ○ 4-6 years
- ○ 7-9 years
- ○ 10 or more years

A2. On average, how many hours per week, if any, do you use the Internet?

- ○ 0
- ○ 1-5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ 21-or more

A3. About what percentage of people you know would you guess use the Internet at least once a week?

- ○ None
- ○ 1-20%
- ○ 21-40%
- ○ 41-60%
- ○ 61-80%
- ○ 81-100%

A4. How often, if ever, do you go online to look for information about products or services without buying anything during that visit?

- ○ Never
- ○ Less than once a month
- ○ 1-2 times a month
- ○ 3-5 times a month
- ○ 6-9 times a month
- ○ 10 or more times a month

A5. How often, if ever, do you go online and make a purchase

- ○ Never
- ○ Less than once a month
- ○ 1-2 times a month
- ○ 3-5 times a month
- ○ 6-9 times a month
- ○ 10 or more times a month

A6. About how long ago did your friends, family, or neighbors learn that they could shop for products through the Internet?

- ○ 16 years ago or more
- ○ 13 to 15 years ago
- ○ 10 to 12 years ago
- ○ 7 to 9 years ago
- ○ 4 to 6 years ago
- ○ 1 to 3 years ago
- ○ This current year

A7. About what percentage of your friends, relatives, and acquaintances shop online?

- ○ None
- ○ 1-20%
- ○ 21-40%
- ○ 41-60%
- ○ 61-80%
- ○ 81-100%

A8. Compared to shopping in traditional stores, how unusual do you personally find online shopping to be? Use a scale of 1-7, where 1 means *not at all unusual* and 7 means *very unusual*.

Not At all Unusual						Very Unusual
1	2	3	4	5	6	7
○	○	○	○	○	○	○

A9. In general, how innovative is shopping online compared to shopping at a traditional store? Use a scale of 1-7, where 1 means *not at all innovative* and 7 means *very innovative*.

Not At all Innovative						Very Innovative
1	2	3	4	5	6	7
○	○	○	○	○	○	○

SECTION II: FEATURES OF ONLINE SHOPPING

B1. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?

Be sure to scroll down to see all items before you make your choice.
Read through the list and click on the THREE LEAST ENCOURAGING aspects.

	Least Encouraging
The order process is easy to use.	○
The delivery time is short	○
The site is in my primary language	○
My friends and family have been happy when they have shopped there	○
My friends and family will like to know my opinions of the site	○
Low or no charge for shipping and handling	○
The products I am looking for are easy to find.	○
Provides customer feedback (that is, the site provides a place for you to learn about other customer's evaluation of the product)	○
A good place to find a bargain	○
It has entertaining graphics and displays	○
A wide selection and variety of products on the site	○
Reputation and credibility of the company on the web	○
It is enjoyable to visit	○
Product price	○
It's really unlike any other web site I have ever visited.	○
Provides product information, including FAQs–frequently asked questions	○

B2. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?
Go through the list and then rate all 16 aspects from 1 (does not at all encourage me) to 7 (strongly encourages me).

	Does Not Encourage me						Strongly Encourages Me
	1	2	3	4	5	6	7
The order process is easy to use.	O	O	O	O	O	O	O
The products I am looking for are easy to find.	O	O	O	O	O	O	O
It's really unlike any other web site I have ever visited.	O	O	O	O	O	O	O
Product price	O	O	O	O	O	O	O
Provides customer feedback (that is, the site provides a place for you to learn about other customer's evaluation of the product)	O	O	O	O	O	O	O
My friends and family have been happy when they have shopped there	O	O	O	O	O	O	O
Reputation and credibility of the company on the web	O	O	O	O	O	O	O
It is enjoyable to visit	O	O	O	O	O	O	O
The delivery time is short	O	O	O	O	O	O	O
The site is in my primary language	O	O	O	O	O	O	O
My friends and family will like to know my opinions of the site	O	O	O	O	O	O	O
A wide selection and variety of products on the site	O	O	O	O	O	O	O
Low or no charge for shipping and handling	O	O	O	O	O	O	O
It has entertaining graphics and displays	O	O	O	O	O	O	O
Provides product information, including FAQs – frequently asked questions	O	O	O	O	O	O	O
A good place to find a bargain	O	O	O	O	O	O	O

SECTION III: LIKELY EVENTS

How probable or likely is it that the following events will happen when you BUY something in a traditional store? When you BUY it online?

