

**Consumer Trust in the Online Retail Context: Exploring the
Antecedents and Consequences**

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ABSTRACT

This empirical paper explores the antecedents and consequences of trust in the online retail context and examines the moderating role of consumers' familiarity with a Web site in the relationship between Web site quality and trust. Data were collected with an online questionnaire. The research highlights the importance of the Web site interface in consumer online behavior by systematically examining how different quality features affect consumer trust. A multidimensional view of Web site quality with the following dimensions is developed: Web site usability, security and privacy assurance, and product information quality. Trust is shown to lead to positive consequences, such as the formation of positive attitudes and behavioral intentions toward the Web site. The study also identifies the moderating role of Web site familiarity in the relationships between aspects of Web site quality and trust. The implications for e-retailers in terms of Web site design and marketing communications strategy are explored.

Keywords Trust; Web Site Quality; Attitudes toward the Web Site; Web Site Approach Intentions; Familiarity with the Web Site

INTRODUCTION

The Internet is changing the way consumers shop and live their lives, with global online retail sales reaching \$204 billion in 2008 (Mulpuru, 2008). Among the factors inhibiting future growth are customer concerns about the privacy of personal information (Yi & Gong, 2008) and a lack of trust in e-commerce vendors (Novak, Hoffman & Peralta (1998). Trust has a central role in many such commercial activities (Lynch, Robert & Srinivasan, 2001), especially when the trustor depends on, but lacks control over, the trustee (Gefen & Straub, 2004). Internet users can experience this vulnerability because they often lack control over others' access to their personal information. This vulnerability is compounded because Internet shoppers are not able to feel, touch, or try out physical products. Thus a consumer buying shoes is unable to check the fit, color or quality of materials before buying. Deprivation of intrinsic cues, such as smell, taste, and texture, increases transaction risks for consumers (Kotha, Rajgopal, & Venkatachalam, 2001), particularly in certain product categories.

Trust and risk are closely interrelated: the higher the perceived risk, the greater the trust needed to facilitate a transaction (Mayer, Davis, & Schoorman, 1995). Consumer attitudes toward online shopping are also affected (Jarvenpaa, Tractinsky, & Vitale, 2000); consumers are unlikely to patronize Internet outlets that fail to generate trust (Jarvenpaa, Tractinsky, & Saarinen, 1999). This is particularly so when the risk associated with a purchase is high. Consequently, continued growth in Internet commerce depends at least in part on the development of trust between suppliers and consumers.

In view of the importance of securing trust, online vendors must endeavor to build trust and reduce perceived consumer vulnerability. Research into the antecedents and

consequences of trust, and the implications for marketing practices, is therefore an important priority. This study addresses this issue, focusing specifically on Web sites, which act as the store frontage for online vendors and are the essential link with customers. First, it examines the role of Web site quality features in the development of consumer online trust. Taking a broad view of Web site features, this research explores the impact of ease of use (Web site usability), informational content (product-/service-related information quality), security and privacy assurances, download speed, and aesthetics. Second, this research explores the impact of trust on how consumers respond to Web sites. These responses include attitudes toward the site and site approach intentions (e.g., a desire to stay on the site, explore the site, revisit the site, make future purchases). The moderating role of Web site familiarity on the relationships between Web site quality features and trust is also investigated (Gefen, 2000; Gefen, Karahanna, & Straub, 2003; Gefen & Straub, 2004). Overall, the study chimes with a call in the recent *Psychology & Marketing* special issue on new developments in e-commerce for ‘...further research on marketing practices conducted over the Internet...’ (Taylor & Lee, 2008, p. 565). The results have practical implications for the marketing practices of e-retailers, particularly in relation to Web site design and marketing communication strategies in order to develop consumer online trust.

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

Figure 1 summarizes the conceptual framework. The model includes a range of Web site quality features as antecedents of trust. The possible consequences of trust, including attitudes toward the Web site and site approach intentions, are indicated. Potential

relationships between Web site quality features and attitudes toward the site and between Web site attitudes and site approach intentions are also shown. An important feature is the way the framework incorporates consumer familiarity with the Web site, enabling exploration of the moderating impact of this variable on the relationships between Web site interface features and trust. The research hypotheses associated with the conceptual model are described subsequently.

(Place Figure 1 about here)

Web Site Quality

The design of Web site interfaces is as critical to marketing academics as it is to electronic commerce practitioners. As the main medium for information and online transactions, the Web site interface has become an obvious focus for research interest. Studies examining commercial Web site interfaces have appeared in the literature on human–computer interaction, Web atmospherics, consumer trust in online stores, and e-service research. Much of this work considers important features of the Web site itself. Some of these studies introduce the concept of Web atmospherics (Dailey, 2004; Menon & Kahn, 2002), which is defined as a group of Web site interface characteristics, such as navigation cues, information cues, graphic design, and general layout. The Web atmospherics concept has been used to investigate the impact of interface features on consumers' emotional responses to Web sites and on their consequent shopping behavior (Eroglu, Machleit, & Davis, 2003).

Many different scales have been proposed to capture the dimensions of e-service quality, and more recently to identify moderator variables (eg: Yi & Gong, 2008). Loiacono, Watson, and Dale (2002) developed the WEBQUAL scale, which consists of the following 12 dimensions: informational fit to task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, flow (emotional appeal), consistent image, online completeness, and better-than-alternative channels. This scale overlaps with the SITEQUAL scale (Yoo & Donthu, 2001), which uses the dimensions of ease of use, aesthetic design, processing speed, and security to measure the perceived quality of Internet shopping sites, with Zeithaml, Parasuraman, and Malhotra (2002), who suggest that e-service quality comprises information availability/content, ease of use, privacy/security, graphic style, and reliability; and with Parasuraman, Zeithaml and Malhotra (2005), who propose efficiency, system availability, fulfilment and privacy. The e-service reliability concept can be further broken down into fulfilment (including on-time and accurate delivery), the provision of accurate information, and other fulfilment issues (Van Riel, Liljander, & Jurriens, 2001; Zeithaml, Parasuraman, & Malhotra, 2002). It also pertains to certain Web site issues, such as accessibility, minimum download time, and the proper functioning of the site (Voss, 2003; Zeithaml, Parasuraman, & Malhotra, 2002).

