CONSUMER ONLINE SHOPPING ATTITUDES AND BEHAVIOR: AN ASSESSMENT OF RESEARCH

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Abstract

The current status of studies of online shopping attitudes and behavior is investigated through an analysis of 35 empirical articles found in nine primary Information Systems (IS) journals and three major IS conference proceedings. A taxonomy is developed based on our analysis. A conceptual model of online shopping is presented and discussed in light of existing empirical studies. Areas for further research are discussed.

Keywords: Online shopping, consumer attitude, consumer behavior, Web, empirical study

Introduction

Electronic commerce has become one of the essential characteristics in the Internet era. According to UCLA Center for Communication Policy (2001), online shopping has become the third most popular Internet activity, immediately following e-mail using/instant messaging and web browsing. It is even more popular than seeking out entertainment information and news, two commonly thought of activities when considering what Internet users do when online. Of Internet users, 48.9 percent made online purchases in 2001, with three-quarters of purchasers indicating that they make 1-10 purchases per year (2001, p.38). When segmented into very versus less experienced Internet users, the very experienced users average 20 online purchases per year, as compared to four annual purchases for new users (2001, p.38).

Online shopping behavior (also called online buying behavior and Internet shopping/buying behavior) refers to the process of purchasing products or services via the Internet. The process consists of five steps similar to those associated with traditional shopping behavior (Liang and Lai 2000). In the typical online shopping process, when potential consumers recognize a need for some merchandise or service, they go to the Internet and search for need-related information. However, rather than searching actively, at times potential consumers are attracted by information about products or services associated with the felt need. They then evaluate alternatives and choose the one that best fits their criteria for meeting the felt need. Finally, a transaction is conducted and post-sales services provided. Online shopping attitude refers to consumers' psychological state in terms of making purchases on the Internet.

There have been intensive studies of online shopping attitudes and behavior in recent years. Most of them have attempted to identify factors influencing or contributing to online shopping attitudes and behavior. The researchers seem to take different perspectives and focus on different factors in different ways. For example, Case, Burns, and Dick (2001, p.873) suggest that "internet knowledge, income, and education level are especially powerful predictors of Internet purchases among university students" according to an online survey of 425 U.S. undergraduate and MBA students. Ho and Wu (1999) discover that there are positive relationships between online shopping behavior and five categories of factors, which include e-stores' logistical support, product characteristics, websites' technological characteristics, information characteristics, and homepage presentation. Schubert and Selz (1999) examine the quality factors of electronic commerce sites in terms of information, agreement, and settlement phases. They also review those factors related to e-commerce community.

These studies have all made important contributions to our understanding of the dynamics of online shopping field. However, there is a lack of coherent understanding of the impact of relevant factors on online attitudes and behavior and an inconsistent identification of relevant independent and dependent variables. This makes comparisons of different studies difficult, applications of research findings limited, and the prospect of synthesizing and integrating the empirical literature in this area elusive.

The objective of this paper is to synthesize the representative existing literature on consumer online shopping attitudes and behavior based on an analytical literature review. In doing so, this study attempts to provide a comprehensive picture of the status of this subfield and point out limitations and areas for future research.

Method

As a phenomenon, online shopping became popular in the mid-1990s with the popularization of the World Wide Web (WWW). Correspondingly, the subsequent years saw the appearance of research studies conducted to develop an understanding of users' online behavior. Given the fact that it usually takes a year or two to have a research published, we decided to restrict our search of research articles to the period of January 1998 to February 2002. The other two criteria for selection are (1) that the articles are empirical in nature, and (2) that the articles measure at least one of the identified factors in our taxonomy (see below).

We systematically searched the following nine primary Information Systems (IS) journals: *Communications of the ACM*, *Decision Support Systems, e-Service Journal, International Journal of Electronic Commerce*, *International Journal of Human-Computer Studies*, *Information Systems Research*, *Journal of the Association for Information Systems*, *Journal of Management Information Systems*, and, *Management Information Systems Quarterly*. In addition, we searched three primary IS conference proceedings volumes: International Conference on Information Systems (ICIS), Americas Conference on Information Systems (AMCIS), and Hawaii International Conference on Systems Science (HICSS). We also checked the reference sections of the selected articles to identify and include additional prominent articles in this area.

A Taxonomy of Consumer Online Shopping Attitudes and Behavior

A total of 35 empirical studies are analyzed in this study. Of these, 29 of them used survey method. Other research methods such as lab experiments and free simulation experiments are occasionally employed. Each of these studies addresses some aspect of online shopping attitudes and behavior. Our goal is to develop a taxonomy representing factors/aspects related to online shopping attitudes and behavior covered in the existing empirical IS literature.

For example, Bellman, Lohse and Johnson (1999) examine the relationship among demographics, personal characteristics, and attitudes towards online shopping. These authors find that people who have a more "wired lifestyle" and who are more time-constrained tend to buy online more frequently, i.e., those who use the Internet as a routine tool and/or those who are more time starved prefer shopping on the Internet. Bhatnagar, Misra and Rao (2000) measure how demographics, vender/service/ product characteristics, and website quality influence the consumers' attitude towards online shopping and consequently their online buying behavior. They report that the convenience the Internet affords and the risk perceived by the consumers are related to the two dependent variables (attitudes and behavior) positively and negatively, respectively.

Jarvenpaa, Tractinsky, and Vitale (2000) investigate how consumers' perceived store size and reputation influence their trust in the store, risk perception, attitudes, and willingness to buy at the specific store. They discover that there is a positive relationship between consumer trust in Internet stores and the store's perceived reputation and size. Higher consumer trust also reduces perceived risks associated with Internet shopping and generates more favorable attitudes towards shopping at a particular store, which in turn increases willingness to purchase from that store. Jahng, Jain, and Ramamurthy (2001) propose and validate a Technology/Product Fit Model to describe and predict the relationship between product characteristics, e-commerce environment characteristics, and user outcomes. They classify products sold on the Internet as belonging to four categories based on social and product presence requirements: simple, experiential, complex, or social. When a positive fit is established between the e-commerce environment and the product requirements, favorable user outcomes are generated that include user satisfaction, decision confidence, e-commerce acceptance, and purchase intent.

After examining the 35 empirical studies, we identify a total of ten interrelated factors for which the empirical evidences show significant relationships. These ten factors are external environment, demographics, personal characteristics, vender/service/ product characteristics, attitude towards online shopping, intention to shop online, online shopping decision making, online purchasing, and consumer satisfaction. Five (external environment, demographics, personal characteristics, vendor/service/product characteristics, and website quality) are found to be ordinarily independent and five (attitude toward online shopping, intention to shop online, decision making, online purchasing, and consumer satisfaction) are ordinarily dependent variables in the empirical literature.

Few of the 35 studies examined cover all ten factors, and there is some inconsistency in the empirical results of those that include similar factors. Nevertheless, for the sake of discussion, we integrate these ten factors in a model (Figure 1) in which the expected relationships among them are depicted. The five factors identified as antecedents are normally independent variables, although some studies have treated Website Quality as a dependent variable. These five factors directly determine attitude towards online shopping. Attitude and intention to shop online have been clearly identified and relatively widely studied in the existing empirical literature. Decision-making is the stage before consumers commit to online transaction or purchasing, and is sometimes considered to be a behavioral stage. The depicted relationships among attitude, intention, decision-making, and online purchasing are based on the theory of reasoned action (Fishbein and Ajzen 1975), which attempts to explain the relationship between beliefs, attitudes, intentions, and actual behavior. Consumer satisfaction is considered to be a separate factor in this study. It can occur at all possible stages depending on consumers' involvement during the online shopping process. The relationships between satisfaction, attitude, intention, decision making and online purchasing are proposed to be two-way relationships due to the reciprocal influences of each on the other. In addition, two of the antecedents, vendor/service/product characteristics and Website quality, have been found to have direct impact on consumer satisfaction.

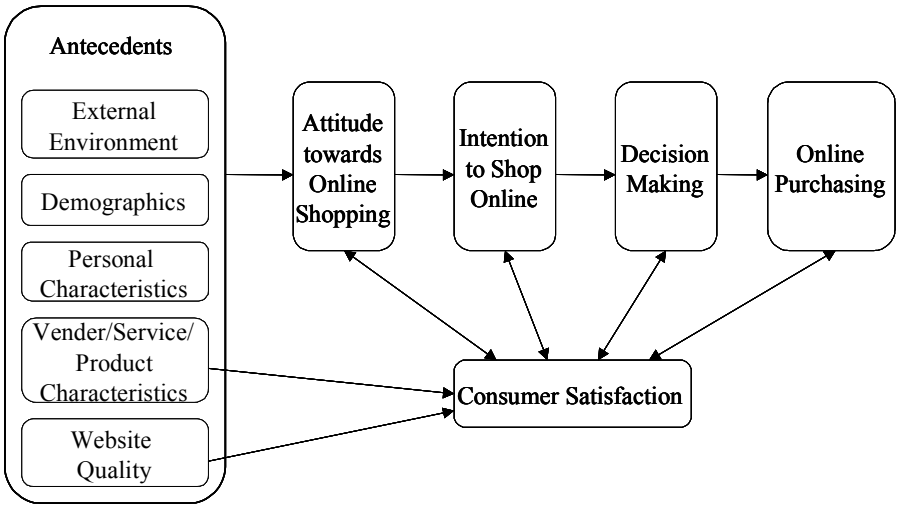

Figure 1. Research Model of Consumers' Online Shopping Attitudes and Behavior

Table 1 summarizes the distribution of factors among the studies indicating which factors have been the foci of attention in the empirical literature. Each of the factors and the empirical literature bearing on it is discussed in detail below.

External Environment

Only two out of 35 studies discuss the influence of external environment on online shopping. External environment refers to those contextual factors that impact consumers' online shopping attitudes and behavior. It includes three dimensions. The first is the existing legal framework that protects the consumers from any kind of loss in online transactions. The second is the system of the Third Party Recognition in which many third party certification bodies are working to ensure the trustworthiness of online vendors (Borchers 2001). These two factors are positively associated with consumers' trust attitude to the online stores. The third factor is the numbers of competitors, which can be defined as "the number of Internet stores that provide the same service and products" (Lee et al. 2000, p.307). Lee and colleagues (2000) argue that the fewer the competing vendors, the greater the possibility of opportunistic behavior on the part of existing vendors so as to maximize profits. This increases transaction costs for the consumer, decreasing intention to revisit a specific online store.

Demographics

Eight of 35 studies examine the impact of demographics on online shopping attitudes and behavior. Demographics include such variables as age, gender, level of education, income, and time online. Bellman and colleagues (1999, p. 33) report that "Internet

surveys agree that the online population is relatively younger, more educated, wealthier, although the gaps are gradually closing". They argue that demographics appear to play an important role in determining whether people use the Internet, however once people are online, demographics do not seem to be key factors affecting purchase decisions or shopping behavior. Bhatnagar and colleagues (2000) provide evidence that demographics are not relevant factors in determining which store to patronize or how much to spend, though men and women do tend to buy different types of products or services via the Internet. In summary, the literature suggests that the impact of demographics on Internet buying behavior is not strong.

Table 1. Representation of Factors in the Studies Examined

Variable types	Factors	Count	Number	% (of 35)
Independent	External environment	xx	2	6
Independent	Demographics	xxxxxxxx	8	23
Independent	Personal characteristics	xxxxxxxxxxxxxx	14	40
Independent	Vender/service/product characteristics	xxxxxxxxxxxxxxxx	16	46
Independent	Website quality	xxxxxxxxxxxxxxxxxxxx	20	57
Dependent	Attitude towards online shopping	xxxxxxxxxxxxxxxxxxxxxx	22	63
Dependent	Intention to online shopping	xxxxxxxxxxxxx	13	37
Dependent	Decision making /info seeking	xxxxx	5	14
Dependent	Online purchasing	xxxxxxxxxxxxxx	14	40
Dependent	Consumer satisfaction	xxx	3	9

Personal Characteristics

Personal characteristics have drawn the attention of fourteen studies. It can be defined as a group of specific customer features that may influence their online shopping attitudes and behavior, such as their Internet knowledge, need specificity, and cultural environment.

Li and colleagues (1999) found that customers who purchase Internet stores more frequently are more convenience-oriented and less experience-oriented. These consumers regard convenience during shopping as the most important factor in purchase decisions, because they are time-constrained and do not mind buying products without touching or feeling them if they can save time in this way. Potential consumers are often prevented from shopping online by their concern for security (Han et al. 2001). However, perceived risk can be reduced by knowledge, skill, and experience on the Internet, computer, and online shopping (Ratchford et al. 2001; Senecal 2000; Sukpanich and Chen 1999; Ha et al. 2001). In another study, Bellman and colleagues (1999) propose that people living a wired lifestyle patronize e-stores spontaneously. These consumers use the Internet as a routine tool to receive and send emails, to do their work, to read news, to search information, or for recreational purposes. Their routine use of the Internet for other purposes leads them to naturally use it as a shopping channel as well.

Other factors found to impact consumers' online shopping attitudes and behavior include cultural environment, need specificity, product involvement, disposition to trust, the extent to which they would like to share values and information with others, the extent to which they like being first to use new technologies, and tendency to spend money on shopping (Borchers 2001; Koufaris et al.2002; Lee et al.2000; Kimery and McCord 2002; Bellman et al 1999).

Vender/Service/Product Characteristics

Sixteen out of the 35 studies examine the relationship between vender/service/product characteristics and other factors. Vender/service/product characteristics refer to features of the Internet stores, the products they sell, and the service they provide to support the transactions. These factors are found to influence customers' online shopping attitudes and behavior significantly.

