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Abstract

Consumer satisfaction with Internet shopping has been conceptualized in a variety of ways. Studies in this area remain broad and appear relatively fragmented. In view of this, the purpose of this study is to propose a research framework that integrates both end-user computing satisfaction literature and service quality literature. This framework explicitly considers information quality, system quality, and service quality as the key dimensions of consumer satisfaction with Internet shopping. We believe the research framework and propositions serve as salient guidelines for researchers.

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Research Framework for Consumer Satisfaction with Internet Shopping

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Abstract

Consumer satisfaction with Internet shopping has been conceptualized in a variety of ways. Studies in this area remain broad and appear relatively fragmented. In view of this, the purpose of this study is to propose a research framework that integrates both end-user computing satisfaction literature and service quality literature. This framework explicitly considers information quality, system quality, and service quality as the key dimensions of consumer satisfaction with Internet shopping. We believe the research framework and propositions serve as salient guidelines for researchers.

Keywords: Consumer Satisfaction, Internet Shopping, Information Quality, System Quality, Service Quality, End-User Computing, SERVQUAL, Electronic Commerce.

1 INTRODUCTION

The advent of the Internet has empowered consumers. Consumers can access a virtually unlimited selection of products, brands, and sellers. They can switch brands or try different products in a single click. However, consumers have limited time and unlimited choice. They would naturally stick to the Internet merchants who meet their needs and provide quality services. Recent statistics showed that 80 percent of the highly satisfied online consumers would shop again within two months, and 90 percent would recommend the Internet retailer

to others¹. On the other hand, 87 percent of dissatisfied customer would permanently leave their Internet merchants without any complaints². To thrive in the competitive electronic environment, only customer-centric retailers that develop genuinely customer relationship strategies and effectively manage their customer online shopping experiences would eventually survive.

Satisfaction is one of the most important consumer reactions in Internet shopping, and its importance is reflected in the ability to help build up customer loyalty (Anderson and Srinivasan 2003), enhance favorable word of mouth (Bhattacharjee 2001), lead to repeat purchases (Reibstein 2002) and improve the company's market share and profitability (Reichheld and Schefter 2000). Research into satisfaction with consumer-based electronic commerce is just now emerging in IS journals. Like most areas that are new, researchers have taken different approaches and focused on a variety of aspects in investigating satisfaction with consumer-based electronic commerce. As shown in Table 1, satisfaction has been conceptualized in a variety of ways. For instances, some researchers focus primarily on the impact of consumer perceptions of website characteristics (Ho and Wu 1999, Szymanski and Hise 2000), such as logistical support, security, homepage design, and the like, on customer satisfaction with Internet shopping. These insights into consumer perception help identify features of Internet stores that have considerable impact on building customer satisfaction. There is still no widely accepted consensus on the satisfaction construct. Particular importance for the analysis arises from the fact that a conclusive set of antecedent variables of consumer satisfaction with Internet shopping is missing. Therefore, the key objective of this study is to describe a theoretical-grounded research framework that provides insight into consumer satisfaction with Internet shopping.

2 THEORETICAL BACKGROUND

Given the lack of human-interaction in Internet Shopping, an Internet store becomes a primary user interface to connect Internet retailers with consumers (Benbasat and DeSanctis 2001, Straub and Watson 2001), and consumer perception about Internet retailers is largely built upon their interactions with the websites. In this study of consumer satisfaction with Internet shopping, constructs prescribed by two established frameworks, namely the End-

¹ "Online shoppers indicate satisfaction is key to repeat business" DIRECT Newsline (Dec 29 2002)

² "Customer Experience Management" WebPartner (2002)

User Computing (EUC) Satisfaction and Service Quality (SERVQUAL), are drawn upon in this investigation. Below, the theoretical foundations of the frameworks for assessing consumer satisfaction with Internet shopping are reviewed:

Study	Antecedents of Internet Shopping Satisfaction		Research Method
Abbott et al. (2000)	Accessibility Information Availability Customization/Personalization Speed of Acquisition Security	Atmospherics Service/Experiential Convenience Price across Brands Assortment Physical Presence	Conceptual Study
Cho and Park (2001)	Product Information Consumer Service Purchase Result and Delivery Site Design Purchasing Process	Delivery Time and Charge Payment Methods Ease of Use Additional Information Services	Survey
Eroglu et al. (2003)	Pleasure Attitude	Arousal	Survey
Ho and Wu (1999)	Logistical Support Technological Characteristics Information Characteristics	Homepage Presentation Product Characteristics	Survey
Kohli et al. (2004)	Time Saving	Cost Saving	Survey
Kim and Lim (2001)	Width of Information Update of Information Depth of Information Promptness of Retrieval Speed of Transmission Web Design & Construction Customer Service	Ease of Access Convenience of Use Security of User's Information Reliability of the Site Advertising Entertainment Free Gift	Survey
Lam and Lee (1999)	Business Content Navigation Efficiency Security	Marketing/Consumer Focus Website Design	Conceptual Study
McKinney et al. (2002)	Information Quality Disconfirmation System Quality Disconfirmation		Survey
Reibstein (2002)	Ease of Ordering Product Selection Product Information Product Prices Navigation	On-time Delivery Product Presentation Customer Service Privacy Policies Shipping and Handling	Survey
Shim et al. (2002)	Ease of Contact Customer Service Information	Ease of Access of Product Information	Interview
Szymanski and Hise (2000)	Convenience Merchandising Site Design Financial Security		Survey

Table 1. Selected Studies on Consumer Satisfaction in Internet Shopping

2.1 End-User Computing (EUC) Satisfaction

In the area of Information systems, a rich body of literature exists in the field of end user computing (EUC) satisfaction, which examines the nature of user satisfaction in the context

of using computer application packages. IS researchers have continued to examine user satisfaction in part because it has been widely adopted as an important determinant of IS success (DeLone and McLean 1992, 2003, Rai et al. 2002, Zviran et al. 2003). In the end user computing (EUC) environment, users consume information through direct interaction with application systems. From this vantage point, the phenomenon of end user computing is characterized by both information consumption and direct user interaction (Doll and Torkzadeh 1988). Information quality and system quality, representing semantic level and technical level respectively, are postulated as two key antecedents of user satisfaction (DeLone and McLean 1992). The quality of information is typically evaluated by measuring information attributes. For example, Doll and Torkzadeh (1988) developed a measure that includes content, accuracy, format and timeliness of system output. System quality is mostly represented in prior research by ease of use (Rai et al. 2002).

To a certain extent, Internet shopping may be regarded as a computer application involving interactions with a computer environment. Given the lack of human-interaction in Internet shopping, Internet shopping experiences are heavily relied on the information published on the website, as well as the quality of the system (Chen and Wells 1999, Janda et al. 2002, Szymanski and Hise 2000, Wolfenbarger and Gilly 2001). McKinney et al. (2002) specified web customer satisfaction as impacted by information quality and system quality. In the DeLone and McLean updated IS Success Model (2003), both information quality and system quality remain important within the e-commerce context.

2.2 Service Quality (SERVQUAL)

Satisfaction is one of the most important concepts in marketing, and has attracted a great deal of research interest in the past few decades. Existing customer satisfaction literatures (Anderson and Sullivan 1993; Fornell 1992; Shemwell et al. 1998) highlighted the importance of service quality as an antecedent of customer satisfaction. Service quality is the customers' subjective assessment of the expectations with actual service performance (Parasuraman et al. 1985). The evaluations are not made solely on the outcome of a service, they also involve evaluations of the process of service delivery.

Though we assume Internet shopping as a special type of computer application involving interactions with a computer environment, we cannot simply explain Internet shopping satisfaction in terms of EUC satisfaction dimensions. The subjects in this study are

not just the end-users interacting with the Internet stores, but also the consumers who are engaging in an exchange relationship with the Internet merchants. In this view, it is important to include the components of relationship marketing in the study of Internet shopping satisfaction. The importance of studying service quality in the IS context was recognized in the mid 1990s (Kettinger and Lee 1997, Pitt et al. 1995, and Van Dyke et al. 1997), and thereafter much attention has been devoted to the issue. Given the changing dynamics of the global marketplace and the increasingly intense competition, delivering quality customer services become a differentiating strategy, particularly, in the online environment. Indeed, DeLone and McLean (2003) have recently updated their IS Success Model by adding service quality as an antecedent of satisfaction.