On the basis of the extant literature, the following dimensions of Web site quality have been included in this study: Web site usability (ease of use), security and privacy assurance, speed of download, Web site information quality (product- and service-related information), and Web site aesthetics. These dimensions are similar to the e-service quality features proposed in Zeithaml, Parasuraman, and Malhotra (2002) and in

Parasuraman, Zeithaml and Malhotra (2005). However, because the focus of this research is on the Web site itself, fulfilment issues related to the customer–employee interaction have been specifically excluded.

Web site usability. The concept of Web site usability, borrowed from the human–computer interaction research area, extends the idea of ease of use Jakob Nielsen and Donald Norman (www.nngroup.com/reports) have pioneered work on this issue, driven by the view that usability is critical because visitors to the Web have particular objectives or tasks they need to complete (Nielsen, 2000). As Nielsen and Loranger explain (2006: xiv) “The Web is not television. People don’t go there to zone out. People go to the Web with a specific purpose in mind. They have their hands on their mouse, ready to interact and be engaged”.

Although ease of use is an accepted feature of e-service quality (e.g., Zeithaml, Parasuraman, & Malhotra, 2002), most studies take a uni-dimensional view of the construct. This article develops the domain through its multi-dimensional view of the factors contributing to the ease of use of an e-commerce system. The Web site usability concept adopted here considers the ease-of-navigation aspect together with various design features that contribute to Web site usability (Lin, Choong, & Salvendy, 1997; Roy, Dewit, & Aubert, 2001).

Security/privacy. Assurances about security and privacy pertain to the extent to which the Web site guarantees the safety of customers’ financial and personal information, an area which has witnessed a proliferation of research interest (eg: Kimery & McCord, 2002; Miyazaki & Krishnamurthy, 2002). Security and privacy can be assured by providing a privacy statement and information about the security of the shopping

mechanism and by displaying the logos of trusted third parties. For example, displaying a trusted third-party logo, such as VeriSign, guarantees a certain level of security protection and has been shown to significantly influence how consumers regard the trustworthiness of e-vendors (Jiang, Jones & Javie, 2008).

Speed of download. Download speed pertains to how quickly the Web site responds to requests or performs particular functions. Some uncertainty remains about the relationship between download speed and attitudes toward online retailers. According to Bacheldor (2000), slow download speed is as likely to repel consumers as a rude salesperson. Both McMillan and Hwang (2002) and Novak, Hoffman, and Yung (2000) consider download speed a key dimension of Web-based interactivity. Similarly, DiClemente and Hantula (2003) find that e-stores with the shortest delay are significantly preferred to those with longer delays. This is consistent with Rajala and Hantula (2000), who suggest that decreasing the time taken to receive information positively alters consumer preferences toward a store, leading in some instances to increases in market share. These findings are in contrast to Rose, Meuter, and Curran (2005), who find that neither actual nor estimated delay significantly influences attitudes toward an online retailer. They propose that the overall experience is more important in promoting positive attitudes toward a Web site than focusing on actual and estimated delay alone.

Insights into the possible impact of download speed can also be drawn from Kock's (2001) media naturalness theory, which compares communication tools with traditional face-to-face communication: the greater the similarity, the more natural the medium is considered to be. According to Kock, face-to-face communication is composed of co-location, synchronicity, facial expression, body language, and speech. The consequences

of decreasing media naturalness include increased cognitive efforts, greater communication ambiguity, and a reduction in physiological arousal. Although co-location, facial expression, body language, and speech are not delivered through the online shopping interface, the element of synchronicity can be enhanced through increased download speed. Furthermore, Yoon, Choi and Sohn (2008) find Web users' perceptions of synchronicity to be associated with perceived relationship investment by e-tailers.

Web site information quality. Researchers who investigate online store attributes often emphasize the importance of product- or service-related information quality (Elliott & Speck, 2005; Janda, Trocchia, & Gwinner, 2002; Page & Lepkowska-White, 2002; Park & Kim, 2003). Areas of concern include whether this information is relevant for the task at hand, up to date, sufficient, easy to understand, consistent, and accurate. Researchers are also interested in the impact of visual and verbal information on attitudinal responses and purchase intentions (Kim & Lennon, 2008). In this research, product-related information pertains to the product descriptions (visual and verbal) and pricing details presented on the site. The service-related information is the extent to which the Web site offers detailed information about the company (e.g., physical location, full contact information, history and mission), delivery and other costs, a return and refund policy, frequently asked questions, and customer endorsements.

Aesthetic aspects. The aesthetic aspects of the site pertain to the general look and feel of the interface (e.g., the use of color, graphics, pictures, background patterns, and screen layouts) and the general organization of the site's content.

Web Site Quality and Trust

Mayer, Davis, and Schoorman (1995) propose a model of organizational trust based on a dyad of trustor and trustee. They suggest that the attributes associated with the trustee include ability (competencies and skills to exert influence), benevolence (extent to which the trustee cares about the trustor's welfare), and integrity (degree to which the trustee is viewed to adhere to acceptable principles). The research presented herein draws on and extends this theory, investigating how consumer trust in an e-retailer is engendered through its Web site.