Measures employed to value vender characteristics in the empirical studies include (1) real existence of the store/physical location, (2) store reputation, (3) store size, (4) reliability, (5) number of Internet store "entrances", (6) assurance-building mechanisms (e.g., seals, warranties, news clips), and (7) use of testimonials (van der Heijden et al. 2001; Liang and Lai 2000; Bhatnagar et al. 2000; Kim et al. 2001; Lowengart and Tractinskky 2001; Grazioli and Wang 2001; Pavlou 2001; Jarvenpaa et al. 2000; Lee et al. 2000). Among product features that impact customers' online shopping behavior are (1) variety of goods, (2) product

quality/performance/product uncertainty, (3) product availability, (4) price, (5) social presence requirement, (6) product presence requirement, (7) dependability of product, (8) possibility of customized products, and (9) brand (Jahng et al. 2001; Liang and Huang 1998; Kim et al. 2001; Cho et al. 2001; Lowengart and Tractinskky 2001; Muthitacharoen 1999).

In addition, researchers examine different aspects of service provided by the venders through the online shopping process. Service factors related to online shopping attitudes and behavior include (1) customer communication channels/ease of vendor contact, (2) response to customer needs, (3) accessibility of sales people, (4) reliability of the purchasing process/process uncertainty, (5) timeliness of orders or services/waiting time, (6) availability of personalized services, (7) ease of return and refunds, (8) fraud, (9) delivery (speed, tracking and tracing), (10) transaction costs, (11) peripheral costs, and (12) promotion (Ho and Wu 1999; Liang and Huang 1998; Lohse and Spiller 1998; Liang and Lai, 2000; Bhatnagar et al. 2000; Kim et al. 2001; Cho et al. 2001; Li et al. 2001; Muthitacharoen 1999).

Website Quality

Twenty studies investigate the relationship between website quality and consumers online shopping attitudes and behavior from different points of view. For example, Gefen and Straub (2000) investigate the impact of perceived ease of use (PEOU) and perceived usefulness (PU) on e-commerce adoption using 202 MBA students as subjects. They report that while PU affects intended use when a Web site is used for a purchasing task, PEOU only has an indirect influence on online shopping behavior by directly influencing PU. Lee et al. (2001) obtain the similar findings in their recent study of design factors affecting consumer loyalty. In one study, Song and Zahedi (2001) classify website quality elements into five categories according to their purpose: for promotion, service, informational influence, self-efficacy, and resources facilitation. These investigators find that each of the five significantly and positively reinforces the consumers' perceptions in these factors, which in turn positively influence consumer online shopping attitudes and behavior.

Zhang, von Dran, Small, and Barcellos (1999, 2000), and Zhang and von Dran (2000) make an attempt to evaluate website quality from user satisfaction and dissatisfaction perspective. Their studies show that website design features can be regarded as hygiene and motivator factors that contribute to user dissatisfaction and satisfaction with a website. Hygiene factors are those whose present make a website functional and serviceable, and whose absence causes user dissatisfaction. Some of the categories of hygiene factors are: Privacy and Security, Technical Aspect, Navigation, Impartiality, and Information Content. Motivator factors are those that add value to the website by contributing to user satisfaction. Five categories of motivation factors are: Enjoyment, Cognitive Outcome, User Empowerment, Credibility, Visual Appearance, and Organization of Information Content. In their continued effort, they further discover that the most important website quality factors ranked by e-commerce consumers are hygiene factors (von Dran and Zhang 1999; Zhang et al. 2000; Zhang and von Dran 2001a, 2001b; Zhang et al. 2001). Liang and Lai (2000) review website quality factors influencing Internet buying behavior by categorizing them into three groups, two of them are also named motivators and hygiene factors, and third media richness factors. In their opinion, motivators are those who support the transaction process directly while hygiene factors protect the consumers from risks or unexpected events in the transaction process. Media richness factors "add more information channels or richness in information presentation" (Liang and Lai 2000, p. 2). They suggest that providing good transaction support will help Internet venders to beat their electronic competitors, while the hygiene factors need to be paid attention if they want to attract consumers from traditional stores.

Overall, the measures employed to value website quality by the researchers include the websites' information content, information presentation, interaction between customers and venders, navigation, searching mechanism, security, site technical feature, media richness, and so forth (Zhang and von Dran 2000, 2001a, 2001b; Grandon and Ranganathan 2001; Cho et al. 2001; Kim et al. 2001; Lohse and Spiller 1998; Koufaris et al. 2002; Ho and Wu 1999).

In summary, a variety of factors related to website quality have been demonstrated to significantly influence consumers' online shopping attitudes and behavior. Better website quality can guide the consumers complete transactions smoothly and attract them to revisit this Internet store. In contrast, worse quality would hinder their online shopping moves.

Attitudes Towards Online Shopping

Consumers' attitudes toward online shopping have gained a great deal of attention in the empirical literature, with 22 out of 35 papers focusing on it. Consistent with the literature and models of attitude change and behavior (e.g., Fishbein and Ajzen 1975), it is believed that consumer attitudes will affect intention to shop online and eventually whether a transaction is made. This is a

multidimensional construct that has been conceptualized in several different ways in the existing literature. First, it refers to the consumers' acceptance of the Internet as a shopping channel (Jahng et al. 2001). Secondly, it refers to consumer attitudes toward a specific Internet store (i.e., to what extent consumers think that shopping at this store is appealing). These first two dimensions are negatively associated with the third, customers' perceived risk. According to Lee and colleagues (2001), two main categories of perceived risk emerge in the process of online shopping. The first is the perceived risk associated with product/service and includes functional loss, financial loss, time loss, opportunity loss, and product risk. The second is the perceived risk associated with context of online transactions, and includes risk of privacy, security, and nonrepudiation. Among them, the influence of financial risk, product risk, and concern for privacy and security is significant (Senecal 2000; Borchers 2001; Bhatnagar et al. 2002). However, the fourth dimension of attitude, consumers' trust in the stores, can reduce perceived risk. In addition, perceived control/users' empowerment, enjoyment/playfulness, and perceived real added-value from membership have also been shown to be important dimensions of consumers' attitudes towards online shopping (Koufaris et al. 2002; Cho et al. 2001).

Intention to Shop Online

Consumers' intention to shop online is studied by 13 out of the 35 papers. Consumers' intention to shop online refers to their willingness to make purchases in an Internet store. Commonly, this factor is measured by consumers' willingness to buy and to return for additional purchases. The latter also contributes to customer loyalty. Jarvenpaa and colleagues (2000) assess consumers' intention to shop online by asking a series of questions assessing the likelihood of returning to a store's website, the likelihood of purchasing from the store within the next three months, the likelihood of purchasing within the next year, and general the likelihood of ever purchasing from a particular store again.

As is indicated in Figure 1, consumers' intention to shop online is positively associated with attitude towards Internet buying, and influences their decision-making and purchasing behavior. In addition, there is evidence of reciprocal influence between intention to shop online and customer satisfaction.

Online Shopping Decision Making

Online shopping decision-making includes information seeking, comparison of alternatives, and choice making. The results bearing on this factor directly influence consumers' purchasing behavior. In addition, there appears to be an impact on users' satisfaction. Though it is important, there are only five studies that include it.

According to Haubl and Trifts (2000), potential consumers appear to use a two-stage process in reaching purchase decisions. Initially, consumers typically screen a large set of products in order to identify a subset of promising alternatives that appears to meet their needs. They then evaluate the subset in greater depth, performing relative comparisons across products based on some desirable attributes and make a purchase decision. Using a controlled experiment, these authors discover that the "interactive tools designed to assist consumers in the initial screening of available alternatives and to facilitate in-depth comparisons among selected alternatives in an online shopping environment may have strong favorable effects on both the quality and the efficiency of purchase decisions" (Haubl and Trifts 2000, p. 4).

Online Purchasing

Fourteen studies discuss online purchasing, which refers to consumers' actions of placing orders and paying. This is the most substantial step in online shopping activities, with most empirical research using measures of frequency (or number) of purchases and value of online purchases as measures of online purchasing; other less commonly used measures are unplanned purchases (Koufaris et al. 2002) and Internet store sales (Lohse and Spiller 1998). For example, in Lee and colleagues' (2001) examination of the relationship between online purchasing behavior, perceived ease of use, perceived usefulness, perceived risk of the product/service, and perceived risk in the context of the transaction, the measures used are total amount spent and frequency in last 6 months.

Online purchasing is reported to be strongly associated with the factors of personal characteristics, vendor/service/product characteristics, website quality, attitudes toward online shopping, intention to shop online, and decision making (Andrade 2000; Bellman et al. 1999; Bhatnagar et al. 2000; Cho et al. 2001; Grandon and Ranganathan 2001; Jarvenpaa et al. 2000; Lee et al. 2000; Sukpanich and Chen 1999).

Consumer Satisfaction

Consumer satisfaction is the focus of the investigation in only three articles. It can be defined as the extent to which consumers' perceptions of the online shopping experience confirm their expectations. Most consumers form expectations of the product, vendor, service, and quality of the website that they patronize before engaging in online shopping activities. These expectations influence their attitudes and intentions to shop at a certain Internet store, and consequently their decision-making processes and purchasing behavior. If expectations are met, customers achieve a high degree of satisfaction, which influences their online shopping attitudes, intentions, decisions, and purchasing activity positively. In contrast, dissatisfaction is negatively associated with these four variables (Ho and Wu 1999; Jahng et al. 2001; Kim et al. 2001).

Implications and Recommendations for Future Research

As Table 1 indicates, three out of the five dependent variables (consumer attitudes, intentions, and purchasing behavior) and three out of the five independent variables (personal characteristics, vendor/service/product characteristics, website quality) receive the most attention. This seems to constitute the main stream of research in this area. Twenty-two studies examine the relationship between consumers' attitudes towards online shopping and other factors, thirteen measure intention to shop online, and 14 investigate the connection between online purchasing and other factors. Fourteen studies consider personal characteristics, 16 vender/service/product characteristics, and 20 website quality. It is found that personal characteristics, vender/service/product characteristics, and website quality significantly affect online shopping attitudes, intention, and behavior. The direct implication of these findings is that targeting more appropriate consumer groups, improving product and/or service quality, and improving website quality can positively influence consumer attitudes and behavior, potentially leading to increased frequency of initial purchase and repeat purchases on the part of consumers.

The role of the external environment, demographics, online shopping decision making, and consumer satisfaction are less well represented in the IS literature. As is shown in Figure 1, consumers' satisfaction is a key factor in online shopping, yet only three studies investigate it. Any number of factors, including vender/service/product characteristics, website quality, attitude towards online shopping, intention to online shopping, online shopping decision making, and online purchasing, may influence consumers satisfaction. More importantly, the extent to which customers are satisfied is directly related to attitudes toward online shopping or toward specific Internet stores. The relative importance of this factor in determining such consumer behavior as repeat purchases suggests that further research on consumer satisfaction with online shopping needs to be conducted.

The ten factors and the diverse measures used by different studies indicate that online shopping is a multidimensional and multidisciplinary phenomenon. Our examination shows that different studies have different ways of operationalizing seemingly the same constructs. This methodological issue needs to be addressed in future research so that a validated instrument can be developed for measuring consumer online shopping attitudes and behavior.

There is also no consensus on the theoretical models employed to describe and predict online shopping attitudes and behavior. This lack of a common theoretical framework suggests the need to develop an integrative model of the phenomenon in order to promote systematic investigation of its components and the online shopping process. By identifying common elements and developing our model based on IS literature, we hope to have taken a step toward promoting this type of integration and synthesis of relevant literature across disciplines.

One of the limitations of this study is the selection of the existing studies. Owing to time limitation, we only searched a number of IS journals and conference proceedings. This may leave some other prominent IS empirical studies out. In addition, owing to the multidisciplinary nature of online shopping, it would be very interesting to compare IS literature to other disciplines that study online shopping attitudes and behavior. These limitations will be addressed in our future studies.

By summarizing the current studies based on IS literature review and analysis, this paper identifies ten factors in the area of online shopping and proposes a model describing and predicting the relationships among these factors. It provides a comprehensive picture of the status of this area. This model needs to be validated either theoretically or empirically in future studies.

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What drives consumers to shop online? A literature review

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Keywords *Information media, Internet, Purchasing, Shopping*

Abstract *While a large number of consumers in the US and Europe frequently shop on the Internet, research on what drives consumers to shop online has typically been fragmented. This paper therefore proposes a framework to increase researchers' understanding of consumers' attitudes toward online shopping and their intention to shop on the Internet. The framework uses the constructs of the Technology Acceptance Model (TAM) as a basis, extended by exogenous factors and applies it to the online shopping context. The review shows that attitudes toward online shopping and intention to shop online are not only affected by ease of use, usefulness, and enjoyment, but also by exogenous factors like consumer traits, situational factors, product characteristics, previous online shopping experiences, and trust in online shopping.*

Introduction

Despite the slowing penetration of regular Internet users, the number of consumers using the Internet to shop for consumer goods and services is still growing (Forrester Research, December 2001). Research from the GfK Group (2002) shows that the number of online shoppers in six key European markets has risen to 31.4 percent from 27.7 percent last year. This means that 59 million Europeans use the Internet regularly for shopping purposes. However, not only does the number of online shoppers grow, the volume of their purchases also increases over-proportionally. In the US, online sales are forecasted to exceed $36 billion in 2002, and grow annually by 20.9 percent to reach $81 billion in 2006. Europeans are spending more money online as well. For instance, Europe's largest discount carrier, easyJet Airline Co., sold $80 million more tickets online in the six months ended March 31 than it did a year earlier (Reinhardt and Passariello, 2002), whereas combined revenues for Amazon.com's European operations grew at more than 70 percent annually in each of the past three quarters, topping $218 million.

While these figures show that a large number of consumers in the US and Europe frequently use the Internet for shopping purposes, it is not clear what drives them to shop online and whether these numbers could be even increased

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if more attractive online stores were developed. This raises the issue of examining what factors affect consumers to shop online. Therefore, a framework is needed to structure the complex system of effects of these different factors, and develop an in-depth understanding of consumers' attitudes toward Internet shopping and their intentions to shop online.