3 RESEARCH FRAMEWORK FOR CONSUMER SATISFACTION WITH INTERNET SHOPPING

The key components of the research framework for consumer satisfaction with Internet shopping can be seen in Figure 1. In fact, these relationships are consistent with the theory of reasoned action (TRA) and theory of planned behavior (TPB), where attitudes about using the system are impacted by beliefs about the system. Our framework suggested that consumer satisfaction with Internet shopping is an attitude that impacted by beliefs about information quality, system quality, and service quality.

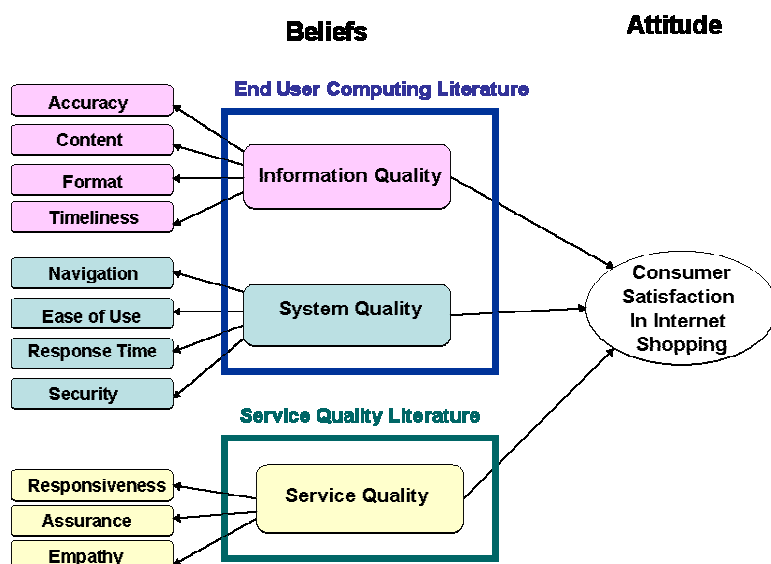


Figure 1. Research Framework of Consumer Satisfaction with Internet Shopping

3.1 Semantic Driver: Information Quality

High information quality has long been found associated with system use, user satisfaction, and net benefits (DeLone and McLean 1992, 2003). Turban and Gehrke (2000) urged that the quality of the web content determines whether potential customers will be attracted to or driven away from the website. Janda et al. (2002) and Szymanski and Hise (2000) suggested that information quality is a strong determinant of consumer satisfaction in Internet shopping. Within the end-user computing context, Doll and Torkzadeh's (1988) End-User Computing Satisfaction (EUCS) measure is probably one of the best known and frequently employed sets in the literature (Chin and Lee 2000). Four out of the five dimensions of EUCS correspond to the information quality construct, including accuracy, content, format, and timeliness, are included in the framework. Detailed descriptions of the four dimensions of the information quality construct are listed in Table 2.

Accuracy of information is concerned with the reliability of website content. Kateranttanakul (2002) urged that the reliability of website content facilitates consumers to perceive lower risks, better justifications for their decisions and ease in reaching the optimal decisions, and in turn affects customer satisfaction and intention to purchase online. This is consistent with the media richness theory (Daft and Lengel 1986) that emphasized the importance of the quality, accuracy, and reliability of the information exchanged across a medium.

Content of information refers to the relevance and completeness of website content. One thing Internet consumers are conscious of is time. Madu and Madu (2002) urged that Internet users rarely read web pages in detail but rather scan the pages to find the information they needed. Consumers want to find the information that they want quickly and with little effort (Nah and Davis 2002). It is therefore important to deliver concise and relevant information on the website. On the other hand, Sullivan (1999) suggested that the more detailed the information provided by Internet retailers, the higher the breadth of user categories and user-orientation of that website, and thus results in a greater likelihood of consumer acquisition and retention. A survey of the usability of e-commerce site by the Software & Information Industry Association³ found that consumers were concerned about their ability to find further information on product and services offered. According to Kateranttanakul (2002), the completed and detailed information should include product price, availability, delivery time,

³ <http://www.siiia.net/>

product differentiation and comparison, new products or most recent product changes, and product picture.