Prior studies have suggested that elements of the Web site interface significantly influence the site's trustworthiness (e.g., Fogg et al., 2001; Roy, Dewit, & Aubert, 2001). Indeed, according to Corritore, Kracher, and Wiedenbeck (2003, p. 746), "aspects of the interface design can give cues about trustworthiness." An analysis of consumer comments for 100 Web sites revealed that the main issues contributing to Web site credibility were design/look, information design/structure, information focus, company motives, information usefulness, and information accuracy (Fogg et al., 2002). The professional use of graphics and color strongly influences the perceived credibility of the site. As Meyvis and Janiszewski (2002) explain, some features, such as irrelevant information about a product's benefits, have a negative impact.

An easy-to-use Web site is a key contributor to online trust. Gefen, Karahanna, and Straub (2003) note that a Web site's perceived ease of use has a direct effect on trust, which in turn influences consumers' intended use of the site. Roy, Dewit, and Aubert (2001) note that Web site usability is composed of ease of navigation, consistency, ease of learning, perceptual limitation, and user support. They suggest that an online vendor's

perceived ability is significantly influenced by ease of navigation, perceptual limitations, and user support. Moreover, the perceived benevolence of an online vendor is strongly affected by ease of navigation, ease of learning, perceptual limitations, and user support. Roy, Dewit, and Aubert further suggest that perceptions of the integrity of an online vendor are influenced by the perceived limitations of its Web site.

As Internet-related credit card fraud and abuse of confidential consumer data increase, the success of e-commerce relies on the provision of security and privacy assurances on Web sites (Kolsaker & Payne, 2002). In their study on trust building in e-banking, Yousafzai, Pallister, and Foxall (2005) suggest that banks' use of a security policy, a privacy policy, and a statement of compliance with banking codes and procedures on their Web sites encourages consumer trust. Similarly, Palmer et al. (2000) find that the prominent use of trusted third parties and privacy statements engenders consumer trust in online vendors. Their work highlights that privacy statements are one of the best ways to increase trust levels. Concerns about consumer trust in e-commerce are also driving third party certification programs such as TRUSTe and Verisign (Jiang, Jones & Javie).

Although download speed is partly a technical issue, it also has a psychological dimension, because slow download time negatively affects consumers' emotional responses (Rose & Straub, 2001). Slow download speeds lead to Internet users exiting Web pages, and sites with download speeds exceeding 30 seconds are more likely to be abandoned (Voss, 2003). Page and Lepkowska-White (2002) find that the download speed of commercial sites is positively related to the number of pages explored, the time

spent on the site, and the image of the online vendor. These issues are reflected in the following hypotheses:

H1: Web site usability will positively and significantly influence shoppers' trust in the site.

H2: Security and privacy assurance provided by the Web site will positively and significantly influence shoppers' trust in the site.

H3: Speed of download will positively and significantly influence shoppers' trust in the site.

H4: Quality of the Web site's product information will positively and significantly influence shoppers' trust in the site.

H5: Quality of the service information provided by the Web site will positively and significantly influence shoppers' trust in the site.

H6: Web site aesthetics will positively and significantly influence shoppers' trust in the site.

Web Site Quality and Attitude toward the Site

Consumers' attitudes toward retailers are closely associated with store patronage (Korgaonkar, Lund, & Price, 1985). Attitudes are defined as predispositions to respond to an object in a particular way (Rosenberg, 1960) and are composed of affective, cognitive (Perloff, 1993), and behavioral components (Oskamp, 1991). The affective component is related to affective feelings formed without conscious thought, while the cognitive component refers to ideas and beliefs formed by conscious thought (Perloff, 1993). For example, the extent to which users are satisfied with Web site interactions is the affective

component, while the degree to which they believe that the Web site provides valuable information is the cognitive element. Behavioral components are linked to action tendencies (Oskamp, 1991), such as whether Internet users will use the Web site in the future.

The affective aspect is crucial to the formation of attitudes (Teo, Oh, & Liu, 2003). Oskamp (1991) suggests that attitudes can be interpreted entirely on the basis of affective feelings. The research presented herein focuses on this affective component and considers consumers' general attitudes toward the Web site in terms of whether they perceive it as good/bad and favorable/unfavorable and whether they like/dislike it. Some studies suggest that how consumers evaluate Web site features influences their attitudes toward the site. Teo, Oh, and Liu (2003) find that specific Web site features, such as interactivity, lead to positive site attitudes. Other research shows positive usability outcomes, including a reduced number of errors, enhanced accuracy, positive attitudes toward the target system, and increased usage (Lecelof & Paterno, 1998; Nielsen, 2000). Similarly, Chen and Wells (1999) and Kwon, Kim, and Lee (2002) demonstrate a positive relationship between product information and Web site attitudes.

This research extends the examination of users' cognitive evaluations of Web site features, focusing on usability, security and privacy assurance, download speed, the quality of information (product/service information), and aesthetic aspects of the site. As the following hypotheses indicate, each of these Web site features is assumed to influence users' attitudes:

H7: Web site usability will positively and significantly influence shoppers' attitudes toward the site.

H8: Security and privacy assurances provided by the Web site will positively and significantly influence shoppers' attitudes toward the site.

H9: Speed of download will positively and significantly influence shoppers' attitudes toward the site.

H10: Quality of the Web site's product information will positively and significantly influence shoppers' attitudes toward the site.

H11: Quality of the service information provided by the Web site will positively and significantly influence shoppers' attitudes toward the site.

H12: Web site aesthetics will positively and significantly influence shoppers' attitudes toward the site.

Trust, Attitude toward the Web Site, and Web Site Approach Intentions

Gefen (2000) suggests that trust in an online vendor significantly influences consumers' intentions to inquire and purchase from the site. In addition to these direct effects, trust (which is considered a belief) can indirectly mediate behavior through attitudes toward the Web site. This is consistent with both the Theory of Planned Behaviour (Ajzen, 1985) and the Theory of Reasoned Action (Fishbein & Ajzen, 1975), which suggest that beliefs influence attitudes, which in turn affect behavioral intentions.