In this study, we build up such a framework based on previous research on consumer adoption of new self-service technologies and Internet shopping systems (Dabholkar and Bagozzi, 2002; O'Cass and Fenech, 2002; Childers *et al.*, 2001; Davis, 1993). This research suggests that consumers' attitude toward Internet shopping first depends on the direct effects of relevant online shopping features (Davis, 1993). Online shopping features can be either consumers' perceptions of functional and utilitarian dimensions, like "ease of use" and "usefulness", or their perceptions of emotional and hedonic dimensions like "enjoyment" (Menon and Kahn, 2002; Childers *et al.*, 2001; Mathwick *et al.*, 2001). By including both utilitarian and hedonic dimensions, aspects from the information systems or technology literature, as well as the consumer behavior literature are integrated in our framework. In addition to these relevant online shopping features, also exogenous factors are considered that moderate the relationships between the core constructs of the framework. Relevant exogenous factors in this context are "consumer traits" (Burke, 2002; Dabholkar and Bagozzi, 2002; Brown *et al.*, 2001; Eastin and LaRose, 2000), "situational factors" (Wolfinbarger and Gilly, 2001; Avery, 1996), "product characteristics" (Grewal *et al.*, 2002; Elliot and Fowell, 2000), "previous online shopping experiences" (Shim *et al.*, 2001; Eastlick and Lotz, 1999), and "trust in online shopping" (Yoon, 2002; Lee and Turban, 2001). By incorporating these exogenous factors next to the basic determinants of consumers' attitude and intention to use a technology, the framework is applicable in the online shopping context. Together, these effects and influences on consumers' attitude toward online shopping provide a framework for understanding consumers' intentions to shop on the Internet. An important note to our proposed framework is that throughout this paper we will define Internet shopping or online shopping as the use of online stores by consumers up until the transactional stage of purchasing and logistics.

The outline of the paper is as follows. In the next section, we first introduce a framework containing all constructs that affect consumers' attitude and intentions to shop on the Internet. Second, we examine the basic determinants of consumers' attitude and intentions: "usefulness", "ease of use" and "enjoyment". Third, since it has been argued that "consumer traits" moderate the relationship between the three basic determinants and attitude, and "situational factors", "product characteristics", "previous online shopping experiences", and "trust in online shopping" moderate the relationship between consumers' attitude and intentions, an examination of the influence of these factors is presented. Fourth, we investigate the differences, similarities,

advantages, and disadvantages of online shopping and traditional shopping features. Finally, we summarize our findings and discuss the practical and theoretical implications, as well as the limitations of this paper.

Framework for consumers' intentions to shop on the Internet

For developing an in-depth understanding of consumers' attitudes toward online shopping and their intentions to shop on the Internet, we built up a framework (Figure 1), based on previous research on consumer adoption of new technologies and services. As noted earlier, in this framework "online shopping" is defined as the use of online stores by consumers up until the transactional stage of purchasing and logistics. The core constructs of our framework are adapted from the Technology Acceptance Model (TAM) by Davis (1989), an influential research model in the information systems field. Although this model is specifically tailored to understand the adoption of computer-based technologies on the job or in the workplace, it has proven to be suitable as a theoretical foundation for the adoption of e-commerce as well (Chen *et al.*, 2002; Moon and Kim, 2001; Lederer *et al.*, 2000). Therefore, the TAM constructs are used as a basis for our research framework.

In TAM, behavioral intention to use a new technology is determined by the individual's attitude toward using this technology. To this, TAM originally identifies two, conceptually independent, determinants of a person's attitude toward using a new technology. The first determinant is "usefulness", and refers to the degree to which a person believes using the new technology will improve his/her performance or productivity. TAM also identifies a second determinant, "ease of use", referring to the extent to which a person believes that using the new technology will be free of effort. While "usefulness" refers to consumers' perceptions regarding the outcome of the experience, "ease of use" refers to their perceptions regarding the process leading to the final outcome.

A more recent addition to the technology acceptance model is the "enjoyment" construct, or the extent to which the activity of using the new technology is perceived to provide reinforcement in its own right, apart from any performance consequences that may be anticipated (Davis *et al.*, 1992). Thus, within the TAM framework, both utilitarian and hedonic aspects are considered to act as determinants of consumers' attitude toward using a new technology. Understanding the determinants of consumers' attitude, it is argued that this attitude has a strong, direct, and positive effect on consumers' intentions to actually use the new technology or system (Bobbitt and Dabholkar, 2001; Davis, 1993).

Although TAM has proven to be a viable model for examining consumer acceptance of new technologies and systems, it is necessary, however, for the purpose of defining more specific drivers of consumer acceptance of new Internet technology, to extend this model by incorporating additional factors

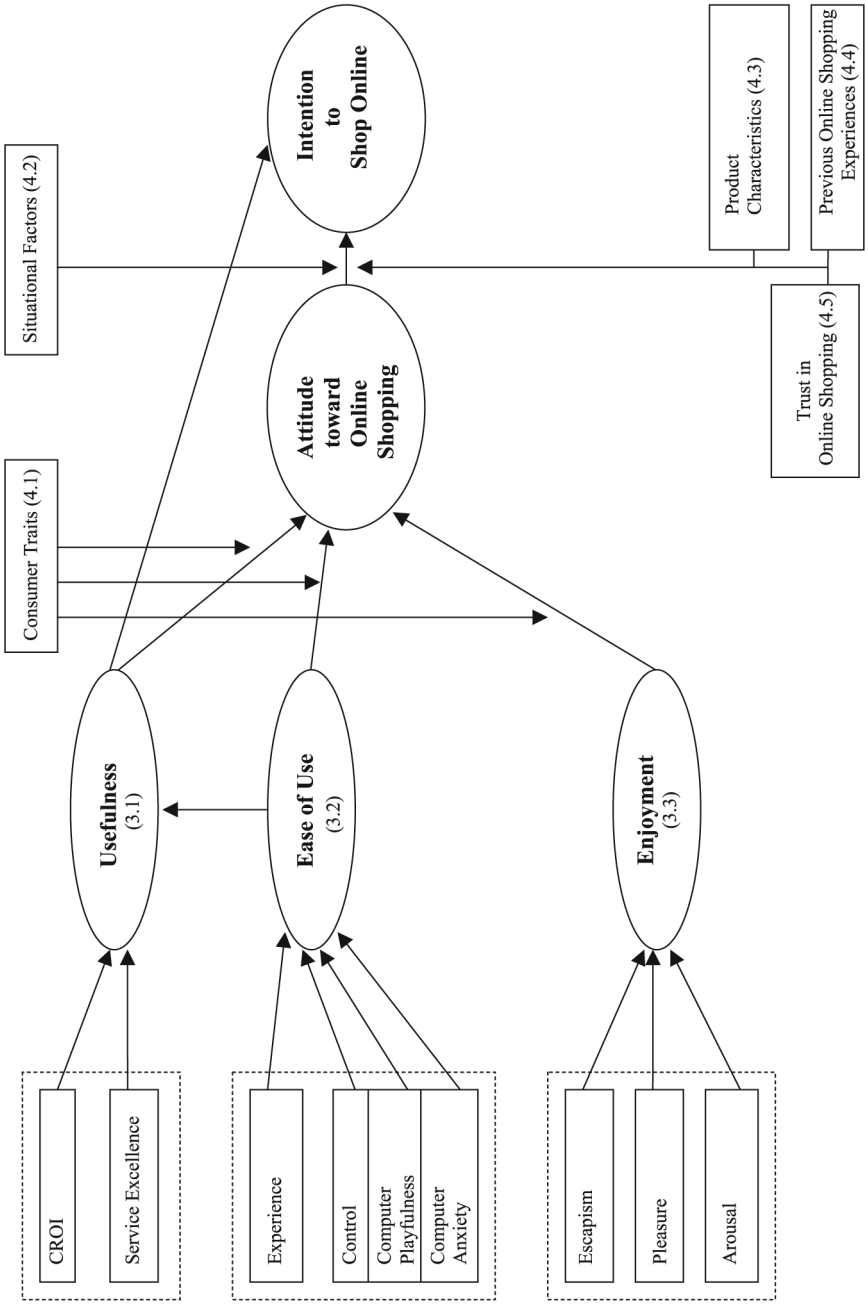

Figure 1.
Framework for consumers' intentions to shop online

in our research framework. The major reason for this is that these exogenous variables improve the viability and predictive nature of TAM, and enable its application in the environment of online shopping. For instance, Venkatesh (2000) already suggested integrating additional factors like "control" (computer self-efficacy), "intrinsic motivation" (computer playfulness), and "emotion" (computer anxiety) into the existing technology acceptance model. These factors are proposed to act as significant determinants for "ease of use", one of the basic constructs of TAM. Dabholkar and Bagozzi (2002) add the influences of two other exogenous factors, e.g. "consumer traits" and "situational influences" to the TAM framework, resulting in an attitudinal model of technology-based self-service. Also, O'Cass and Fenech (2002) have extended TAM by adding seven key consumer characteristics: "opinion leadership", "buying impulsiveness", "satisfaction with Web sites", "Web shopping compatibility", "shopping orientation", "Internet self-efficacy", and " Web security". For the purpose of this paper, besides "ease of use", "usefulness", and "enjoyment", we integrate five exogenous factors into our framework for understanding consumers' intentions to use the Internet as a shopping medium: "consumer traits", "situational factors", "product characteristics", "previous online shopping experiences", and the "trust in online shopping".

After introducing the basic determinants and all relevant exogenous factors of our research framework in this section, the next section of this paper elaborates on each factor separately, relating to their respective influence on consumers' attitude and intentions to shop on the Internet. Focusing first on the influences of the three basic constructs adapted from TAM, we will then move on to discuss the effects of the exogenous factors incorporated in our framework.

Basic determinants of attitude and intentions toward online shopping

Motivations of consumers to engage in online shopping include both utilitarian and hedonic dimensions. Whereas some Internet shoppers can be described as "problem solvers", others can be termed seeking for "fun, fantasy, arousal, sensory stimulation, and enjoyment" (Hirschman and Holbrook, 1982). The problem solvers merely shop online in order to acquire a specific product or service, in which case shopping is considered to be "an errand" or "work" (Babin *et al.*, 1994). Their main concern is to purchase products in an efficient and timely manner to achieve their goals with a minimum of irritation. In contrast, the second category sees online shopping as "enjoyment" and seeks for the potential entertainment resulting from the fun and play arising from the Internet shopping experience. They appreciate the online shopping experience for its own sake, apart from any other consequence like, for example, an online purchase that may result (Holbrook, 1994). This dual characterization of

consumers' motivations for online shopping is consistent with our framework: whereas "usefulness" and "ease of use" reflect the utilitarian aspects of online shopping, "enjoyment" embodies the hedonic aspect. The next three paragraphs elaborate on the discussion that both utilitarian and hedonic factors ultimately affect consumers' attitude toward shopping on the Internet.

Usefulness

"Usefulness" is defined as the individual's perception that using the new technology will enhance or improve her/his performance (Davis, 1989, 1993). Applying this definition to our research context, as the new technology we classify shopping on the Internet, and as the individual's performance the outcome of the online shopping experience. Then, "usefulness" refers to consumers' perceptions that using the Internet as a shopping medium enhances the outcome of their shopping experience. These perceptions influence consumers' attitude toward online shopping and their intention to shop on the Internet. TAM posits a weak direct link between "usefulness" and attitude, and a strong direct link between "usefulness" and intention (Davis *et al.*, 1989). This was explained as originating from consumers intending to use a technology because it was useful, even though they did not have a positive affect toward using. Apart from this, "usefulness" is also linked with "ease of use" to determine consumers' attitude toward online shopping. According to TAM, "usefulness" is influenced by "ease of use", because the easier a technology is to use, the more useful it can be (Venkatesh, 2000; Dabholkar, 1996; Davis *et al.*, 1989).

In our framework, we include two latent dimensions of the "usefulness" construct: "consumer return on investment (CROI)", and "service excellence" (Mathwick *et al.*, 2001). Both dimensions are extrinsic value-based perceptions and serve as performance indicators for shopping on the Internet. "CROI" is the perceived return on cognitive, behavioral, or financial investments made by the consumer. By investing in a computer and learning to shop on the Internet, the consumer expects a desired result, such as an online search or Web purchase, in return from shopping on the Internet. If this return meets their expectations, consumers' "usefulness" of the Internet as a shopping medium will be positive. "Service excellence" is the consumer's appreciation of delivered promises and performed functions. Service excellence operates as an ideal, a standard against which judgments are ultimately formed (Holbrook, 1994). If online shopping meets this ideal by enabling the consumer to accomplish the shopping task he or she has set out to perform, then consumers will judge the Internet shopping performance positively (Mathwick *et al.*, 2002). This leads to positive perceptions regarding the usefulness of online shopping.

Ease of use

"Ease of use" is defined as the individual's perception that using the new technology will be free of effort (Davis, 1989, 1993). Applying this to our

research context, "ease of use" is the consumer's perception that shopping on the Internet will involve a minimum of effort. Whereas "usefulness" referred to consumers' perceptions regarding the outcome of the online shopping experience, "ease of use" refers to their perceptions regarding the process leading to the final online shopping outcome. In a simplified manner, it can be stated that "usefulness" is how effective shopping on the Internet is in helping consumers to accomplish their task, and "ease of use" is how easy the Internet as a shopping medium is to use. According to TAM, "ease of use" has a dual effect, direct as well as indirect, on consumers' intention to shop online. The indirect effect on intention is through "usefulness", as already explained in the previous section. The direct effect is explained by the fact that in behavioral decision making consumers attempt to minimize effort in their behaviors, as is also the case with consumers' perceptions regarding the "ease of use": the perception that Internet shopping will be free of effort (Venkatesh, 2000). The easier and more effortless a technology is, the more likely consumers intend to use this technology.