Click on any button from 1 (not probable at all) to 7 (very probable)

C1. The product will not meet my expectations

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C2. The product will not match its description online or on the packaging

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C3. Time will be wasted making a poor purchase

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C4. Time will be wasted due to a product not being in stock

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C5. Money will be lost due to making a poor purchase

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C6. Money will be lost due to shipping costs/travel costs

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C7. A product will not be received in time

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C8. It will take a long time to receive the product

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C9. My friends/family will think I was foolish for purchasing a product where I did

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C10. My friends/family will think less of me for making a poor purchase

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C11. Purchasing in this manner will lead to an invasion of my privacy

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C12. Purchasing in this manner will lead to a loss of my anonymity

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C13. I will suffer financial loss due to revealing my credit card information

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

C14. My credit card information will be abused by the company selling the product/service

	Not at all probable						Very Probable
	1	2	3	4	5	6	7
In-Store	O	O	O	O	O	O	O
Online	O	O	O	O	O	O	O

SECTION IV: ONLINE SHOPPING BEHAVIORS

D1. On average, how often do you search for product or service information on the Internet without buying anything during that visit?

- ○ Never
- ○ Rarely
- ○ Less than once a month
- ○ About once a month
- ○ About once a week
- ○ Daily

D2. How often, if at all, do you VISIT each type of web site (*WITHOUT purchasing*) to collect information?

Use one number from 1 (never) to 5 (regularly).

	Never		Sometimes		Regularly
	1	2	3	4	5
a. Clothing / Accessories	○	○	○	○	○
b. Books / Magazines	○	○	○	○	○
c. Travel Transportation (airlines, trains, buses, rental cars,highway hotels etc)	○	○	○	○	○
d. Travel Destinations (such as resorts, cruises, cities, historic or religious sites etc)	○	○	○	○	○
e. Health / Medical	○	○	○	○	○
f. Financial Services	○	○	○	○	○

	Never		Sometimes		Regularly
	1	2	3	4	5
g. Consumer Electronics (such as TV, VCR, stereo, cellular phone)	○	○	○	○	○
h. Entertainment (such as CDs, DVDs, movies, theater)	○	○	○	○	○
i. Computer Hardware or Software	○	○	○	○	○
j. Food / Beverage / Groceries	○	○	○	○	○
k. Home Appliances (such as refrigerator, washing machine)	○	○	○	○	○
l. Restaurants	○	○	○	○	○
m. Other	○	○	○	○	○

D3. On average, how often do you make a purchase on the Internet?

- ○ Never
- ○ Rarely
- ○ Less than once a month
- ○ About once a month
- ○ About once a week
- ○ Daily

D4. How often, if at all, do you PURCHASE any of the following items/services (*and not just look for information*) online?

Use one number from 1 (never) to 5 (regularly).

	Never		Sometimes		Regularly
	1	2	3	4	5
a. Clothing / Accessories	○	○	○	○	○
b. Books / Magazines	○	○	○	○	○
c. Travel Transportation (airlines, trains, buses, rental cars,highway hotels etc)	○	○	○	○	○
d. Travel Destinations (such as resorts, cruises, cities, historic or religious sites etc)	○	○	○	○	○
e. Health / Medical	○	○	○	○	○
f. Financial Services	○	○	○	○	○