Several studies have demonstrated the direct influence of trust on consumers' attitudes toward a Web site and the consequent impact on behavioral intentions. For example, Jarvenpaa, Tractinsky, and Saarinen (1999) and Jarvenpaa et al. (2000) find that trust in an online store directly and positively affects consumers' store attitudes. They also show an indirect and positive influence of trust on consumers' willingness to buy

through attitudes toward the store. Finally, they demonstrate a direct and positive influence of attitudes on consumers' willingness to buy. Moreover, Eroglu, Machleit, and Davis (2003) suggest that consumers' attitudes toward a Web site strongly affect their approach/avoidance behaviors, including time spent on the site, the desire to explore, the desire to approach/avoid the site when shopping, the desire to revisit the site, and the intention to recommend the site to others. Thus, the following hypotheses are developed:

H13: Shoppers' trust in the Web site will positively and significantly affect their attitudes toward the site.

H14: Shopper's trust in the Web site will positively and significantly affect their site approach intentions.

H15: Shoppers' attitudes toward the Web site will positively and significantly affect their site approach intentions.

Trust and Familiarity with the Web Site

Gefen (2000) and Gefen, Karahanna, and Straub (2003) explain two facets of e-vendor familiarity: (1) familiarity with the e-vendor through off-line marketing communications tools, such as advertisements, and (2) familiarity with the e-vendor gained through visiting the site. In the current research, this latter aspect of e-vendor familiarity is examined.

According to Russell and Lanious (1984), familiarity with an environment influences affective responses toward it. In the online environment, researchers have shown shopping intentions and shopping adoption to be positively affected by previous practice

(eg: Lennon, Kim, Johnson, Jolly, Damhorst & Jasper). There is also empirical evidence that e-vendor familiarity is an important antecedent of e-vendor trust (Gefen, 2000; Gefen, Karahanna, & Straub, 2003; Gefen & Straub, 2004). Familiarity with a trustworthy party builds trust because uncertainty is reduced as a consequence of increased understanding (Luhmann, 1979). The trustor is also more likely to be able to predict the trustee's behavior (Doney, Cannon, & Mullen, 1998). Consumer familiarity with a trustworthy e-vendor enhances trust through the accumulated knowledge of the vendor gained from past successful site interactions (Gefen, 2000). In this research, the assumption is that the impact of interface features on trust differs according to familiarity with the Web site. Therefore, it is hypothesized that consumers' familiarity with a Web site moderates the relationships between site quality features and consumer trust:

H16: Shoppers' familiarity with the Web site moderates the relationship between usability and their trust in the site.

H17: Shoppers' familiarity with the Web site moderates the relationship between security and privacy assurance and their trust in the site.

H18: Shoppers' familiarity with the Web site moderates the relationship between speed of download and their trust in the site.

H19: Shoppers' familiarity with the Web site moderates the relationship between product information quality and their trust in the site.

H20: Shoppers' familiarity with the Web site moderates the relationship between service information quality and their trust in the site.

H21: Shoppers' familiarity with the Web site moderates the relationship between aesthetics and their trust in the site.

METHODOLOGY

Subjects, Design, and Procedure

An Internet survey was conducted to collect data from a sample of university students. This kind of sample is deemed appropriate for Internet research and can be justified by the experience and familiarity of these individuals with the Internet and online purchases (Laroche et al., 2005). Access to this group was also readily available to the researchers.

A link to the Internet survey advertised on the university intranet invited students to participate in the survey. A mock online shopping task was specifically designed for the research, with details of the task and links to an assigned Web site and to its various information sections included on the online questionnaire cover page. The use of such tasks is accepted practice in testing Web site usability (Nielsen & Loranger, 2006). As Kim and Lennon (2008, p. 156) explain, 'Web experiments can be realistic and may be indistinguishable from real-life online interactions'. In this study, the task required survey participants to go through the process of "buying" a laptop from the assigned Web site, up to, but not including, the payment stage. A laptop was deemed an appropriate product for the mock shopping task because it is among the best-selling Internet product categories. Shop.org's State of Retailing Online 7.0, an annual study conducted by Forrester Research, reported that online travel sales grew rapidly by 91% to \$52.4 billion, and online sales of computer hardware and software (\$11.0 billion) were among the major drivers for online growth.

A commercial Web site specializing in selling computer products was chosen, with particular care taken to ensure that the selected site was not well known to participants.

This is important because the reputation of an online store (Jarvenpaa, Tractinsky, & Saarinen, 1999) and consumers' familiarity with a Web site (Gefen, 2000) are known to affect consumer trust in online vendors. The chosen site was www.ebuyer.com, a commercial Web site that has received little media exposure among university students. After they accessed the survey Web site, participants were provided with information about the mock shopping task they needed to complete on ebuyer.com. Next, participants were directed to sections of the Web site addressing company background, security and privacy information, shipping and handling information, and guidance on returns policy. After reading this information, participants clicked the link to the site's homepage and began the assigned shopping task. After completing the task, but before filling out the main questionnaire, they recorded which model of a laptop they had "bought." This helped ensure that participants genuinely interacted with the site.

The Internet survey resulted in 820 records. Of these, 236 empty records generated by visitors logging on to the survey Web site without completing the questions were removed. A further 125 records were removed because a large proportion (>20%) of the questions were unanswered, the answers showed little variance (e.g., a midpoint answer of 3 was given to most questions), or conflicting answers were found. Finally, 7 additional records were excluded because the respondents failed to indicate whether they had visited the ebuyer.com site previously. This left a final data set of 452 usable records.