Understanding that "ease of use" affects consumers' attitude and intention toward online shopping, it is important to identify the latent dimensions of this construct in the Internet setting. According to TAM, "ease of use" is particularly of influence in the early stages of user experience with a technology or system (Davis, 1989, 1993). Following this, Venkatesh (2000, p. 343) stated: "...With increasing direct experience with the target system, individuals adjust their system-specific ease of use to reflect their interaction with the system". Implying that if consumers get more experienced with Internet, they will adjust their perceptions regarding the "ease of use" of the Internet as a shopping medium in a positive direction. Besides "experience" with the technology or system, also three other latent dimensions of the "ease of use" construct are incorporated in our framework: "control", "computer playfulness", and "computer anxiety" (Venkatesh, 2000). "Control" relates to an individual's perception of the availability of knowledge, resources, and opportunities required to perform a specific behavior, in our case online shopping. "Computer playfulness" is the degree of cognitive spontaneity in computer interactions. Playful individuals may tend to underestimate the difficulty of the means or process of online shopping, because they quite simply enjoy the process and do not perceive it as being effortful compared to those who are less playful (Venkatesh, 2000). "Computer anxiety" is defined as an individual's apprehension or even fear when she/he is faced with the possibility of using computers. This influences consumers' perceptions regarding the "ease of use" of the Internet as a shopping medium in a negative way, since using a computer is one of the necessary requirements for online shopping.

In addition to these four latent dimensions, "site characteristics" like search functions, download speed, and navigation, also play a role in shaping "ease of use"(Zeithaml *et al.*, 2002). But since these site characteristics merely influence

the "ease of use" of a particular Web site or online store, and not the Internet as a shopping medium in general, we choose not to elaborate on these site characteristics for the purpose of this paper.

Enjoyment

Next to the evidence for the critical role of extrinsic motivation for technology use (Hirschman and Holbrook, 1982; Babin *et al.*, 1994), there is a significant body of theoretical and empirical evidence regarding the importance of the role of intrinsic motivation (Davis *et al.*, 1992; Venkatesh and Speier, 1999, 2000). Intrinsic motivation for Internet shopping is captured by the "enjoyment" construct in our framework. Intrinsic value or "enjoyment" derives from the appreciation of an experience for its own sake, apart from any other consequence that may result (Holbrook, 1994). Applying this to our research context, "enjoyment" results from the fun and playfulness of the online shopping experience, rather than from shopping task completion. The purchase of goods may be incidental to the experience of online shopping. Thus, "enjoyment" reflects consumers' perceptions regarding the potential entertainment of Internet shopping. Childers *et al.* (2001) found "enjoyment" to be a consistent and strong predictor of attitude toward online shopping. If consumers enjoy their online shopping experience, they have a more positive attitude toward online shopping, and are more likely to adopt the Internet as a shopping medium.

In our framework, we identify three latent dimensions of "enjoyment" construct, including "escapism", "pleasure", and "arousal" (Menon and Kahn, 2002; Mathwick *et al.*, 2001). "Escapism" is reflected in the enjoyment that comes from engaging in activities that are absorbing, to the point of offering an escape from the demands of the day-to-day world. "Pleasure" is the degree to which a person feels good, joyful, happy, or satisfied in online shopping, whereas "arousal" is the degree to which a person feels stimulated, active or alert during the online shopping experience. A pleasant or arousing experience will have carry-over effects on the next experience encountered (Menon and Kahn, 2002). If consumers are exposed initially to pleasing and arousing stimuli during their Internet shopping experience, they are then more likely to engage in subsequent shopping behavior: they will browse more, engage in more unplanned purchasing, and seek out more stimulating products and categories.

Exogenous factors

TAM is criticized for ignoring the social influence on technology acceptance (Chen *et al.*, 2002; Moon and Kim, 2001). Although "ease of use", "usefulness", and "enjoyment" are believed to be fundamental in determining the acceptance and use of various corporate information technologies (Davis, 1989, 1993), these beliefs, however, may not explain consumers' behavior toward newly emerging technologies, such as Internet shopping. Factors contributing to the acceptance

of a new IT are likely to vary with the technology, target users, and context (Moon and Kim, 2001). Thus, for our specific online shopping context, additional explanatory factors are needed beyond the usefulness, ease of use, and enjoyment constructs. Therefore, a total of five exogenous factors are incorporated in our framework for understanding consumers' attitude and intention toward online shopping: "consumer traits", "situational factors", "product characteristics", "previous online shopping experiences", and "trust in online shopping". These exogenous factors are key drivers in moving consumers to ultimately adopt the Internet as a shopping medium. The different ways in which consumers' intention to shop online is influenced by these exogenous factors are discussed in this section.

Consumer traits

Consumer traits that are of interest in understanding why consumers shop on the Internet include demographic factors and personality characteristics. Four relevant demographic factors – age, gender, education, and income – (Burke, 2002) have a significant moderating effect on the relationship between the three basic determinants "ease of use", "usefulness", and "enjoyment" and consumers' attitude toward online shopping. The influence of age is noticeable through the fact that compared to older consumers, younger adults, especially those under age 25, are more interested in using new technologies, like the Internet, to find out about new products, search for product information, and compare and evaluate alternatives (Wood, 2002). A reason for this is that older consumers may perceive the benefits of Internet shopping to be less than the cost of investing in the skill needed to do it effectively, and therefore avoid shopping on the Internet (Ratchford *et al.*, 2001). Next to the higher interest in using new technologies, consumers younger than age 25 are the group most interested in having fun while shopping. They respond more favorably than older shoppers to features that make online shopping entertaining. When it comes to gender, men express a greater interest in using various types of technology in the shopping process. They are more positive about using the Internet as a shopping medium, whereas female shoppers prefer using catalogs to shop at home. But the female consumers that do prefer to shop on the Internet, shop more frequently online than their male counterparts (Burke, 2002; Li *et al.*, 1999). Education also plays a moderating role in the relationship between the three basic determinants and consumers' attitude toward online shopping. Higher educated consumers are more comfortable using non-store channels, like the Internet to shop (Burke, 2002). A reason for this is that education is often positively correlated with an individual's level of Internet literacy (Li *et al.*, 1999). A final demographic factor of interest is income. Consumers with higher household incomes (above $75,000 annually) intend to shop more online compared to lower income consumers. A reason for this is that higher household incomes are often positively correlated

with possession of computers, Internet access and higher education levels of consumers (Lohse *et al.*, 2000).

Next to these demographic factors, personality characteristics also have a moderating effect on the relationship between "ease of use", "usefulness", and "enjoyment" and consumers' attitude toward shopping on the Internet. In our research context, relevant personality traits are "expertise" (Ratchford *et al.*, 2001; Alba and Hutchinson, 1987), "self-efficacy" (Eastin and LaRose, 2000; Marakas *et al.*, 1998; Bandura, 1994), and "need for interaction" (Dabholkar and Bagozzi, 2002; Dabholkar, 1996). "Expertise" is defined as an individual's level of knowledge or skill. In order to shop on the Internet, a considerable amount of knowledge or skill is required. Aside from the basic knowledge of computer use, consumers also have to learn the skills needed to obtain the desired information on the Internet. Because learning to shop on the Internet is costly and time-consuming for those who are computer illiterate to start with, consumers weigh the costs and benefits before deciding whether to invest in learning the required skills. Since learning-by-doing is an important component of acquiring such skills, those who have the most experience at shopping on the Internet are likely to be the most skilled (Ratchford *et al.*, 2001). Once consumers have the required level of knowledge and skills to shop on the Internet, this will attenuate the relationship between "ease of use" and "usefulness" and their attitude toward online shopping, because these factors are then of less influence to them in forming a positive attitude toward shopping on the Internet.

A personality characteristic that is closely related to expertise is self-efficacy. "Self-efficacy" refers to individuals' beliefs that they have the ability and the resources to successfully perform a specific task (Bandura, 1994). Since online shopping requires basic knowledge of computer use as well as knowledge about the Internet, a distinction has been made in this context between "computer self-efficacy" and "Internet self-efficacy". Marakas *et al.* (1998) define general "computer self-efficacy" as an individual's judgment of efficacy across multiple computer application domains, whereas "Internet self-efficacy" is a person's judgment of his or her ability to apply Internet skills in a more encompassing mode, such as finding information or troubleshooting search problems (Eastin and LaRose, 2000). Thus, consumers with low self-efficacy are uncertain and less comfortable shopping on the Internet, and therefore need simple procedures that require little knowledge and guide them through the online shopping process. This indicates that, in case of low self-efficacy, the level of " ease of use" of Internet as a shopping medium must be high in order to achieve a positive attitude toward online shopping. On the other hand, high degrees of computer self-efficacy and Internet self-efficacy proved to have an attenuating effect on the relationship between "usefulness" and attitude toward using the Internet (Eastin and LaRose, 2000). A reason for this attenuating effect is that self-efficacy judgments are positively related to

outcome expectations (Oliver and Shapiro, 1993). The stronger a person's self-efficacy beliefs, the more likely he or she tries to achieve the desired outcome. In addition to this, it is explained by the fact that consumers are more likely to attempt and persist in behaviors that they feel capable of performing (Eastin and LaRose, 2000).

A final personality characteristic that is of relevance in the context of online shopping is the "need for interaction" with a service employee or salesperson (Dabholkar and Bagozzi, 2002). This "need for interaction" is defined as the importance of human interaction to the consumer in service encounters (Dabholkar, 1996). In online shopping, the human interaction with a service employee or salesperson is replaced by help-buttons and search features. Therefore, consumers with a high "need for interaction" will avoid shopping on the Internet, whereas consumers with a low "need for interaction" will seek such options (Dabholkar and Bagozzi, 2002). This implicates that the consumer characteristic "need for interaction" has a strengthening effect on the relationship between the three basic determinants and consumers' attitude toward Internet shopping. Owing to the lack of physical contact with service employees and sales persons in an online shopping environment, these relationships need to be stronger in order for consumers with a high need for interaction to have a positive attitude toward shopping online.

Situational factors

In order to fully understand consumers' motivations to engage in online shopping, situational factors have to be taken into account as well. A wide variety of situational aspects can moderate the relationship between attitude and consumers' intention to shop on the Internet, but for the purpose of this paper only the most relevant are discussed: "time pressure", "lack of mobility", "geographical distance", "need for special items" and attractiveness of alternatives". To most consumers important attributes of online shopping are convenience and accessibility (Wolfinbarger and Gilly, 2001): because consumers can shop on the Internet in the comfort of their home environment, it saves time and effort, and they are able to shop any time of the day or night. Especially for consumers that, owing to their extended working hours, only have a small amount of free time, online shopping is an excellent opportunity. Thus, the situational factor "time pressure" has an attenuating impact on the relationship between attitude and consumers' intention to shop online. Because the Internet is time saving and accessible 24 hours a day, this becomes the main drive for online shopping and attitude toward Internet shopping is less important. A second situational factor is "lack of mobility" (Avery, 1996). Consumers who are not able to shop in traditional stores owing to an illness or other immobilizing factors, have the ability to shop on the Internet to fulfill their shopping goals. Furthermore, for consumers who have to travel large distances to stores that provide them with the articles

needed, shopping on the Internet is a viable alternative to overcome this "geographical distance". A fourth situational factor that attenuates the relationship between attitude and consumers' intention to shop online is the "need for special items" (Wolfinbarger and Gilly, 2001). In case consumers need to acquire tailored products, like special sized clothing or large sized shoes, that are not available in conventional stores, shopping on the Internet is an option for them to purchase these special items anyhow. Finally, the last situational factor that moderates the relationship between attitude and intention is "attractiveness of alternatives". In case consumers are drawn by the attractiveness of a certain store in their neighborhood that, for example, sells the same products as the online store, the relationship between attitude and intention will be attenuated. The reason for this is that the consumer, although he might have a positive attitude toward online shopping, is lead by the strong attractiveness of the brick-and-mortar alternative. Therefore, he will choose to shop offline, despite his positive attitude toward shopping on the Internet.

Product characteristics

Consumers' decisions whether or not to shop online are also influenced by the type of product or service under consideration. Some product categories are more suitable for online shopping than other categories. The lack of physical contact and assistance in shopping on the Internet is one factor that influences this suitability. Another factor is the need to feel, touch, smell, or try the product, which is not possible when shopping online. Following this, clearly standardized and familiar products such as books, videotapes, CDs, groceries, and flowers, have a higher potential to be considered when shopping on the Internet, especially since quality uncertainty in such products is virtually absent, and no physical assistance or pre-trial is needed (Grewal *et al.*, 2002; Reibstein, 1999). On the other hand, personal-care products like perfume and lotion, or products that require personal knowledge or experience like computers and cars, are less likely to be considered while shopping online (Elliot and Fowell, 2000). Thus, if personal interaction with a salesperson is required for the product under consideration, consumers' intention to shop on the Internet is low. Furthermore, if consumers need to pre-trial the product under consideration, or have the necessity to feel, touch or smell the product, then their intention to shop online is low as well. However, in case of standardized and familiar goods, or certain sensitivity products that require a level of privacy and anonymity, consumers' intention to shop on the Internet is high (Grewal *et al.*, 2002).

Previous online shopping experiences

Intention to shop online is also influenced by consumers' Internet shopping history (Shim *et al.*, 2001). It is demonstrated by past research findings that prior online shopping experiences have a direct impact on Internet shopping intentions (Eastlick and Lotz, 1999; Weber and Roehl, 1999). Helson (1964)

suggests that an individual's response to a judgmental task is based on three aspects:

(1) Sum of the individual's past experiences.

(2) The context or background.

(3) The stimulus.

To the extent that minimal context or system-specific information is given, the individual will make system-specific evaluations based on prior experiences with the system. In the online shopping context, consumers evaluate their Internet shopping experiences in terms of perceptions regarding product information, form of payment, delivery terms, service offered, risk involved, privacy, security, personalization, visual appeal, navigation, entertainment and enjoyment (Burke, 2002; Parasuraman and Zinkhan, 2002; Mathwick *et al.*, 2001). In case prior online shopping experiences resulted in satisfactory outcomes and were evaluated positively, this leads consumers to continue to shop on the Internet in the future (Shim *et al.*, 2001). Such past experiences decrease consumers' perceived risk levels associated with online shopping. However, if these past experiences are judged negatively, consumers are reluctant to engage in online shopping in future occasions. This illustrates the importance of turning existing Internet shoppers into repeat shoppers by providing them with satisfying online shopping experiences (Weber and Roehl, 1999).