	Never		Sometimes		Regularly
	1	2	3	4	5
g. Consumer Electronics (such as TV, VCR, stereo, cellular phone)	○	○	○	○	○
h. Entertainment (such as CDs, DVDs, movies, theater)	○	○	○	○	○
i. Computer Hardware or Software	○	○	○	○	○
j. Food / Beverage / Groceries	○	○	○	○	○
k. Home Appliances (such as refrigerator, washing machine)	○	○	○	○	○
l. Restaurants	○	○	○	○	○
m. Other	○	○	○	○	○

D5. Think about when you go on the Internet to search for product/service information or to purchase a product/service. Indicate your agreement or disagreement with the following statements in respect to the NEXT 3 MONTHS:

	Strongly Disagree			Neither Agree nor Disagree			Strongly Agree
	1	2	3	4	5	6	7
a. I intend to make one or more purchases online in the next 3 months	O	O	O	O	O	O	O
b. There is a good chance that in the next 3 months I will browse sites to find products I might be interested in	O	O	O	O	O	O	O
c. It is highly likely that I would use my credit card to purchase products or services online in the next 3 months	O	O	O	O	O	O	O
d. In the next 3 months I intend to go online to search for information about products or services I am interested in	O	O	O	O	O	O	O

SECTION V: MORE FEATURES OF ONLINE SHOPPING SITES

E1. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?

Be sure to scroll down to see all items before you make your choice.

Read through the list and click on the THREE LEAST ENCOURAGING aspects.

	Least Encouraging
Providing credit card safety	○
Allows instant messaging with the company or company representative	○
Fast response time from customer service	○
It is free of grammatical and typographical errors	○
It has seals of companies stating that my information On this site is secure (e.g. Verisign)	○
The internet links on the site are working properly	○
The download speed of the page	○
Price incentives (coupons, future sale items, frequent shopper program, etc.)	○
My friends or family will not think less of me if I make a purchase there	○
A return policy that is easy to understand and use	○
Interactive web design (try it on, design your own product/services)	○
Has many options for navigating within the site	○
It has guarantee from the vendor that my personal Information will not be used to invade my privacy	○
The privacy policy is easy to find on the site	○

I hear about it on the radio, television or in newspapers. ○

It is quite different from the usual sites ○

There is a guarantee from the vendor that the product will arrive on a certain date ○

Uses a personalized greeting, e.g., “Hello, Tom!” ○

It has received a best site award ○

The site is brand new to the Internet ○

E2. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?

Go through the list and then rate all 16 aspects from 1 (does not at all encourage me) to 7 (strongly encourages me).

	Does Not Encourage Me						Strongly Encourages
	1	2	3	4	5	6	7
Providing credit card safety	O	O	O	O	O	O	O
Fast response time from customer service	O	O	O	O	O	O	O
I hear about it on the radio, television or in newspapers	O	O	O	O	O	O	O
The download speed of the page	O	O	O	O	O	O	O
A return policy that is easy to understand and use	O	O	O	O	O	O	O
Price incentives (coupons, future sale items, frequent shopper program, etc.)	O	O	O	O	O	O	O
Interactive web design (try it on, design your product / services)	O	O	O	O	O	O	O
It is quite different from the usual sites	O	O	O	O	O	O	O
It has guarantee from the vendor that my personal information will not be used to invade my privacy	O	O	O	O	O	O	O
Has many options for navigating within the site	O	O	O	O	O	O	O
The Internet links on the site are working properly	O	O	O	O	O	O	O
The site is brand new to the Internet	O	O	O	O	O	O	O
It is free of grammatical and typographical errors	O	O	O	O	O	O	O

	Does Not Encourage Me						Strongly Encourages
	1	2	3	4	5	6	7
Allows instant messaging with the company or company representative	O	O	O	O	O	O	O
It has seals of companies stating that my information on this site is secure (e.g. Verisign)	O	O	O	O	O	O	O
My friends or family will not think less of me if I make a purchase there	O	O	O	O	O	O	O
The privacy policy is easy to find on the site	O	O	O	O	O	O	O
It has received a best site award	O	O	O	O	O	O	O
There is a guarantee from the vendor that the product will arrive on a certain date	O	O	O	O	O	O	O
Uses a personalized greeting, e.g., "Hello, Tom!"	O	O	O	O	O	O	O

SECTION VI: ONLINE VENDORS

"Online vendors" are the companies selling products or services on the Internet.