Dimensions	Brief Description	Importance	Supporting References
Accuracy	The accuracy of information on the website.	The reliability of the information affects consumer evaluation of the website and purchasing decision.	Ho and Wu (1999) Janda et al. (2002) Katerattanakul (2002) Madu and Madu (2002)
Content	The relevance and completeness of information on the website.	Providing relevant information can help dispelling concerns or fears about Internet shopping. Also, complete information will allow consumers to make competent and informed decisions about a product, service, or purchase.	Huang et al. (1999) Jarvenpaa and Todd (1997) Katerattanakul (2002) Kim and Lim (2001) Madu and Madu (2002) McKinney et al. (2002) Shapiro and Varian (1999) Waite and Harrison (2002)
Format	The way the information is presented on the website.	The media richness of the Web facilitates the provision of graphics, text, sound, and video, making information attractive as well as useful.	Madu and Madu (2002) Palmer and Griffith (1998) Waite and Harrison (2002)
Timeliness	The timelines of the information on the website.	If the website is not frequently updated, the information becomes outdated and therefore cannot deliver the expected performance.	Janda et al. (2002) Katerattanakul (2002) Kim and Lim (2001) Madu and Madu (2002)

Table 2. Dimensions of the Information Quality Construct

Format of information focuses on how the information presented in the website. At the information searching stage, the search activity is influenced by the degree of difficulty and the amount of time taken (Waite and Harrison 2002). It is therefore important to provide relevant information in a format that maximizes the utility of consumer search activity. The Web is a medium that can provide users/consumers a number of levels of richness, ranging from text-based to multimedia. Media richness theory suggested that the multimedia interactive format provides capabilities richer than the text, making information more attractive and useful to users/consumers (Palmer and Griffith 1998). For example, information can be presented in a stimulating and appealing way with the use of flashy graphics, pop-up windows, online tutorial, and etc. Jiang and Benbasat (2003) suggested that both vividness (the way in which an environment presents information to the senses) and interactivity (the extent to which users can participate in modifying the form or content of a mediated environment in real time) have their impact on consumer attitude toward the website. Teo et al. (2003) found that higher levels of interactivity can increase the

effectiveness and efficiency in delivering relevant information, and therefore enhance user satisfaction with the website.

Timeliness of information concerns about whether the information provided on the website is up-to-dated. Madu and Madu (2002) urged that when the website is not updated promptly, the website cannot deliver the expected performance and therefore provide no added value to consumers.

Proposition 1: Information Quality has significant effect on Consumer Satisfaction in Internet Shopping.

Proposition 2: Accuracy, Content, Format, and Timeliness are the four dimensions of Information Quality.

3.2 Technical Driver: System Quality

System quality is a measure of the information processing system itself, and focuses on the outcome of the interaction between the user and the system. In the context of Internet shopping, system quality is largely characterized by the interaction between consumers and the website (e.g. Information searching, downloading, and doing e-commerce transactions) (Jarvenpaa and Todd 1997). Usability principles rooted in the human-computer interaction (HCI) provide a set of important guidance for the website design. Nielsen (2000) extended the basic usability principles and suggested four design principles specific to the online environment, namely, navigation, response time, credibility, and content. Palmer (2002) highlighted the importance of consistency, ease of use, clarity of interaction, ease of reading, arrangement of information, speed and layout in website design, and suggested that a website with a high degree of usability should generate a desirable perception of its use and an intention to use the site. Building upon the usability research, navigation, ease of use, and response time are postulated as the key dimensions of system quality.

Navigation deals with the sequencing of pages, the organization of layout, and consistency of navigation tools. Usability researchers (Nielsen 2000) suggested that organization and navigation is important to outcomes. Madu and Madu (2002) urged that consumers can be easily turned off when the website is not easy to navigate. Jayawardhena and Foley (2000) advocated that ease of navigation is critical to enhancing customer satisfaction of Internet banking websites. During the information search stage, users/consumers can easily get “lost in space”. Kateranttanakul (2002) therefore suggested several design guidelines for

navigation efficiency. First, the website should facilitate users/consumers to obtain information in the fewest possible steps. Second, hyperlinks should be consistently provided on every web page. Third, the relevancy of hyperlink description and the expected destination should be described. Finally, there should be no broken hyperlink.

Ease of Use has been studied extensively in the context of IT adoption and diffusion (Davis et al. 1989), and it is one of the important measures for user satisfaction, system adoption, or IS success (Moore and Benbasat 1991). In EUC literatures, system quality has been represented by ease of use, which is defined as the degree to which a system is “user-friendly” (Doll and Torkzadeh 1988). In the context of e-commerce, consumers may assess the websites based on how easy they are to use and how effective they are in helping them accomplish their tasks (Zeithaml et al. 2002).