Trust in online shopping

Lack of trust is one of the most frequently cited reasons for consumers not shopping on the Internet (Lee and Turban, 2001). Since this shopping medium is relatively new and most of them have only little experience with it, shopping on the Internet provides a challenge to many consumers. Rotter (1971) has found that in novel situations, people rely on their general disposition to trust. The most salient source of trust in a retail setting is the salesperson, where consumer trust is dependent on the salesperson's expertise, likeability, and similarity to the customer (Doney and Cannon, 1997). However, with online shopping this physical salesperson is replaced by help buttons and search features, thus removing the basis of consumer trust in the shopping experience (Lohse and Spiller, 1998). Furthermore, online shopping also contains a level of risk. Consumers cannot physically check the quality of a product or monitor the safety and security of sending sensitive personal and financial information while shopping on the Internet (Lee and Turban, 2001). This condition creates a sense of powerlessness among online shoppers. Therefore trust has an important moderating effect on the relationship between consumers' attitude toward Internet shopping and intention to shop online.

The complexity of examining consumer trust in Internet shopping and its determinants lies in the fact that online shopping involves trust not simply

between the Web shop and the consumer (interpersonal trust), but also between the consumer and the computer system, i.e. the Internet (institutional trust) (McKnight and Chervany, 2001-2002). Next to this, contextual factors like security and privacy have an impact on consumer trust in shopping on the Internet (Lee and Turban, 2001). A high level of security and privacy in the online shopping experience has a positive effect on consumer trust, owing to the lowered risk involved with exchanging information. In general, the level of trust, interpersonal as well as institutional, is positively related to consumers' attitude and intention to shop on the Internet. Violation of consumers' trust in online shopping, in terms of privacy invasion or misuse of personal information, negatively influences attitude toward online shopping and leads to reluctant behavior among consumers to shop on the Internet in future occasions.

Future research avenues for comparing online shopping with traditional shopping

After identifying the factors that affect consumers' attitude and intention to shop online and placing them in our proposed framework, the next step is to investigate the differences, similarities, advantages and disadvantages of Internet shopping compared to shopping in brick-and-mortar stores, so-called traditional or real world shopping. Current retailing trends show a shift from traditional store-based retailing to an increased use of the Internet (Keen *et al.*, 2002). In the past few years, many businesses have faced the challenge of incorporating e-commerce into their repertoire of services in order to serve their customers 24/7. However, in establishing an online presence next to their existing physical stores, retailers encounter the difficulty of not being able to use the same format for both online and traditional stores. Although online shopping incorporates many of the same characteristics as "real world shopping" (Chen and Leteney, 2000; Lohse and Spiller, 1999), consumers are in a different frame of mind and have different informational needs when shopping on the Internet or the traditional way (Burke, 2002). Therefore, it is important to first identify the analogies and differences between traditional shopping features and features of online shopping before setting up a format. Second, retailers have to be aware of the advantages and disadvantages of online shopping compared to traditional shopping to understand consumers' motives to choose one channel over the other. Lohse and Spiller (1999) set up a table to provide an overview on how the features of a brick-and-mortar store relate to an Internet store. In Table I we have translated these store-features to features relating to online and traditional shopping. The table shows that all traditional shopping features are also present in online shopping, but in most cases in a somewhat different form and not always on a level satisfactory to consumers. For instance, Internet shoppers are not able to gain the experience they usually get when shopping the traditional way, e.g. interacting with a

Traditional shopping	Online shopping
Salesclerk service	Product descriptions, information pages, gift services, search function, clerk on the phone/e-mail
Sales promotion	Special offers, online games and lotteries, links to other sites of interest, appetizer information
Store window displays	Home page
Store atmosphere	Interface consistency, store organization, interface and graphics quality
Aisle products	Featured products on hierarchical levels of the store
Store layout	Screen depth, browse and search functions, indices, image maps
Number of floors in the store	Hierarchical levels of the store
Number of store entrances and store outlets/branches	Number of links to a particular online retail store
Checkout cashier	Online shopping basket and/or order form
Look and touch of the merchandise	Limited to image quality and description, potential for sound and video applications
Number of people entering the store	Number of unique visits to the online retail store
Sales per period	Sales per period

Table I.
Online shopping vs. traditional shopping

Source: Lohse and Spiller (1999)

salesperson, feeling the atmosphere, and touching or trying the merchandise (Li *et al.*, 1999). In cases where these features are specifically important to consumers, they will choose to engage in traditional shopping over online shopping.

Nevertheless, Internet shopping fulfills several consumer needs more effectively and efficiently than conventional shopping (Grewal *et al.*, 2002; Chen and Leteney, 2000; Häubl and Trifts, 2000; Alba *et al.*, 1997). First, with online shopping, consumers can browse the entire product-assortment with minimal effort, inconvenience and time investment. Second, consumers can efficiently obtain critical knowledge about firms, products and brands, and thereby increase their competency in making sound decisions while shopping. Third, consumers can easily compare product features, availability, and prices more efficiently and effectively than with brick-and-mortar shopping.

Fourth, Internet shopping provides a level of anonymity when shopping for certain sensitive products. Fifth, online shopping offers a high level of convenience for those whose time costs are perceived to be too high to invest in conventional shopping (Grewal *et al.*, 2002).

In our opinion, online shopping is not just another way of shopping that provides consumers with the same outcome at the end of the process as, for example, with traditional shopping. Indeed, online shopping provides consumers with added value, but can also withhold them from certain

sources of value. As an illustration of this concept, we take the example of e-banking: by using online banking for making transactions or checking their account balance, consumers save time because they don't have to go to the banking office in person during or after working hours. The precious time they save by e-banking provides them with the opportunity to spend this time on other activities like, for example, sports, leisure, and family and thus create added value through online banking. However, this process also withholds them from sources of value they would get when going to the banking office in person, e.g. the social value of personal contact with banking employees and other clients of the bank.

Thus, there are several reasons for consumers to prefer Internet shopping over "real world shopping". However, even though these advantages may lead some consumers to prefer online shopping, they are not necessarily choosing one shopping channel over another. Instead, consumers are shopping wherever and whenever it is convenient to them, whether by store, catalog, or Internet (Cyr, 2000). Today's consumers are multi-channel shoppers, and some occasions prefer traditional off-line shopping to shopping on the Internet.

Implications for researchers

This paper provides a framework that helps researchers understand the drivers of consumers' attitude and intention to shop on the Internet, and consumers' perceptions regarding ease of use, usefulness, and enjoyment. At the same time, behavioral intention to shop online is also affected by exogenous factors incorporated in our framework. From the standpoint of technology acceptance research, this paper extends the technology acceptance model with these exogenous factors. Although TAM emphasizes the importance of usefulness as the key determinant of user acceptance of new technologies, with Internet shopping this does not necessarily have to be the case. Ease of use, enjoyment, or even one of the exogenous factors in our framework might have a more significant effect on consumers' attitude and intention in the online shopping context than usefulness. Therefore, further research is needed to determine which of the factors in our framework have the most significant effect on behavioral intention to shop on the Internet. We do not believe that a general answer to this question is realistic, since the context of online shopping deals with different consumers that have different needs and goals in different situations. However, an attempt could be made to filter out the relatively less significant factors and/or determine relevant situational differences and set up a new conceptual framework.

Implications for practitioners

The framework we propose is of relevance to both e-marketers and e-tailers, since it enables them to assess the features that specifically attract consumers to shop on the Internet. Understanding consumers' motivations and limitations

to shop online is of major importance in e-tailing for making adequate strategic, technological, and marketing decisions to increase customer satisfaction, as well as improving web site design of virtual stores. For instance, our framework shows that consumers' attitude toward online shopping is not only strongly influenced by utilitarian aspects, but is also significantly predicted by hedonic factors like "enjoyment". Therefore, e-marketers should emphasize the enjoyable aspect of shopping on the Internet in their promotions as well. Next to this, consumer characteristics also affect their attitude and intention toward online shopping, which implicates that e-tailers should not treat all consumers alike. Furthermore, we stated that lack of trust is one of the major reasons for consumers not shopping on the Internet. Thus, in order for consumers to engage in trust-related Internet behavior like online shopping, the e-vendor must make trust-building interventions such as posting a privacy policy, use a third-party seal, interact with customers, advertise its good reputation, link to other reputable sites, or offer guarantees (McKnight and Chervany, 2001-2002). Finally, Internet retailers must insure that consumers have a positive shopping experience each time the consumer visits the online store (Keen *et al.*, 2002).

Limitations

As with any conceptual model, our model also has its limitations. First of all, we have set up a conceptual framework that includes all factors considered to drive consumers to shop online. Although we based our framework on a combination of results from many different studies on the subject of online shopping, technology acceptance and the acceptance of the Internet as a shopping medium in particular, there can always be factors of influence on consumers' intention to shop on the Internet that are not included in the literature to date, or that is addressed in other literature studies. However, we are confident that we have given an overview of the most relevant factors in this context. A second limitation of our paper is that we centered it around a framework that is the result of a literature review and has never been tested in its entirety using empirical evidence. This implies that some caution should be taken in applying the findings that can be derived from our framework. Furthermore, we have defined "online shopping" as the use of online stores by consumers up until the transactional stage of purchasing and logistics. Undoubtedly, this is not the correct definition, since shopping on the Internet is considered to be a process that goes beyond the boundaries of just browsing web stores. Finally, by selecting a specific structure for our review, we have necessarily limited the number of previous research results that were discussed in this paper.

Conclusion

While a large number of consumers in the US and Europe frequently shop on the Internet, research on what drives consumers to shop online has typically been fragmented. In this paper, we therefore propose a framework to increase

researchers' understanding of consumers' attitude toward online shopping and their intention to shop on the Internet. The framework uses the constructs of TAM as a basis, extended by exogenous factors and applies it to the online shopping context. Our review shows that attitude toward online shopping and intention to shop online are not only affected by ease of use, usefulness, and enjoyment, but also by exogenous factors like consumer traits, situational factors, product characteristics, previous online shopping experiences, and trust in online shopping.

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The impact of the Internet and consumer motivation on evaluation of prices☆

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Abstract

This research seeks to add to our understanding of why consumers might be willing to pay disparate prices for goods offered over the Internet. An experiment was designed to examine the effects of motivation to shop and information load on the evaluation of price for a product in an online environment. The results indicated that the interaction between motivation to shop and information load significantly influenced price perceptions. For the motivated subjects, a high price level was evaluated as higher in value when the information load was excessive. On the other hand, when the motivated subjects did not have an excessive information load, they evaluated the low price level as better value. For less motivated subjects, the high price level was perceived higher in value and quality than the low price level.

Keywords: Pricing; Internet; Information load; Information processing theories; Motivation

1. Introduction

The "e" in e-commerce no longer stands for "elusive." Many retailers have become wired over the last few years. Technology industry leaders like IBM and Microsoft established Internet e-shopping malls featuring reputed retailers like Spiegel and 1-800-Flowers (Johnson, 1996). Even small retailers — with fewer than five employees — are getting wired (Foster, 1998). According to Forrester Research (cited in Degeratu et al., 1999, p. 1), online sales are likely to increase from US$48 billion in 1998 to US$1.8 trillion by 2003. Some attribute this growth in sales to the availability of online information allowing consumers to find lower prices on the Web (Bakos, 1997; Hoffman and Novak, 1996; Evans and Wurster, 1999). For instance, Brynjolfsson and Smith (2000) found that online book and CD retailers realized prices about 9–16% lower on average than those of offline retailers. Similarly, a 1998 study by JD Power and Associates showed that less than 10% of those who bought an automobile online-paid sticker price compared to around 20% for walk-in buyers (see Shankar et al., 1999).

Though there is plenty of evidence indicating that consumers are likely to buy at lower prices on the Web, there is also some contradictory evidence suggesting that consumers may be paying even higher prices online than offline. For instance, Bailey (1998) found that prices on the Internet were on average higher than prices in conventional outlets for books, CDs, and software (also see Degeratu et al., 1999; Lynch and Ariely, 2000). These findings, though conflicting, do suggest that the Internet as a commercial medium will influence the prices paid by consumers.

However, the question remains as to when consumers are more or less willing to pay higher prices for goods offered on the Internet. Given that a wide variety of consumers evaluate information on the Web, it is very possible that price sensitivity is a function of variance in consumer characteristics, particularly motivation. The research issue addressed in this article is whether consumers with different motivations to be on the Web will differentially evaluate price information, thus providing an explanation for the existence of disparate prices on the Web (e.g., Clemens et al., 1999).

The research described in this article addresses this issue by first developing a conceptual framework for examining the relationships among information availability, motivation, and perceptions of price on the Internet. Hypotheses

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are then formed and an experiment entailing the purchase of a television over the Web is described. The results are then reported with managerial implications considered at the end of the article.

2. Conceptual framework

The following section first explains why the Internet might be creating a different commercial medium than the conventional offline markets due to the vast amounts of information available. The latter sections then integrate the issue of how information load will interact with motivation to influence the processing of price information in an online environment.

2.1. The Internet and information load

Because it is very information-intensive, the Internet presents a fundamentally different environment for consumers (Hoffman and Novak, 1996). For instance, a recent study by search-engine company Inktomi found that the Web has surpassed 1 billion pages of information (see Clark, 2000), with 25 new pages added every second (Gray, 1995; Spring, 2000). Quite a few researchers believe that the ability of the Web to amass and analyze large quantities of information is what enables comparison shopping and ultimately helps consumers in their decision making (Evans and Wurster, 1999; Hoffman et al., 1995).

Although 88% of the online population uses search engines to make the Web more manageable (see Hanrahan, 1999; Goldsborough, 2000), an ever increasing number of webpages is making it harder to find the desired page or information (Spring, 2000; Goldsborough, 2000). Because finding relevant information on the Web is often difficult, online shoppers have started using the high tech help provided by *shopping bots* like those from Yahoo!, America Online, Amazon.com, Excite, Go Shopping, mySimon, DealTime, and Bottomdollar, among others (Baldwin, 1999). These shopping bots are specialized search engines that prowl the vast aisles of Web merchants, helping consumers to comparison shop by keeping track of prices. Nearly all comparison-shopping sites use some combination of merchant partnering and bot technology. However, a recent review of some of these bot engines by Baldwin (1999) showed that while some of the bots searched only a small corner of the Web, a large number produced results that might be considered excessive by many consumers. For instance, the results of a search for ''minidisc players'' resulted in hits that varied from a minimum of 20 at Bottomdollar to 56 at Amazon.com's shop on the Web (Baldwin, 1999). As the Web grows bigger and more merchants go online, it is very likely that the use of such shopping bots will result in an even larger set of alternatives (Shachtman, 1999). Eventually, an information-intensive environment like the Internet will make the task of navigating and evaluating information quite daunting for consumers shopping on the Web (Degeratu et al., 1999; Ward and Lee, 1999).