Please indicate how much you agree or disagree with the following statements about online vendors:

	Strongly Disagree			Neither Agree or Disagree			Strongly Disagree
	1	2	3	4	5	6	7
Generally, promises made by online vendors are likely to be reliable	O	O	O	O	O	O	O
In general, I do not doubt the honesty of online vendors.	O	O	O	O	O	O	O
I expect that most of the times online vendors will keep promises they make	O	O	O	O	O	O	O
I expect that usually the advice given by online vendors is their best judgement	O	O	O	O	O	O	O
I expect that typically I can count on online vendors to consider how their actions affect me	O	O	O	O	O	O	O
I expect that in general the intentions of online vendors are benevolent	O	O	O	O	O	O	O
I expect that most of the time online vendors put customers' interest before their own	O	O	O	O	O	O	O
I expect that usually online vendors are well meaning.	O	O	O	O	O	O	O
Most online vendors are competent.	O	O	O	O	O	O	O
The majority of online vendors understand the market they work in	O	O	O	O	O	O	O
Most online vendors know about the products and services they sell	O	O	O	O	O	O	O
The majority of online vendors know how to provide excellent service	O	O	O	O	O	O	O
In most cases I am quite certain about what online vendors will do	O	O	O	O	O	O	O
Generally, I am quite certain what to expect from online vendors	O	O	O	O	O	O	O

SECTION VII: GENERAL ISSUES

G1. Please indicate your agreement or disagreement with the following statements about the types of shopping websites you prefer:

	Strongly Disagree			Neither Agree or Disagree			Strongly Disagree
	1	2	3	4	5	6	7
When shopping online, it's important to me that the website conveys a sense of human warmth	○	○	○	○	○	○	○
I feel that a shopping website needs to have a persona, rather than impersonal, feeling	○	○	○	○	○	○	○
For me to have a positive response to a shopping website, it needs to convey a sense of human sensitivity.	○	○	○	○	○	○	○
The shopping websites that I am most comfortable with are those that give a sense of human contact.	○	○	○	○	○	○	○
In my opinion, a shopping website should seem sociable.	○	○	○	○	○	○	○

G2. Take a moment to think about your relationship with other people in general. Indicate your agreement or disagreement with the following statements:

	Strongly Disagree			Neither Agree or Disagree			Strongly Disagree
	1	2	3	4	5	6	7
Generally speaking, most people can be trusted.	O	O	O	O	O	O	O
People are mostly just looking out for themselves.	O	O	O	O	O	O	O
Most people try to be fair.	O	O	O	O	O	O	O
Most of the time people try to be helpful.	O	O	O	O	O	O	O
Most people would try to take advantage of you if they got the chance.	O	O	O	O	O	O	O
Generally, you can't be too careful in dealing with people.	O	O	O	O	O	O	O

SECTION VIII: MORE FEATURES OF ONLINE SHOPPING

H1. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?

Be sure to scroll down to see all items before you make your choice.
Read through the list and click on the THREE LEAST ENCOURAGING aspects.

	Least Encouraging
The company offering the product/service guarantees that my personal purchase information will not be shared with other people or organizations.	○
Allows email to the company or to a company representative.	○
Has one or more animated characters that move or speak.	○
The products are guaranteed to be in stock.	○
Has photos of real people.	
The site came online just recently.	○
The site presents both benefits and drawbacks of products and services.	○
The site carries top-brand products and services.	○
Has photos of products.	
There is a guarantee that my credit card information would be safely and securely protected.	○
Uses music.	○
Uses sounds other than music.	○
There is a money-back guarantee.	○
Uses a lot of graphics.	○
Products can be easily compared.	○
Has video of products.	○
Uses a lot of color.	○
The company offering the product/service guarantees that my credit card information would not be abused.	○

H2. How strongly, if at all, do the following aspects of a website encourage you to shop at a particular site?