Response Time (Accessibility) refers to the speed of access and information downloading, and the availability of the websites at all times. Within the EUC literature, the speed with which a computer system responds has been argued to be an important factor influencing the usability and emotional responses from users (Chin and Lee 2000). In the e-commerce context, Weinberg (2000) urged that consumer evaluation of a website quality is inversely related to the perceived loading time of the web page. Turban and Gehrke (2000) found that page-loading speed was rated as the most important determinant of successful website design. Therefore, we suggest that the speed of access and information downloading should have strong impact on Internet shopping satisfaction.

In view of the prevailing reports of malicious attacks of security system of websites, consumers start to concern the level of security present when providing sensitive information online. According to PriceWaterhouseCoopers, 79 percent of the respondents cited security as a key barrier to Internet shopping. Theoretical research also indicated the importance of security. For instances, Limayem et al. (2000) found that security concern has a significant impact on consumer intention to shop online. Devaraj et al. (2002) urged that security has been a serious issue in online purchases and an impediment to the acceptance of online purchase. Therefore, in addition to the three key attributes of system quality, security is proposed as another important website feature that helps enhance consumer satisfaction in Internet shopping. In this study, *security* refers to the website’s ability in protecting consumer personal information collected from its electronic transactions from unauthorized use or disclosure. Table 3 summarizes the key dimensions of system quality.

Dimensions	Brief Description	Importance	Supporting References
Navigation	The sequencing of pages, well organized layout, and consistency of navigation protocols	Keeping the navigation simple make it easy for consumers to find the product information and place an order.	Janda et al. (2002) Katerattanakul (2002) Kim and Lim (2001) Lam and Lee (1999) Madu and Madu (2002) McKinney et al. (2002) Nah and Davis (2002) Palmer (2002) Szymanski and Hise (2000)
Ease of Use	The extent to which the website is easy to use and helps consumers accomplish their tasks.	An easy to use website enhances consumer shopping experience.	Gefen and Straub (2000) Janda et al. (2002) Kaynama and Black (2000) Kim and Lim (2001) Yoo and Donthu (2001) Zeithaml et al. (2000) Zeithaml et al. (2002)
Response Time	The speed of access and download information and the availability of the website at all times	The website needs to have consistently download speed. Consumers will abandon the transaction simply because of slow download.	Abbott et al. (2000) Kim and Lim (2001) Lam and Lee (1999) McKinney et al. (2002). Negash et al. (2002) Weinberg (2000)
Security	The website's ability in protecting consumer personal information collected from its electronic transactions from unauthorized use or disclosure.	Privacy and security of online transaction are important to build trust and long-term relationship.	Cheung and Lee (2003) Devaraj et al. (2002) Janda et al. (2002) Limayem et al. (2000) Madu and Madu (2002) Szymanski and Hise (2000)

Table 3. Dimensions of the System Quality Construct

Proposition 3: System Quality has significant effect on Consumer Satisfaction in Internet Shopping.

Proposition 4: Navigation, Ease of Use, Response Time, and Security are the four dimensions of System Quality.

3.3 Relationship Driver: Service Quality

Within the consumer-based e-commerce context (web store), the primary system users are customers. The quality of customer service also plays an important role in determining consumer satisfaction in Internet shopping. Zeithaml et al. (2002) suggested that superior service quality is critical to encourage repeat purchases and build customer loyalty. Devaraj et al. (2002) also found that consumer online shopping experience is dependent on how responsive, concerned, and reliable the online vendors are. SERVQUAL (Parasuraman et al.

1991, 1994), a widely utilized instrument in marketing research to measure customers' expectation and perception of service, identifies five service quality dimensions including, tangibles, reliability, responsiveness, assurance, and empathy. Indeed, Gefen (2002) has adapted the dimensions of SERVQUAL to the study of online service quality. Application of SERVQUAL in the online context is summarized in Table 4.