2.1.1. Effects of information load

Past research suggests that the processing capacity of human memory is limited. In a seminal study, Miller (1956) reviewed evidence, which suggested that the processing capacity of short-term memory was approximately seven chunks of information. Moreover, if the environmental nput increases further than these seven chunks of information, the information processing level begins to decrease. Empirical investigations have shown the dysfunctional effects of information overload when consumers are provided with 10 or more alternatives in a choice set (see Malhotra, 1982).

These studies suggest that there is an amount of information that most consumers deem necessary or helpful in decision-making (i.e., ideal information load). However, when information availability becomes excessive (i.e., excessive information load), it negatively influences decision-making. Though several researchers have shown the debilitating effects of information overload in conventional media (e.g., Jacoby et al., 1974; Malhotra, 1982), no one has explored the effects of information overload on consumer evaluations (particularly of price) in an online environment.

However, motivation of consumers to shop on the Web will likely also influence information processing. The following subsections present how consumers' motivation to shop on the Web interacts with both the debilitating and the enabling effects of information load on the Internet.

2.2. Motivation to purchase and information load

The Heuristic Systematic Model (HSM; Chaiken, 1980) provides a useful framework for predicting how a consumer's motivation to purchase an item will interact with information load. Chaiken and her colleagues (Chaiken, 1980; Darke et al., 1995; Eagly and Chaiken, 1993) conceptualized that given high motivation and ability to perform a task, consumers are likely to ''systematically'' or thoroughly process the given information. Such processing involves a comprehensive, analytic orientation to information processing in which consumers carefully attend to, evaluate, elaborate, and integrate the task relevant informational inputs, and base their attitude judgments on their understanding of such information. Systematic processing requires cognitive capacity, and thus depends on the processor's willingness and ability to allocate the necessary resources.

However, such processing may be more the exception than the rule. Most of the time, judgment situations are routine and not personally involving. Additionally, multiple tasks compete for limited processing capacity. Under these conditions, individuals will prefer heuristic processing as a less effortful means of assessing the given information (Chaiken, 1980; Darke et al., 1995; Maheswaran et al., 1992). Heuristic processors focus on the subset of available

information that enables them to use heuristics, or simple decision rules, to formulate their judgments quickly (Chaiken, 1980; Eagly and Chaiken, 1993). Such processing is likely to occur when there is either low motivation to process information or when the capacity or ability to process information is constrained (for example, due to excessive information load). In other words, even when consumers are motivated to process information, an excessive amount of information will constrain cognitive capacity available to systematically process information (e.g., Ratneshwar and Chaiken, 1991). As a result, these consumers will heuristically process information and rely on heuristic cues to arrive at their judgments (Malhotra, 1982; Jacoby et al., 1974). Furthermore, when motivation to process information is low, irrespective of the information load, consumers are more likely to adopt a less effortful method of processing information and rely on heuristic cues to arrive at judgments (e.g., Maheswaran et al., 1992).

Thus, it is proposed that in an online environment when motivation to shop is high and information load is ideal, consumers will use systematic processing. With an increase in information load to excessive levels, despite the motivation to process information, the constraints on cognitive capacity will make it likely that the information be heuristically processed. Similarly, when motivation to shop online is low, both at ideal and excessive levels of information load, consumers are likely to process information heuristically and depend on the heuristic cues to arrive at judgments.

So far, we have explained how information load and motivation to purchase will influence information processing. The next issue is how the two modes of information processing, i.e., systematic vs. heuristic processing, will affect the processing of price information on the Internet.

2.3. Information processing and perceptions of price

It has been argued that actual price results in a subjective internal representation (i.e., perceived price) which provides some meaning to the consumer (Monroe, 1990). Furthermore, consumers may use price as an indicator of product quality, i.e., the higher the price, the higher the perceived quality. Such an association between price and perceived quality is essentially a heuristic that enables consumers to use an extrinsic attribute like price to make judgments about a product's quality (Pechmann and Ratneshwar, 1991). The HSM framework suggests that contexts that do not allow consumers to process information thoroughly result in heuristic processing of information (Maheswaran et al., 1992). Hence, in such contexts consumers will process price information heuristically and will be more likely to use price to infer the quality of a product, i.e., a high price will imply a high perceived quality while a low price will imply a low perceived quality.

However, price information plays a dual role in consumers' judgments. Consumers use price not only to infer a product's quality but also to determine the monetary sacrifice associated with the purchase of that product (Monroe, 1990, p. 73, Leszinski and Marn, 1997). Rao and Monroe's (1988) study demonstrated that consumers are less likely to use price as an indicator of quality when they have the ability and motivation to process other relevant cues that might help them evaluate a product's quality. In such situations, it is likely that price will serve more as an indicator of sacrifice than as an indicator of quality. Thus, when situations allow consumers to systematically process the given information, price will be used more to infer sacrifice than quality. On the other hand, when situations promote heuristic processing of information, price information will be used more to infer quality than sacrifice. If perceived value represents a trade-off between perceived sacrifice and perceived quality (Grewal et al., 1998, Monroe, 1990, p. 73), then we would expect that judgments of value will reflect the relative differences in weights consumers place on the price–quality and price–sacrifice relationships. Hence, judgments of perceived value will behave in a manner similar to judgments of perceived quality when the price–quality heuristic dominates. When price information is processed systematically, greater weight will be placed on the price–sacrifice relationship and judgments of value will behave in a manner similar to judgments of perceived sacrifice.

3. Hypotheses

The effects of the nature of information processing on the use of price information can now be linked with the previous discussion about the effects of information load and motivation on information processing to develop the hypotheses to be tested.

3.1. High motivation to shop online and information load

Earlier, it was argued that even when a consumer is highly motivated to process information, increasing information load from an ideal to an excessive level would result in a decrease in systematic processing and an increase in heuristic processing. Therefore, it is more likely that consumers will increasingly rely on the "price implies quality" heuristic as information load increases.

The preceding generalizations lead to different predictions regarding consumers' perceptions of product quality depending on whether the product's price is relatively high or low for a particular product category. Excessive information load will result in consumers relying on the price–quality heuristic. For these consumers, a high (low) price in a particular product category will be indicative of high (low) quality. Conversely, ideal information load will result in the systematic processing of information resulting in price being used more as an indicator of monetary sacrifice rather than as a simple cue to a product's quality. In other words, under the systematic processing condition, lower (higher) prices are not automatically associated with low (high) quality.

Therefore, consumers' perceptions of product quality for a relatively low (high) priced product will be higher (lower) in the ideal information load condition compared to the excessive information load condition. This leads to the following hypotheses:

Hypothesis 1a: When consumers have high motivation to shop on the Web, for a relatively *high* price level of a product, an increase in information load (from ideal to excessive) will result in an increase in perceptions of quality.

Hypothesis 1b: When consumers have high motivation to shop on the Web, for a relatively *low* price level of a product, an increase in information load (from ideal to excessive) will result in a decrease in the perceptions of quality.

Given the dual role of price, consumers need to judge both the price–quality relationship as well as the price–sacrifice relationship. In this information trade-off, the more weight consumers place on the positive role of price as a heuristic for quality, the less weight will be placed on the negative role of price as an indicator of monetary sacrifice. But, when consumers systematically process information, they place less attention on the price–quality heuristic and tend to concentrate more on the price–monetary sacrifice relationship. Consequently, we would expect perceptions of monetary sacrifice to follow a pattern opposite to that of perceptions of quality. Thus, it is hypothesized that:

Hypothesis 2a: When consumers have high motivation to shop on the Web, for a relatively *high* price level of a product, an increase in information load (from ideal to excessive) will result in a decrease in perceptions of sacrifice.

Hypothesis 2b: When consumers have high motivation to shop on the Web, for a relatively *low* price level of a product, an increase in information load (from ideal to excessive) will result in an increase in the perceptions of sacrifice.

3.2. Effect on perceptions of value

Perceived value was conceptualized as a cognitive trade-off between perceived quality and perceived monetary sacrifice. Therefore, a decrease in perceived quality and/or an increase in perceived sacrifice will result in a decrease in perceived value, and vice versa. Combining these relationships with the preceding four hypotheses yields the following:

Hypothesis 3a: When consumers have high motivation to shop on the Web, for a relatively *high* price level of a product, an increase in information load (from ideal to excessive) will result in an increase in perceptions of value.

Hypothesis 3b: When consumers have high motivation to shop on the Web, for a relatively *low* price level of a product, an increase in information load (from ideal to excessive) will result in a decrease in the perceptions of value.

3.3. Low motivation to shop online and information load

Earlier, it was argued that when consumers have low motivation to process information, at both ideal and excessive information loads, the extent of systematic processing would be low and the information will be heuristically processed. Since the given price information will be similarly processed (i.e., heuristically) at both levels of information load, the perceptions of quality, sacrifice, and value associated with this price will not be influenced by increases in information load. Hence, it is predicted that:

Hypothesis 4a: When consumers have low motivation to shop on the Web, the perceptions of quality, sacrifice, and value associated with both the high and the low price level of a product will not change with increases in information load.

As suggested earlier, heuristic processing of information is likely to result in price being used more to determine a product's quality than the monetary sacrifice associated with its purchase. As a result, the perceived value trade-off between perceived quality and sacrifice will be higher (lower) when the evaluations of quality are higher (lower). Additionally, high (low) prices will be associated with higher (lower) quality and value at both levels of information load. Since in the low motivation condition, consumers focus more on a heuristic use of price information, we do not make any prediction about the effect of different price levels and information load on the evaluation of perceived sacrifice but only on perceived quality and value. Hence, it is predicted that:

Hypothesis 4b: When consumers have low motivation to shop on the Web, for both ideal and excessive levels of information load, the perceptions of quality and value will be relatively higher for the high rather than the low price level of a product.

4. Method

4.1. Experimental design

The effects of motivation to shop and information load on the relationship between price and three dependent

variables — perceived quality, perceived sacrifice, and perceived value — were examined using a 2 (Motivation to Shop: high and low) × 2 (Information Load: excessive and ideal) × 2 (Price Level: high and low) between subjects design. Subjects were randomly assigned to the eight treatment conditions. On average, it took subjects about 20 min to complete this study.

4.2. Sample

The recent Georgia Tech's Hermes survey of Web usage shows that about 91% of Web users in the US have at least some college education (Gupta, 1995). Therefore, we considered university students to be an appropriate convenient sample for our study. A total of 218 undergraduate business students at a private eastern university participated in this study for extra course credits. Eleven responses were incomplete and were eliminated from further analysis resulting in 207 usable responses. The average age of the sample was 21.08 (S.D. = 2.36) and consisted of 55% males and 45% females. This distribution of gender for the student sample was consistent with the results (51% males and 49% females) from a recent Web usage study by Iconocast (2000: www.iconocast.com).

4.3. Pretests

Pretests were conducted to develop the product stimulus, and to determine the two price levels for this stimulus. Based on preliminary interviews with 15 college students to determine relevant products the student population might purchase on the Internet and their knowledge about these products, a 13-in. television was selected as the product stimulus to be used in the study. Moreover, in order to avoid potential confounds from using a recognizable brand name, the product description was given a hypothetical brand name of "TS 136."

To determine the high and low price levels for this product, another sample of pretest subjects were asked to indicate the two prices that reflected their upper and lower price acceptability limits (e.g., Monroe, 1990, p. 112). Using means for the upper ($M = 260$) and lower ($M = 135$) price limits, US$259.95 was selected as the high price level and US$135.95 as the low price level.

4.4. Design of the instrument

In order to investigate the effects of information load on the Internet, we created a webpage that was an exact replica of the Yahoo! Shopping webpage for televisions. Similar to the actual presentation of information at Yahoo! Shopping, this experiment's webpage provided information about the product stimulus, other televisions, and television-related products that consumers would typically see while shopping for a 13-in. television online. This additional information about other televisions and television-related products guided the manipulation of information load in this study as consistent with manipulations previously used by Park and Lessig (1981) and Suri and Monroe (2000). Based on previous research (e.g., Miller, 1956; Malhotra, 1982; Jacoby et al., 1974), the information load was manipulated by providing subjects with seven additional alternatives in the ideal information load condition and with 19 other alternatives in the excessive information load condition. These alternatives included televisions and television-related products that were selected from the Yahoo! Shopping website.

4.5. Sequence of tasks

This study was conducted at various computer laboratories on the university campus. All instructions for the study, as well as the product stimulus, were provided at the website created for this purpose. After the subjects had evaluated the information they responded to the various measures in a response booklet, i.e., a paper-and-pencil questionnaire. A monitor supervised the execution of this study and directed subjects to the Web address where they were randomly assigned to one of the treatment conditions.

On the first webpage in a treatment condition, the subjects were presented with one of two scenarios that manipulated their motivation to purchase a television on the Web. These scenarios were similar to those used earlier by Suri and Monroe (1995) and manipulated subjects' intentions to search for a television on the Internet (see Appendix A for the scenarios). Having read the scenario, the subject was directed to a webpage that informed him/her that "You would soon be entering the marketspace of an online shopping site and your task is to *evaluate the television highlighted in yellow (TS 136)*. To assist you in your task of evaluating the given information, you are also provided with other similar products that this online site is selling."