Of the 452 respondents, 429 (95%) were between 18 and 35 years of age, 5 (1%) were younger than 18, and 16 (4%) were 35 years or older (2 respondents had missing values for this question). There were similar numbers of female (47%) and male respondents (48%) (23 respondents had missing values). The sample profile indicated a

close match with the student population registered at the university. The data also showed that 335 of the 452 respondents had not previously visited the site. These results were consistent with the expectation of using a little-known Web site for the research.

Measurement

The measurement scales were generated and refined according to guidelines suggested by Churchill (1979) and Gerbing and Anderson (1988). Items measuring Web site usability were based on the work of Roy, Dewit, and Aubert (2001) and Lin, Choong, and Salvendy (1997), and the security and privacy assurance elements were taken from the e-commerce literature (e.g., Janda, Trocchia, & Gwinner, 2002; McKnight, Choudhury, & Kacmar, 2002; Park & Kim, 2003). Download speed was assessed using items adapted from Novak, Hoffman, and Yung (2000), and items measuring product and service information quality were adapted from Park and Kim (2003). Measures for aesthetic aspects of the site were generated from the e-commerce literature on Web site interfaces (e.g., Eroglu, Machleit, & Davis, 2003; Fogg et al., 2001; Fogg et al., 2002). Measures used for trust were based on the work of Roy, Dewit, and Aubert (2001) and Mayer, Davis, and Schoorman (1995), and items for site attitude were adapted from Rose and Straub (2001). Different items measuring Web site approach intentions were modified from Eroglu, Machleit, and Davis (2003). A 5-point scale was used to measure each of the items with face validity evaluated by seven academic researchers. As a result of the input from these experts, minor modifications were made to some items.

DATA ANALYSIS

The measures were validated using a two-stage approach (Anderson & Gerbing, 1988; Srinivasan, Anderson, & Ponnnavolu, 2002). Exploratory factor analysis using principal components was conducted on the scale items of each construct to summarize the data. Items with factor loadings less than the absolute value of ± 0.30 on all factors were eliminated (Hair et al., 1998). The internal consistency of the measures was tested by calculating Cronbach's alpha (Cronbach, 1951) for each construct; an alpha value of 0.7 or above was considered satisfactory (Hair et al., 1998).

Structural equation modeling (SEM) with maximum likelihood estimation was employed to test the hypotheses. The analysis was based on the variance–covariance matrix for the indicators of each construct; the variances and covariances were considered to satisfy the assumptions of the SEM methodology and an appropriate approach to validate causal relationships (Hair et al., 1998). SEM was run on the complete sample to test the hypotheses. To test the moderating effect of Web site familiarity, the sample was subsequently split into two sub-samples. The first sub-sample included 335 respondents who had never visited the Web site, and the second sub-sample included 117 respondents who had previously visited the Web site. Both sample sizes were acceptable for the model testing, given that 100 to 150 is the minimum satisfactory sample size for SEM (Anderson & Gerbing, 1988; Ding, Velicer, & Harlow, 1995). SEM analysis was conducted on both sub-samples.

RESULTS

Exploratory Factor Analysis

Table 1 presents the principal components analysis for the exploratory stage. The results show the single-factor nature of the following constructs: security and privacy assurance, product information quality, service information quality, speed of download, attitudes toward the Web site, and Web site approach intentions. The Web site usability construct comprised four dimensions: easy to learn, easy to navigate, consistency, and user support.

The factor loadings suggest the following interpretations for these dimensions: The easy-to-learn dimension captures the extent to which the Web site provides meaningful logos, command names, and menu names and uses logical structure and data grouping to assist the online navigators' learning. Consistency is the extent to which the Web site applies consistent wording, coding, logos, symbols, graphics, colors, and display formats. The easy-to-navigate aspect reflects the degree to which users can clearly understand what can be done on the site and are able to navigate to where they want to go. User support encapsulates the extent to which the Web site provides useful information to assist users in correcting errors made.

The Web site aesthetics construct comprises two dimensions: visual attractiveness and site content organization. Visual attractiveness pertains to the attractive use of background patterns, colors, images, graphics, pictures, displays, and screen/page brightness, and site content organization is the extent to which the content is logically organized. The trust construct also has two components: perceived benevolence/integrity and perceived ability.

The internal consistency of the dimensions and constructs is acceptable, with Cronbach's alpha values for all but one exceeding the satisfactory level of 0.70. The easy-to-navigate dimension was the exception, with an alpha value of 0.67, which is

acceptable for new scales (Wong, Chan, & Leung, 2005). The results for the correlations among these constructs are shown in Table 2.

(Place Table 1 about here)

(Place Table 2 about here)

Hypothesis Testing

A summated scale based on the average of the composite items was created for each dimension of the constructs included in the SEM analysis (Hair et al., 1998). Figure 2 presents the model and shows the significant path coefficients for the complete sample. Figure 3 shows the model with path coefficients from the SEM analysis of both sub-samples.

(Place Figure 2 about here)

(Place Figure 3 about here)

Figure 2 shows that the values of the model fit measures root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), and comparative fit index (CFI) are acceptable. Web site quality features, including usability, security and privacy assurances, and product information quality, have a positive and significant impact on trust. Therefore, H1, H2, and H4 are supported. Other Web site interface factors, including speed of download, service information quality, and site aesthetics, fail to show significant relationships to trust. Therefore, H3, H5, and H6 are rejected. These features

are shown to be less important than usability, security and privacy assurance, and product information quality in facilitating consumer trust in the online shopping context.

Product information quality has a significant and positive impact on trust. However, the impact of service information quality on trust is not significant, as expected, possibly because participants were not *actually* making a real purchase but were involved in a mock shopping task up to, but not including, the payment stage. This meant that service information (e.g., delivery charges, return policies) was less likely to be a concern than if respondents were real buyers.