Dimension	Description	Online Context (Gefen 2002)
Tangibles	The physical environment, such as facilities, equipment, and appearance of personnel.	The appearance of the website: An appealing interface, ease of use, and understandability of the website interface, and the clarity of the purchase procedures are tangible service benefits.
Reliability	The promised service in a reliable and dependable manner.	Providing the service on time and as ordered online.
Responsiveness	The willingness to help and prompt service.	Providing prompt service, helpful guidance when problems occur, and accurate information about the products or service.
Assurance	Knowledge and courtesy of service providers and their ability to provide trust and confidence.	Assurance that the online store is knowledgeable and courteous can be shown through the system's ability to guide the customer through the process, and to supply additional beneficial services. In addition, courteous help-screens, and appropriate error messages and guidance boxes, among other means, can help customers in a manner comparable to guidance signs and instructions in a regular store.
Empathy	The care and individualized attention	Creating a personalized service through customized contents, personal greetings, and individualized e-mail.

Table 4. Five Dimensions of SERVQUAL in the Online Context

When considering the dimensions of the SERVQUAL, tangible and reliability are overlapping with some of the dimensions of information quality and system quality. Therefore, only responsiveness, assurance, and empathy, are included in the research framework.

Responsiveness is a key consumer issue when shopping on the web (Jarvenpaa and Todd 1997). Zeithaml et al. (2002) urged that this construct relates to responses from the Internet stores, when consumers have questions or run into problems. For instances, whether the website can provide prompt service, helpful guidance, and accurate information about the products or services. Watson et al. (1998) referred responsiveness as willingness to help customers, and it can be measured by the time taken before replying to a customer's inquires. Evans and Wurster (2000) and Shapiro and Varian (1999) suggested using feedback features and functions, as well as providing the customers the access to previously asked questions to enhance their online shopping experiences.

Assurance refers to the ability the online stores convey trust and confidence to their consumers. Madu and Madu (2002) argued that the online store must ensure that their employees are knowledgeable about their operation, and courteous in their responses to the customers. Schneider and Perry (2000) suggested some web features that help promote the assurance to consumers. For instances, providing detailed company information (e.g. background, mission statement, announcement, company news), stating regulations or rules of the transactions, and including the third party trust assurances (e.g. consumer union assurance, computer industry assurance). Cheung and Lee (2003) also recommended several guidelines for building trust/assurance, including affiliation with an objective third party, stating the guarantee policy and statement on the website, and maintaining a professional appearance of the website.

Devaraj et al. (2002) examined the consumer satisfaction in EC channel and they found that among the five dimensions of SERVQUAL, only assurance and empathy are significant determinants in explaining EC channel satisfaction. *Empathy* focuses on the care and individual attention to the customers. Providing consumer customized information over the website helps ensure the information provided is concise and relevant. Turban and Gehrke (2000) pointed out that customization of the information helps match consumer interest to the products or services, and thus gives the consumers a value-added experience and enhances their satisfaction and loyalty to the website. Madu and Madu (2002) further contended that offering customized products or services would provide customers the “maximum” convenience - that is the primary thing that most online users looking for.

Proposition 5: Service Quality has significant effect on Consumer Satisfaction in Internet Shopping.

Proposition 6: Responsiveness, Assurance, and Empathy are the three dimensions of Service Quality.

4 CONCLUSIONS AND FUTURE DIRECTIONS

In this study, we have built on current knowledge and outlined a series of research propositions that can move us towards a more comprehensive understanding of consumer satisfaction with Internet shopping. The research framework is one of the very first studies incorporates direct variables from the literatures of EUC satisfaction and SERVQUAL, and helps initiate an integration of cross-disciplinary studies in electronic commerce. The

research framework explicitly considers information quality, system quality, and service quality as key drivers of consumer satisfaction with Internet shopping. The dimensions of the key drivers are carefully identified and analyzed.

Understanding consumer satisfaction with Internet shopping is particularly important because a high level of satisfaction is associated with several key outcomes (e.g. repeat purchase, positive word-of-mouth, and else). In the current study, the dimensions addressed can greatly assist researchers in understanding how consumers generate satisfaction with Internet shopping. Essentially, this framework helps explain three basic issues: (1) What define consumer satisfaction with Internet shopping, (2) how it is formed, and (3) which attributes are relatively important to its formation. Indeed, this integrative framework advances IS research. In addition, our research suggested that theories proposed by different leading researchers can be integrated into one framework so that the understanding and prediction of consumer satisfaction with Internet shopping is far more comprehensively grounded than by using only one line of research.

To conclude, this theoretical framework provides an integration of existing research and a springboard for future systematic research in the area of consumer satisfaction with Internet shopping.

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