After subjects finished their evaluations of product information on the online site, they were given a response booklet that consisted of four sections. In the first section, the subjects responded to the manipulation checks for the three factors (price, information load, and motivation) and also indicated their affective reactions to the task. In the second section, the subjects were asked to write down all thoughts and feelings that they experienced while performing the task, no matter how simple, complex, relevant, or irrelevant they seemed. This task was timed and all subjects were given 3 min to write down their responses (e.g., Maheswaran et al., 1992). In the third section, the subjects responded to items related to the three dependent measures, i.e., perceived quality, perceived sacrifice, and perceived value (cf. Dodds et al., 1991; Grewal et al., 1998; see Appendix A for items used). This section of the response booklet also asked subjects three items that measured their attitude towards the highlighted television TS 136 (e.g., Mitchell, 1986 — very favorable/very unfavorable, very useful/not at all useful, good/bad). This additional measure

was used to determine support for the notion that consumers who perceive a product to be of better quality and value will also express more favorable attitudes towards that product and be more likely to purchase it (see Monroe, 1990). The final section of the response booklet, in an untimed recall, asked subjects to list all attribute information that they could remember from the product description of the highlighted television.

5. Results

5.1. Manipulation checks

Consistent with past research (cf. Maheswaran et al., 1992), three items were used to measure motivation to process information. The average of these three items showed a significant difference between the two motivation to shop conditions [$M_{high} = 4.42$, $n = 108$, vs. $M_{low} = 3.82$, $n = 99$, $F(1,205) = 5.07$, $P < .05$, $\eta = .16$]. The manipulation check for price levels asked subjects to indicate their perception about the offered price for TS 136 (very high/very low). This measure showed a significant difference between the two price levels [$M_{high} = 6.60$, $n = 107$, vs. $M_{low} = 4.87$, $n = 100$, $F(1,205) = 60.97$, $P < .00$, $\eta = .48$]. The manipulation check for information load used an average of two items that asked subjects about their perception of the information load on the webpage [$M_{excessive} = 4.91$, $n = 98$, vs. $M_{ideal} = 4.32$, $n = 109$, $F(1,205) = 5.63$, $P < .05$, $\eta = .16$]. Another measure for information load asked subjects to recall the number of televisions described on the webpage. This measure also showed significant differences between the two information load conditions [$M_{excessive} = 17.21$ vs. $M_{ideal} = 10.01$, $F(1,205) = 82.44$, $P < .00$, $\eta = .55$].

Additional analyses showed that the differences in subjects' prior knowledge on televisions (13 in.) and computers and the affective responses after they evaluated the information on the website (i.e., feeling distressed, disturbed, and under time pressure) were nonsignificant ($P > .10$). These results collectively suggest that the ran-

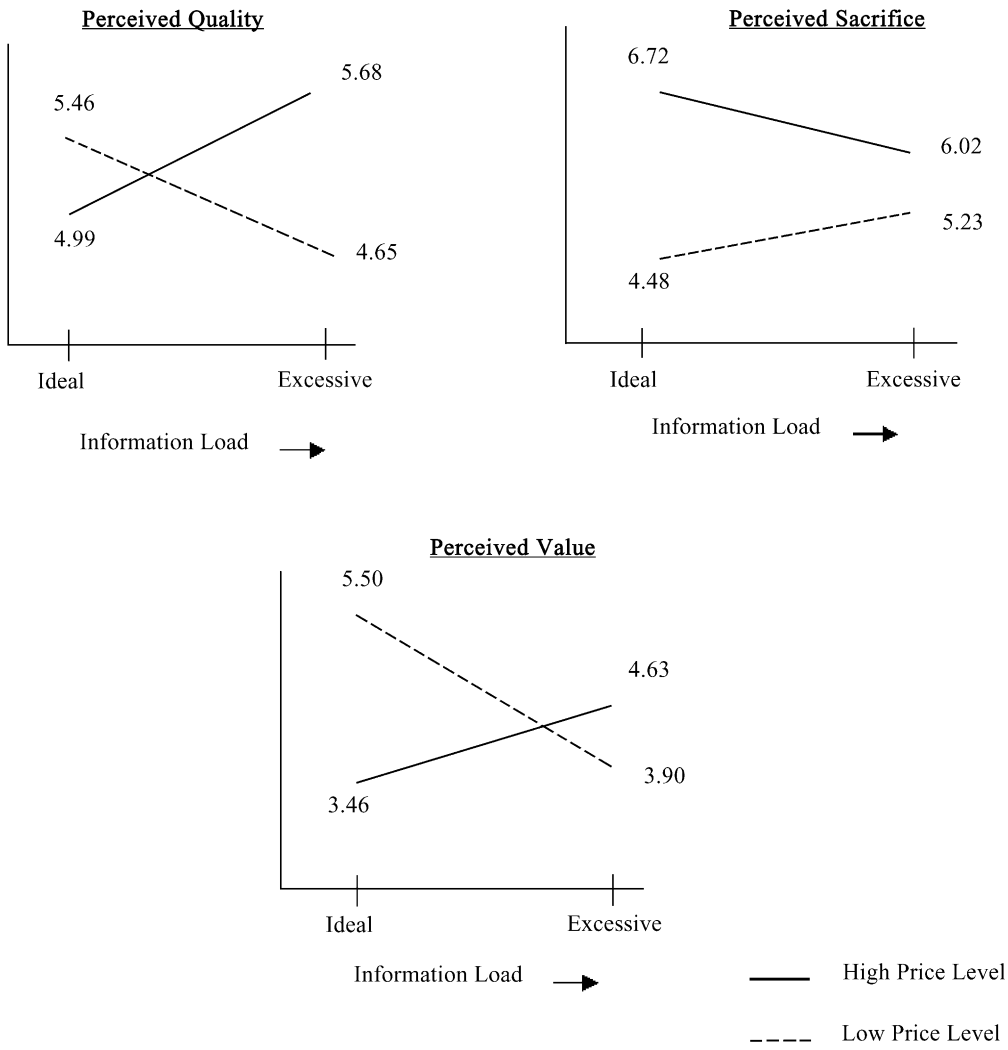

Fig. 1. High motivation and information load.

domization procedures and the manipulations used in this study were successful.

5.2. Influence of information load in the high motivation situation

An ANOVA confirmed that when motivation to process information was high, the interaction between information load and price level was significant for all three dependent variables [perceived quality: $F(1,104)=10.55$, $P<.00$; perceived sacrifice: $F(1,104)=6.80$, $P<.05$; perceived value: $F(1,104)=21.01$, $P<.00$]. Comparing the mean scores on the dependent measures for the high price level showed that the perceptions of quality and value increased while perceptions of sacrifice decreased with an increase in information load [perceived quality: $F(1,63)=5.57$, $P<.05$, $\eta=.29$; perceived sacrifice: $F(1,63)=3.93$, $P<.05$, $\eta=.24$; perceived value: $F(1,63)=7.70$, $P<.00$, $\eta=.33$]. On the other hand, the three dependent measures showed a reverse pattern for the low price level. In other words, for the low price level, the perceptions of quality, and value decreased while the perceptions of sacrifice increased with an increase in information load [perceived quality: $F(1,41)=5.23$, $P<.05$, $\eta=.34$; perceived sacrifice: $F(1,41)=3.06$, $P<.10$, $\eta=.26$; perceived value: $F(1,41)=17.82$, $P<.00$, $\eta=.55$]. These results supported the predicted effects of information load in a high motivation situation (see Fig. 1).

As was suggested earlier, if consumers have more favorable attitudes towards a product, they are also more likely to have higher perceptions of value and hence show greater likelihood to pay the price (Monroe, 1990). Consistent with this argument, additional support for the predictions was obtained by comparing cell means on an additional related measure — the attitude towards the product stimulus TS 136 (Cronbach's $\alpha=.70$). The analysis showed that compared to the ideal information load condition, the excessive information load condition was associated with significantly less favorable attitudes for TS 136 when its price level was low [$M_{excessive}=3.98$ vs. $M_{ideal}=4.65$, $F(1,41)=2.80$, $P<.10$, $\eta=.25$]. A reverse

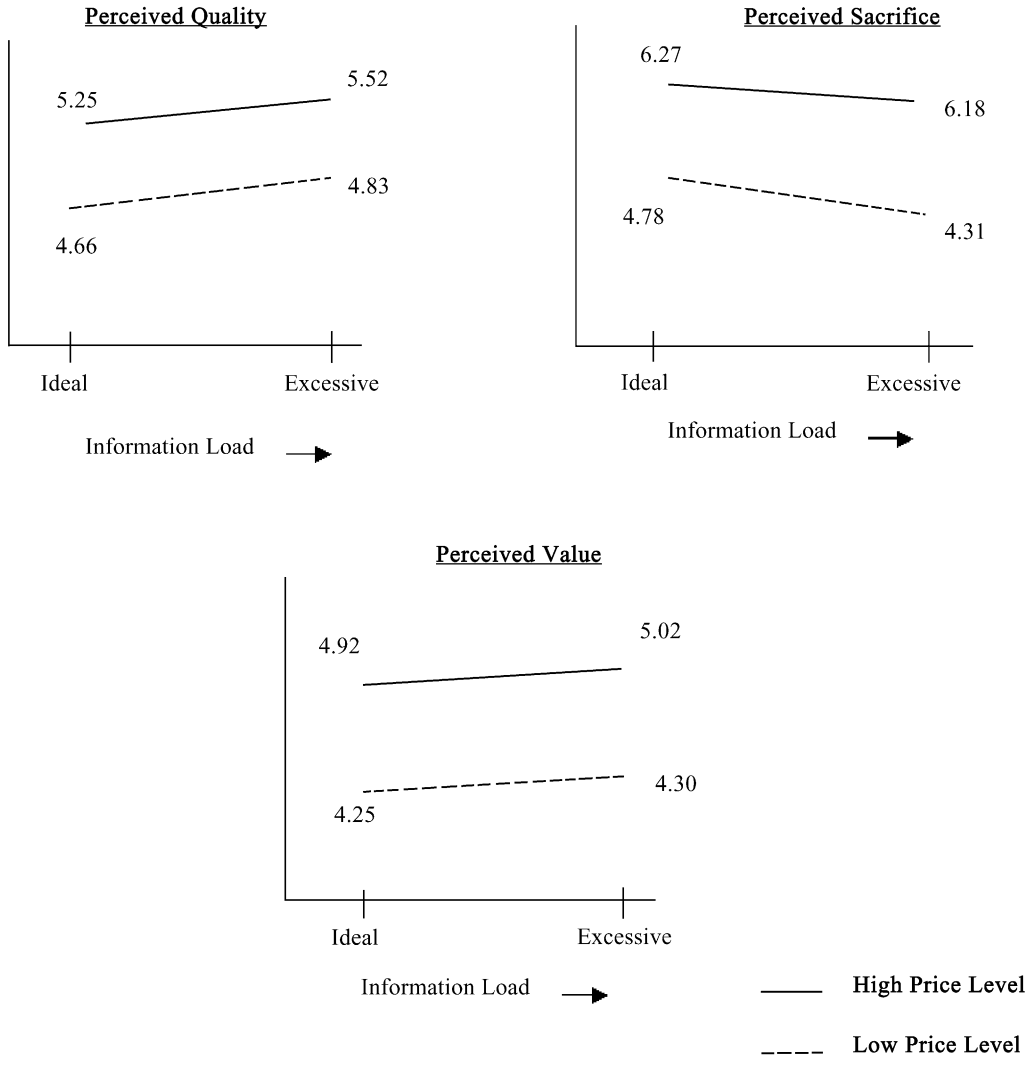

Fig. 2. Low motivation and information load.

pattern of results was observed for the high price level, in the sense that compared to the ideal information load, the excessive information load condition was associated with significantly more favorable attitudes for TS 136 [$M_{\text{excessive}} = 4.84$ vs. $M_{\text{ideal}} = 4.06$, $F(1,63) = 4.16$, $P < .05$, $\eta = .25$]. These results were consistent with the value hypothesis (Hypothesis 3a) for the high price level. There were both more favorable attitudes and higher perceived value associated with the product stimulus when the information load was excessive rather than ideal. Similarly, the value hypothesis (Hypothesis 3b) for the low price level was supported since the product stimulus was perceived both more favorably and of superior value when the information load was ideal rather than excessive.

The results also showed an interesting difference in evaluation of the two price levels at the two information load conditions. It was observed that in the ideal information load condition, the perception of sacrifice was significantly lower [$F(1,56) = 37.61$, $P < .00$, $\eta = .63$] and perception of value significantly higher [$F(1,56) = 24.09$, $P < .00$, $\eta = .55$] for the low price than the high price level. There were no significant differences in the attitudes towards the product or the perceptions of quality. On the other hand, in the excessive information load condition, the stimulus at the high price level was perceived higher in quality [$F(1,48) = 10.64$, $P < .00$, $\eta = .43$], and had more favorable attitudes [$M_{\text{high}} = 4.84$ vs. $M_{\text{low}} = 3.98$, $F(1,48) = 4.87$, $P < .05$, $\eta = .30$] than the same stimulus at the low price level. Compared to the low price level though, the perception of sacrifice for the high price level was also higher [$F(1,48) = 3.49$, $P < .10$, $\eta = .26$] but so was the perceived value [$F(1,48) = 2.81$, $P < .10$, $\eta = .24$]. In sum, these results indicate that when the information load was ideal, the subjects processed price information carefully and considered the low price level to result in a low monetary sacrifice and hence a superior value compared to the high price level. On the other hand, when information load increased, the price information was used more to evaluate the product's quality and resulted in the high price level being perceived as higher in quality and value than the same product at the low price level.