The findings regarding the impact of quality features on Web site attitudes are revealing. Web site usability positively and significantly affects attitudes, though no significant relationship is found with other quality features. Therefore, H7 cannot be rejected, but H8, H9, H10, H11, and H12 can be rejected. These findings, which are consistent with previous studies (Lin & Lu, 2000; O’Cass & Fenech, 2003), indicate that Web site usability is the most important antecedent of positive attitudes toward the site.

The results regarding consumer trust suggest that positive attitudes toward the site can lead to site approach intentions. Therefore, H13, H14, and H15 are supported.

Figure 3 supports the moderating role of Web site familiarity between certain quality features and trust. The values of RMSEA, GFI, and CFI indicate an acceptable fit for both the “unfamiliar” and the “familiar” model. The impact of security and privacy assurances, Web site usability, and product information quality on trust differs across these two situations. Specifically, Web site usability and product information quality have a greater impact on trust when people are unfamiliar with the site. Security and privacy assurances have a greater influence on trust when people are familiar with the site.

Therefore, H16, H17, H18, H19, H20, and H21 are supported. These results support the moderating role of Web site familiarity in the relationship between usability and trust, between security/privacy assurances and trust, and between product information quality and trust.

Figure 3 highlights the moderating role of Web site familiarity on the relationship between certain quality features and attitudes. Speed of download and Web site usability both significantly affect attitudes of respondents who are unfamiliar with the site, but not those of respondents who are familiar with it. People need time to become familiar with a particular Web site, which may explain why download speed has a negative impact on attitudes toward the site among those who are unfamiliar with it. Figure 3 also shows that trust can lead to Web site approach intentions in both familiar and unfamiliar situations. In unfamiliar situations, trust significantly and positively influences attitudes toward the Web site, which in turn is significantly and positively related to Web site approach intentions. However, no such significant relationships were found when users were familiar with a particular site.

DISCUSSION

Conclusion and Implications

This study demonstrates the importance of Web site quality in facilitating consumer trust and forming positive attitudes toward an e-commerce Web site. The results show the resultant impact on consumers' site approach intentions and the effect of trust on positive attitudes toward the site. The results also show that respondents' beliefs about Web site quality and online vendors affect their attitudes toward the site, which in turn

affect their approach intentions. This confirms the findings of Njite and Parsa (2005), who report that trust positively affects consumers' attitudes toward online shopping, which in turn influence purchase intentions. McKnight, Choudhury, and Kacmar (2002) also find that trust in an online vendor influences behavioral intentions to follow the vendor's advice, share personal information with the vendor, and purchase from the site.

The results show that Web site quality features, including usability, security and privacy assurances, and product information quality, significantly and positively influence trust. This is consistent with previous studies showing the role of Web site usability in boosting consumers' trust in online vendors (Roy, Dewit, & Aubert, 2001). This study shows that having an easy-to-use Web site is the key to e-commerce success. As the main media for consumers' interactions with the Internet, Web site interfaces serve as storefronts for e-vendors. A well-designed Web site with high usability contributes to consumer trust in the e-vendor and to positive attitudes toward the site. In combination, these positive attitudes and trust result in positive behavioral intentions toward the site. Outcomes might include consumers' staying longer on the site, exploring the site further, revisiting the site, and having overall positive future intentions to purchases from the site. The findings strongly endorse e-vendors investing in Web site upgrades to improve usability and encourage patronage behavior. Specifically, a Web site that has a high level of usability must be easy for users to learn; must be consistent in its use of colors, logos, and symbols; and must be easy to navigate. The site must also assist users in correcting errors.

The results pinpoint two further Web site-related antecedents of trust: security and privacy assurances and product information quality. Yoon (2002) shows that transaction

security indirectly affects Internet purchase intentions, with trust as the mediator. The positive and significant influence of product information quality on trust is also consistent with research by Fogg et al. (2002), who found that information quality enhances consumers' perceptions of Web site credibility. Providing security and privacy assurances can mitigate consumers' worries about the prevalence of these problems on the Web. Security and privacy assurances might take the form of a privacy statement, an explanation of the use of a secure transaction mechanism, and the presence of trusted third parties' logos. Moreover, the study suggests that trust is increased by the provision of high-quality product information on the Web site. The perceived trustworthiness of a site relies on the extent to which the product information (texts or graphics) is sufficient, up to date, easy to understand, relevant, consistent, and accurate.

This research demonstrates the moderating role of consumers' familiarity with a Web site on the relationships between certain quality features and trust. When people are unfamiliar with the Web site, usability and product information quality positively and significantly affect trust. For those who are familiar with the site, security and privacy assurances significantly and positively influence trust.

The results also reveal the moderating role of Web site familiarity on the relationships between usability and attitudes toward the site and between download speed and site attitudes. For people who are unfamiliar with the Web site, usability contributes significantly to positive attitudes toward the site, an effect that is not evident among those with previous site experience. Slow download speed also has a significant and negative impact on the attitudes of those who have not previously visited the site, in contrast to people who are familiar with the site. These findings shed light on current questions

regarding the effects of download speeds, consistent with Davis and Hantula (2001), who find that a delay in downloading instructional materials negatively influences online learning performance and satisfaction, especially in cases in which the instructional material is difficult. Thus, e-vendors must recognize the impact of different experience levels of users on Web site perceptions and then customize the interface accordingly.

Future Research

This study suggests that Web site usability is a key antecedent of trust in the online retail context. Rather than examining the concept purely in terms of ease of use, this research considers Web site usability a multi-dimensional construct, comprising ease of navigation, ease of learning, consistency, and user support. Further research that takes a multi-dimensional view is now needed to explore the relationship between different aspects of Web site usability and its impact on consumer online behavior. Such research would offer potentially rich information for e-vendors wanting to improve various usability aspects with the aim of encouraging Web site patronage.