Go through the list and then rate all 16 aspects from 1 (does not at all encourage me) to 7 (strongly encourages me).

	Does Not Encourage Me At All						Strongly Encourages Me
	1	2	3	4	5	6	7
The company offering the product/service guarantees that my personal purchase information will not be shared with other people or organizations	○	○	○	○	○	○	○
Allows email to the company or to a company representative.	○	○	○	○	○	○	○
Has one or more animated characters that move or speak.	○	○	○	○	○	○	○
The products are guaranteed to be in stock.	○	○	○	○	○	○	○
Has photos of real people.	○	○	○	○	○	○	○
Has video of real people.	○	○	○	○	○	○	○
The site came online just recently.	○	○	○	○	○	○	○
The site presents both benefits and drawbacks of products and services.	○	○	○	○	○	○	○
The site carries top-brand products and services.	○	○	○	○	○	○	○
Has photos of products.	○	○	○	○	○	○	○

	Does Not Encourage Me At All						Strongly Encourages Me
	1	2	3	4	5	6	7
There is a guarantee that my credit card information would be safely and securely protected	○	○	○	○	○	○	○
Uses music.	○	○	○	○	○	○	○
Uses sounds other than music.	○	○	○	○	○	○	○
There is a money-back guarantee.	○	○	○	○	○	○	○
Uses a lot of graphics.	○	○	○	○	○	○	○
Products can be easily compared.	○	○	○	○	○	○	○
Has video of products.	○	○	○	○	○	○	○
Uses a lot of color.	○	○	○	○	○	○	○
The company offering the product/service guarantees that my credit card information would not be abused	○	○	○	○	○	○	○

SECTION IX: BACKGROUND INFORMATION

I1. What is your gender?

- ○ Male
- ○ Female

I2. How old are you (in years)?

years = _____

I3. What is your marital status?

- ○ Single, never been married
- ○ Married
- ○ Separated/Divorced
- ○ Widowed

I4. In what state is your permanent address at this current time?

_____

I5. Were your grandparents born in the U.S.A.?

- ○ Yes, all four of them
- ○ Yes, 1, 2, or 3 of them
- ○ None of them
- ○ Don't know

I6. Were your parents born in the U.S.A.?

- ○ Neither
- ○ My mother
- ○ My father
- ○ Both
- ○ Don't know

I7. Were you born in the U.S.A.?

- ○ Yes
- ○ No
- ○ Don't know

I8. What is your country/countries of citizenship?

- ○ USA

If other than USA, please list _____

I9. What was the last year of education you completed?

- ○ Some high school
- ○ High school
- ○ Technical School/Training (such as auto mechanic)
- ○ Some college/university
- ○ College/university graduate
- ○ Graduate or professional school

I10. What is your current employment? [CHECK ALL THAT APPLY]

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

I11. (IF EMPLOYED) What is your occupation?

- ○ Professional
- ○ Managerial/Executive
- ○ Sales
- ○ Clerical
- ○ Labor with technical training
- ○ Labor without technical training
- ○ Other (please specify) _____

I12. Please indicate which of the following categories best represents your annual household income before taxes.

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

I13. How many people live in your household, including yourself (please enter the number)?

household size = _____

I14. Please indicate whether you own each of the following items.
[INDICATE ONE RESPONSE FOR EACH]

	Yes	No	Don't Know
a. A personal computer	○	○	○
b. A DVD player	○	○	○
c. A high-definition TV (HDTV)	○	○	○
d. A Personal Digital Assistant (PDA)	○	○	○
e. A MP3 player (like Ipod)	○	○	○

I15. Please indicate the type of Internet connection you use most frequently:

- ○ dial-up connection (slower)
- ○ DSL/LAN/Cable connection (faster)
- ○ don’t know

THANK YOU FOR YOUR HELP!