5.3. Influence of information load in the low motivation situation

For a situation where there is low motivation to process information, it was predicted that for both price levels there would be no change in evaluation of the product with an increase in information load. An ANOVA confirmed this by showing no significant interaction between price level and information load for all three dependent variables [perceived quality: $F(1,95) = .03$, $P > .10$; perceived sacrifice: $F(1,95) = 0.42$, $P > .10$; perceived value: $F(1,95) = 0.01$, $P > .10$]. Further comparison of the two information load conditions showed no significant differences in the three dependent measures for both high price level [perceived quality: $F(1,40) = 0.39$, $P > .10$, $\eta = .10$; perceived sacrifice: $F(1,40) = 0.03$, $P > .10$, $\eta = .03$; perceived value: $F(1,40) = 0.10$, $P > .10$, $\eta = .05$] and low price level [perceived quality: $F(1,55) = 0.35$, $P > .10$, $\eta = .08$; perceived sacrifice: $F(1,55) = 1.80$, $P > .10$, $\eta = .18$; perceived value: $F(1,55) = 0.0$, $P > .10$, $\eta = .02$]. As predicted (Hypothesis 4b), the results also showed that the high price level was perceived to be significantly higher in quality [$F(1,97) = 5.99$, $P < .05$, $\eta = .24$]

Table 1
Coding scheme for cognitive responses

Code and description	Example
A. Price elaboration thoughts	
1. Price comparison or evaluation	"The price was lower than some other TVs by $40." "Price for TS 136 was high compared to others."
2. Price trade-off	"They could have asked for at least some more money for the stereo input jacks."
B. Attribute elaboration thoughts	
1. Attribute evaluation	"Only TS 136 offering a built-in antennae."
2. Attribute trade-off	"Substitution of the answering system by increasing the number memories would increase the value of this phone."
3. Request for additional information	"What is cable-ready television?"
C. Simple evaluative thoughts	
1. Overall evaluation	"I like it."
2. Overall impressions	"Seems like cheap product."
D. Categorization thoughts	"AT&T and Motorola are good brand names for telephones."
E. Price listing thoughts	"The price was $139.99."
F. Attribute listing thoughts	"The phone had nine-number memory"; "The television was available only in one color."
G. Other thoughts	
1. Product imagery	"I tried to imagine the television my Dad bought me last month."
2. Prior knowledge/familiarity	"I am not familiar with all these features in a phone."
3. Disbelief thoughts	"I can't believe GE is trying to sell this phone at this price with only those features."
4. Task-related thoughts	"Why was the information on Magnavox TV on a separate sheet of paper"; "The information was technical and boring."
5. Irrelevant	"I wonder what I am going to do tonight"; "I am feeling very hungry now"; "I am going to get an A in BA 202."

and value [$F(1,97) = 6.34$, $P < .05$, $\eta = .25$] than the low price level of that product. These results were consistent with the predictions that an increase in information load will not create a significant impact on the evaluation of price information and the high price level would be perceived higher in quality and value than the low price level (see Fig. 2).

Consistent with these results is the pattern of cell means on attitude towards the product stimulus for the two price levels. Comparing cell means on the attitude towards the product stimulus showed that with an increase in information load there were no significant changes in attitude towards the product stimulus for both high price level [$M_{excessive} = 4.30$ vs. $M_{ideal} = 4.36$, $F(1,40) = 0.03$, $P > .10$, $\eta = .03$] and low price level [$M_{excessive} = 4.13$ vs. $M_{ideal} = 4.42$, $F(1,55) = 0.50$, $P > .10$, $\eta = .09$]. These results further supported the prediction (Hypothesis 4a) that when the motivation to shop is low, an increase in information load does not significantly change the perceived value or attitudes towards the product stimulus.

5.4. Analysis of cognitive responses and attribute recall

The cognitive responses and the attribute recall measures were analyzed to understand the underlying differences in information processing (systematic or heuristic). Following Sujan (1985), a coding scheme consisting of seven categories was developed after examining the written protocols of the first few subjects (Table 1). Each subject's responses were separated into individual thoughts and coded by two independent judges who were blind to the hypotheses and treatment conditions. On average, there was 91% agreement between the coding by the two judges and discrepancies were resolved by discussion. The seven thought groups were classified into three main categories — task relevant elaboration, task irrelevant thinking, and attribute listing thoughts (e.g., Maheswaran et al., 1992; Sujan, 1985).

As shown in Fig. 3, when there was high motivation to process information, an increase in information load resulted in a decrease in task relevant thinking [$F(1,87) = 13.24$, $P < .00$, $\eta = .36$] and an increase in task irrelevant thinking [$F(1,87) = 12.96$, $P < .00$, $\eta = .36$]. On the other hand, for the low motivation situation, though the task irrelevant thoughts were relatively more than task relevant thoughts, the difference between these two types of thoughts was not significantly different between the two information load conditions [task relevant thoughts: $F(1,79) = 0.46$, $P > .10$, $\eta = .07$; task irrelevant thoughts: $F(1,79) = 0.64$, $P > .10$, $\eta = .09$].

The attribute recall measured in the last section further supported these differences in information processing. Following Maheswaran et al. (1992), two independent raters ($r = .93$) scored subjects' responses according to how well they had recalled the gist of the attributes for the highlighted television (number of attributes recalled ranged from 0 to 5.) The results showed that subjects in the high motivation situation recalled significantly more attributes than those in the low motivation situation [$M_{high} = 1.90$ vs. $M_{low} = 1.49$, $F(1,205) = 4.23$, $P < .05$, $\eta = .14$]. Similarly, subjects in the excessive information load condition recalled fewer attributes than those in the ideal information load condition [$M_{excessive} = 1.37$ vs. $M_{ideal} = 2.01$, $F(1,205) = 11.07$, $P < .00$, $\eta = .23$]. Comparing attribute recall for the two information load conditions further showed that when motivation to process information was high, attribute recall decreased with an increase in information load [$M_{excessive} = 1.36$ vs. $M_{ideal} = 2.36$, $F(1,106) = 14.5$, $P < .00$, $\eta = .35$], but showed no difference when motivation to process information was low [$M_{high} = 1.37$ vs. $M_{low} = 1.61$, $F(1,97) = 0.72$, $P > .10$, $\eta = .09$].

In essence, the results on cognitive responses and attribute recall suggest that the extent of systematic processing represented by a relatively higher task relevant elaboration and attribute recall (see Maheswaran et al., 1992) decreased

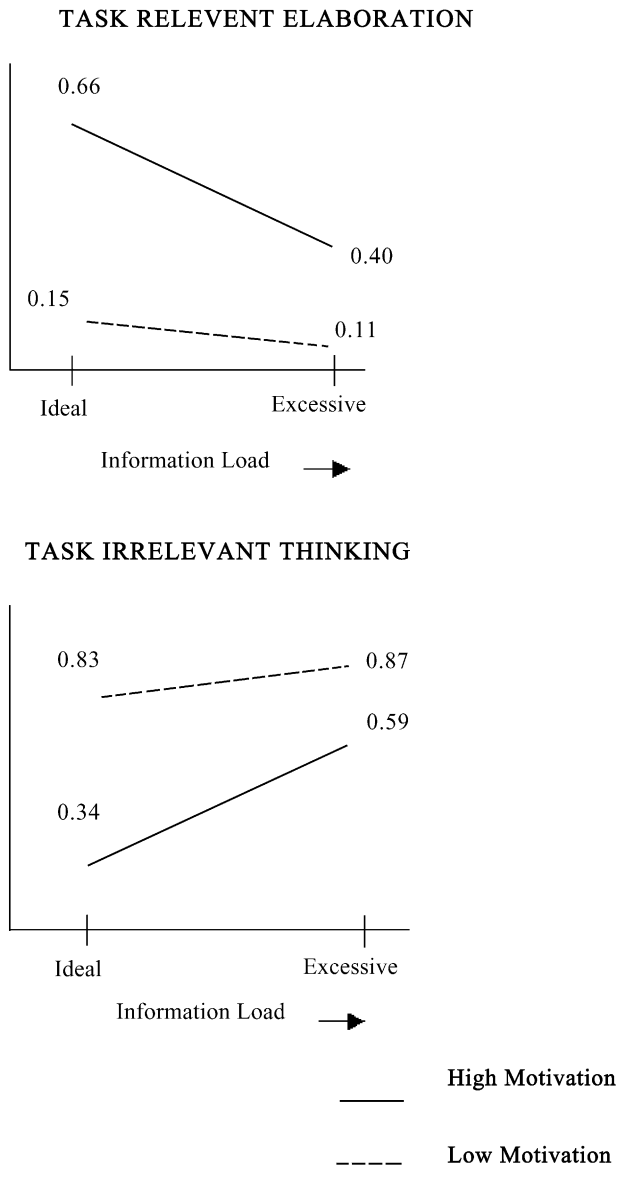

Fig. 3. Cognitive response and information load.

with an increase in information load for the high motivation condition. On the other hand, the heuristic processing represented by relatively higher task irrelevant thinking and lower attribute recall (see Maheswaran et al., 1992) dominated the low motivation situation and did not change significantly with an increase in information load.

6. Discussion and managerial implications

While there are conflicting viewpoints as to whether or not the Internet is making high or low prices more acceptable to consumers (e.g., Bailey, 1998; Brynjolfsson and Smith, 2000), the little empirical research available does not resolve this ambiguity or enhance our understanding of how the Internet influences the evaluation of prices (see Degeratu et al., 1999). The study reported here suggests that a consumer's motivation to shop and the information load on the Internet could influence evaluation of prices and explain why certain prices would be more acceptable.

Specifically, the results showed that when there was high motivation to shop, an increase in information load led to a high price level of the product being perceived as more valuable and of superior quality. For the same high motivation situation, the low price level of the product showed a pattern of results that was opposite to that for the high price level. In other words, with an increase in information load, price was used more as a heuristic cue and the perceptions of quality and value were guided by the price level of the product and less attention was paid to the monetary sacrifice associated with its purchase. The results also indicated that when the information load was excessive, though the perception of sacrifice for the high price level was high, the attitude towards the product was still more favorable than for the low price level. The effect sizes and the F statistics suggest that the perceptions of sacrifice guided the evaluations of value when the information load was ideal but the perceptions of quality influenced the perceptions of value more when the information load was excessive. These results are consistent with our conceptualization that when information is systematically processed, as was the case when the information load was ideal, price was used more to evaluate the monetary sacrifice than the product's quality. This resulted in a more favorable evaluation for the low price level. However, when this information load increased, price information was processed heuristically to determine the product's quality, resulting in the high price level being perceived higher in quality and value than the low price level.

On the other hand, when the motivation to shop was low, an increase in information load did not change the perceptions of quality, sacrifice, or value associated with either the high or the low price level. As expected, the high price level was perceived to be of better quality and value than the low price level for the same product.

The results from this study have some interesting managerial implications. For instance, Press (1993) speculated that the Internet as a marketplace has the potential to make markets more efficient. Though such an information-intensive environment might result in a greater probability of better informed consumers, the glut of information is also likely to create an information load for most consumers. The research reported here suggests that this information load on the Internet may be a reason why consumers on the Web may be willing to pay higher prices on the Web. This conclusion is consistent with those of other researchers who found that consumers are willing to pay a higher price on the Web (e.g., Bailey, 1998).

The challenge for low price sellers in this new medium is to present their products in an environment where low price is equated more with low sacrifice rather than low quality, resulting in a more favorable evaluation. Online shopping sites like the one created for this study are likely to overwhelm consumers with information and lead to less favorable evaluations of low price levels for a product. Hence, low price e-tailers need to consider the tradeoff between providing exposure for their products vs. risking an unfavorable consumer evaluation on these online shopping sites. Such e-tailers should consider other opportunities available on the Internet where their products can be made available in a less information-intensive setting, or by more accurately targeting their products (see Hof et al., 2000) using recent developments in technology (see Evans and Wurster, 1999). The topic of marketing on the Internet is still underdeveloped. Further research examining the generalizability of these findings and the validity of the conceptual framework would be useful.

Appendix A. Motivation scenarios

A.1. High motivation

Imagine that you are planning to celebrate the end of the term by having a party with a few of your friends and family at your apartment. One of the events you have planned for this party is watching some of your favorite specials (e.g., "must see TV — *Finales*," sports, movies, "prime time shows," soap operas, etc.). Lately, your television set has been giving you a lot of trouble. Last night while watching your favorite show, the screen went blank and the television stopped working all together. At that time you realized that you would need to buy another television set before the next week's party. *So you decide to actively search for a new television set.*

A.2. Low motivation

Imagine that you are planning to celebrate the end of the term by having a party with a few of your friends and family at your apartment. One of the events you have planned for this party is watching some of your favorite specials (e.g., "must see TV — *Finales*," sports, movies, "prime time shows," soap operas, etc.). Last night while watching TV,

the screen went blank and the television stopped working. However, after fiddling with the remote and some controls the TV came back on. At that time you realized that with your current television being so erratic, you might need to buy another television set in the near future. At that time, you also thought about the party and hoped and prayed that the TV would not "give up on you" — i.e., stop working. At that moment your friend suggested to *browse the Internet for some TVs.*

Perceived quality[a]
(r=.55, P<.001)

The highlighted television (TS 136) appears to be of good quality: *strongly agree*/*strongly disagree*.

From the given description, the workmanship on the highlighted television (TS 136) appears to be *very high*/*very low.*

Perceived sacrifice[a] (Cronbach's α=.85)

I feel that the highlighted television (TS 136) is *very expensive*/*very cheap*.

The offered price for the highlighted television (TS 136) is *very high*/*very low.*

To buy the highlighted television (TS 136) at the offered price I will be spending *a lot of money*/*not a lot of money.*

Perceived value[a] (Cronbach's α=.92, all items used *strongly agree*/*strongly disagree* as the anchor)

The offered price for the TS 136 was appropriate for the attributes it had to offer.

At the offered price, the highlighted television (TS 136) is a very good value for the money.

The highlighted television (TS 136) appears to be a great deal.

At the offered price, the highlighted television (TS 136) is probably worth the money.

The offered price on the highlighted television (TS 136) represents a fair price.

Motivation (Cronbach's α=.90)

How motivated were you to read the descriptions of the various televisions? *Not motivated at all*/*very motivated*

How involved were you while reading the descriptions of the various televisions? *Not involved at all*/*very involved*

How interested were you to understand the descriptions about the televisions? *Not interested at all*/*very interested*

Information load (r=.40, P<.001)

There was a lot of information on televisions in this study: *strongly agree*/*strongly disagree*.

The amount of information on the Internet that I looked at to evaluate the highlighted TS 136 was *too much*/*too little*.

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[a] The three dependent measures were based on Dodds et al. (1991) and Grewal et al. (1998).

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