A limitation of this study is that it examines online shopping experiences using a mock shopping task, thus leading to questions about whether the results from an artificial setting differ from those occurring naturally. Experimental methods of data collection could provide researchers with greater control over the process, enabling more control variables to be designed into the study environment. Such approaches would allow for the gathering of observational data and the use of log files to track Internet users' navigational routes on visited sites.

The efficacy of experiments has been shown by researchers in human–computer interaction studies, who test the usability of computer systems and Web applications (e.g., Lin, Choong, & Salvendy, 1997; Preece, 1993). Similar experimental methods have also been recorded in e-commerce (e.g., Hantula & Bryant, 2005; Martin, Sherrard, & Wentzel, 2005), and their use could be readily extended to marketing studies exploring Web site usability. A noteworthy feature of experiments in e-commerce is the blurred boundary between the lab and real life (Hantula, 2005). In the current study, the mock shopping task took place on a real e-commerce Web site. Participants accessed the site and completed the assigned task, just as they would for a real online shopping activity, albeit without making the actual payment. As DiFonzo, Hantula, and Bordia (1998) observe, the experimental environment and real life become indistinguishable when participants pursue the same tasks on the same interfaces and on similar types of computers.

Finally, future research could expand the study to other commercial Web sites, product categories, and consumer types. This study focuses on a student sample and considers only a single product class; thus, the generalizability of the results are limited. The cross-sectional validity of the work warrants further attention because consumer responses to Web sites may be affected by involvement and other product-related factors. For example, the aesthetic aspects may be more important to a consumer clothing Web site than to a Web site that sells intangible services (e.g., motor insurance).

Although this study focuses on consumer online shopping behavior, future work might reflect other Internet-related activities. Because consumers' motivations can be either task oriented or recreation oriented (Kaltcheva & Weitz, 2006), future research might consider

both behavioral orientations (e.g., shopping) and experiential behaviors (e.g., recreational Web browsing). Studies of this nature are likely to have implications for e-vendors that want to develop Web site personalization and tailor marketing communications strategies to individual needs.

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Table 1. Scale Items.

Constructs	Items included		Cronbach's alpha
<i>Web site usability</i>			
Easy to learn	WU19 WU18 WU17 WU16 WU8 WU9 WU20	The ordering of menu options is logical. The grouping of menu options is logical. The data grouping is reasonable for easy learning. It provides clarity of wording. The structure of this site seems logical to me. I can find easily what I am looking for on this site. The command names are meaningful.	.87
Consistency	WU12 WU14 WU13 WU15 WU11 WU4	The coding is consistent across displays and menu options. The wording is consistent across displays. The display format is consistent. Symbols for graphic data are standard. The assignment of colour codes is conventional. Each page of this site is clearly identified by the same logo.	.80
Easy to navigate	WU2 WU1 WU3 WU7	Considering the home page of this site, I understand clearly what can be done. Considering the home page of this site, I understand clearly what its goal is. The home page of this site is easily accessible from any interior pages. I am always able to go back easily to the pages that I had previously visited.	.67
User support	WU21 WU22	Error messages are clear and useful. This site provides helpful information to help me correct the errors I made.	.70
<i>Security and privacy assurance</i>			
Security and privacy assurance	SPA1 SPA2 SPA3 SPA4 SPA5	This site provides a secure transaction mechanism. This site provides detailed information about security. This site provides a clearly written policy of handling privacy information. I feel assured that my personal information will not be shared with third parties. I feel assured that it is safe to transact personal business on this site.	.84
<i>Speed of download</i>			
Speed of download	SD1 RSD2 SD3	When I interact with this site, there is very little waiting time between my actions and the site's response. Interacting with this site is slow and tedious. (R) Pages on this site I visit usually load quickly.	.82
<i>Product information quality</i>			
Product information quality	PI1 PI2 PI3 PI4 PI5 PI6	This site provides up-to-date product information. This site provides sufficient product information. This site provides easy-to-understand product information. This site provides relevant product information. This site provides consistent product information. This site provides accurate product information.	.70
<i>Service information quality</i>			
Service information quality	SI1 SI2 SI3 SI4	This site provides up-to-date service information. This site provides sufficient service information. This site provides easy-to-understand service information. This site provides relevant service information	.76

	SI5 SI6	This site provides consistent service information. This site provides accurate service information.	
Web site aesthetics			
Visual attractiveness	AA9	This site has an attractive screen background and pattern.	.82
	AA6	The colour use on this site is attractive overall.	
	AA11	This site has eye-catching images or titles on the homepage.	
	AA12	The graphics and pictures used on this site fit well with content.	
	AA7 AA10	This site has sharp displays. The brightness of screens/pages on this site is adequate.	
Content organisation	AA5	This site is disorganised/confusing. (R)	.86
	AA4	The information on this site is organised in a logical way.	
	AA3	This site is arranged in a way that makes sense to me.	
Trust			
perceived benevolence/ integrity	T10	ebuyer.com really looks out for what is important for me.	.88
	T12	ebuyer.com has a strong sense of justice.	
	T11	ebuyer.com will go out of its way to help me.	
	T7	ebuyer.com is very concerned about my welfare.	
	T8	My needs and desires are very important to ebuyer.com.	
	T14	ebuyer.com tries hard to be fair in dealing with others.	
	T9	ebuyer.com would not knowingly do anything to hurt me.	
T13	I never have to wonder whether ebuyer.com will stick to its word.		
Perceived ability	T16	I like ebuyer.com's values.	.83
	T1	ebuyer.com is very capable of performing its job.	
	T2	ebuyer.com is known to be successful at the things it tries to do.	
	T3	ebuyer.com has much knowledge about the work that needs to be done.	
	T4	I feel very confident about ebuyer.com's skills.	
	T5	ebuyer.com has specialized capabilities that can increase its performance.	
T6	ebuyer.com is well qualified.		
Attitudes toward the site			
Attitudes toward the site	ATS1	Bad – good	.94
	ATS2	Dislike – like	
	ATS3	Unfavourable – favourable	
Site approach intentions			
Site approach intentions	SA1	How much time would you like to spend in this site? Very little time/lots of time	.88
	SA2	How much would you enjoy exploring around on this site? Not at all/very much	
	SA3	How much would you like to revisit this site? Not at all/very much	
	SA4	How much would you like to do business with this site in the near future? Not at all/very much	

Note. R = reversed scale.

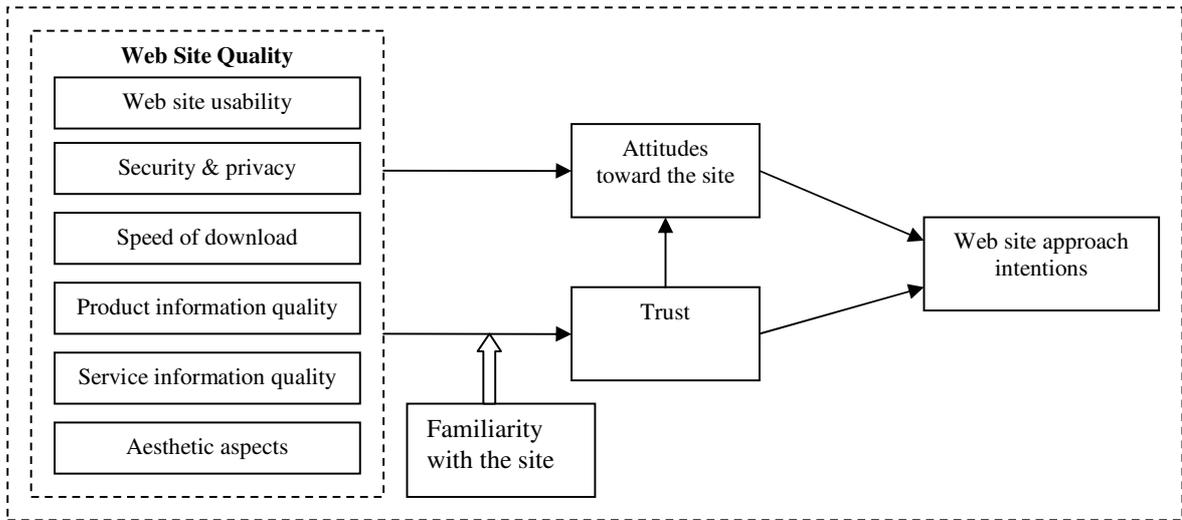


Figure 1. Consumer trust in the online retail context

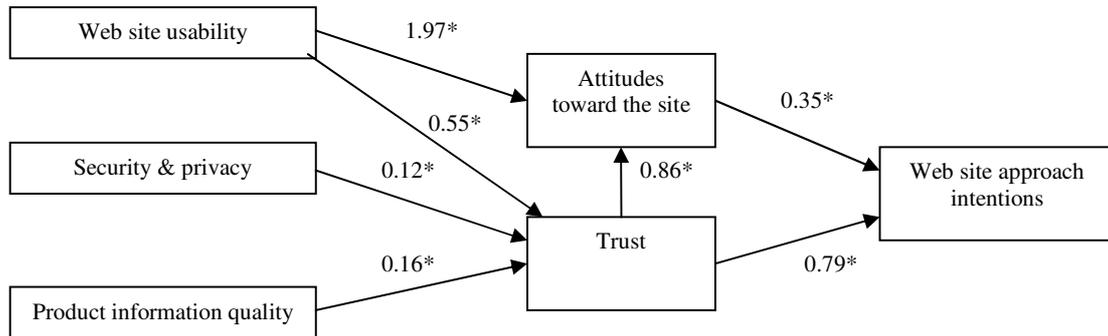


Figure 2. Model with significant path coefficients for the sample (n=452) ($p < .05$)
DF=53, RMSEA=0.051, CFI=0.988, GFI=0.965

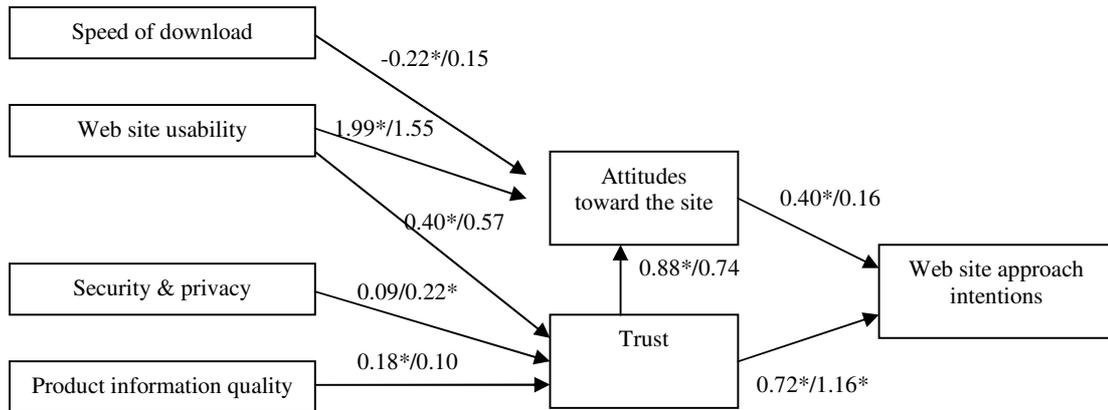


Figure 3. Model with path coefficients for two sub-samples (n1=335; n2=117) ($p < .05$)

Coefficient key: unfamiliar/familiar

Unfamiliar: RMSEA=0.059, CFI=0.982, GFI=0.953

Familiar: RMSEA=0.039, CFI=0.992, GFI=0.929