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# Toward an Integrative Framework for Online Consumer Behavior Research: A Meta-Analysis Approach

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## ABSTRACT

*The recent failure of a large number of e-tail companies epitomizes the challenges of operating through virtual channels and underscores the need to better understand key drivers of online consumer behavior. The objective of this study was to provide a comprehensive review of the extant information systems (IS) literature related to online consumer behavior and integrate the literature in order to enhance our knowledge of consumer behavior in electronic markets and provide clear directions for future research. This paper introduces a framework that integrates research findings across studies to develop a coherent and comprehensive picture of the online consumer behavior research conducted in the IS field. The integrative framework proposes system quality, information quality, service quality, and vendor and channel characteristics as key factors that impact online consumer behavior, achieving their effects by altering the perceptions of usefulness, ease of use, trust, and shopping enjoyment.*

*Keywords:* Electronic commerce, online consumer behavior, meta-analysis, system quality, information quality, service quality, TAM, trust

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## INTRODUCTION

The Internet offers immense opportunities for companies to reach a wide base of consumers and efficiently market their products through an electronic channel. According to the Boston Consulting Group, online retailing will reach \$168 billion by

2005 (Mark, 2001). Such estimates substantiate that the Internet has emerged as a powerful alternative channel for selling products and services. However, the recent failure of a large number of e-tail companies exemplifies the challenges of operating through virtual channels and also highlights the need to better understand key

factors that drive consumer behavior in online market channels. The infusion of the Internet technology into customer-supplier interactions requires a reconsideration of existing theories and frameworks regarding consumer behavior. Explicit attention should focus on understanding the factors that can explain a consumer's interaction with the technology, their purchase behavior in electronic channels, and their preference to transact with an electronic vendor on a repeat basis.

Although online consumer behavior has been the subject of considerable research in the last few years, there is a paucity of research that attempts to integrate research findings across studies. Online consumer behavior research is a young and dynamic academic domain that is characterized by a diverse set of variables studied from multiple theoretical perspectives. Researchers have relied on the Technology Acceptance Model (Davis, 1989; Davis et al., 1989), the Theory of Reasoned Action (Fishbein & Ajzen, 1975), the Theory of Planned Behavior (Ajzen, 1991), Innovation Diffusion Theory (Rogers, 1983, 1995), and Flow Theory (Csikszentmihalyi, 1988) in investigating consumers' adoption and use of electronic commerce. Studies have examined various aspects of consumer behavior such as Web site use, future use, purchase, future purchase, unplanned purchase, channel preference, and satisfaction. In terms of explanatory factors that drive such behavior, researchers have explored the role of attributes of the Web site, attributes of the vendor, consumer characteristics, individual perceptions, and the social context (Agarwal & Karahanna, 2000; Agarwal & Venkatesh, 2002; Gefen & Straub, 1997; Gefen & Straub, 2000; Jarvenpaa et al., 2000; Koufaris, 2002; Limayem et al., 2000; Moon & Kim, 2001; Torkzadeh & Dhillon, 2002). While these

studies individually provide meaningful insights, a single study does not resolve a major issue (Hunter & Schmidt, 1990). By integrating research findings across multiple studies, we can accumulate knowledge, develop a comprehensive understanding of the phenomena, and identify remaining research issues.

The objective of this study is to provide a comprehensive review of the extant information systems (IS) literature related to online consumer behavior and rigorously integrate the literature in order to enhance our knowledge of consumer behavior in electronic markets and provide clear directions for future research. To that end, we not only review and analyze studies that have been published in the major IS journals, but we also propose an integrative framework that describes the relationships between key variables that predict and determine consumer behavior in electronic channels. Such an approach should provide insights on factors that need to be carefully considered by companies starting or operating electronic businesses as well as researchers developing and testing models to further understand online consumer behavior.

## STUDY APPROACH

A set of sampling criteria was initially determined in order to identify the studies that formed the foundation for our research endeavor. First, we decided to include only those studies that have been published in major journals within the IS domain. Second, only studies published between 1995 and 2002 were included for further consideration. Third, we limited our focus to those electronic commerce studies that were conducted at the individual level unit of analysis. Hence, consumers or users of Web technologies were the main subjects

in these studies. Fourth, for a study to be included, it had to be based on empirical (quantitative) analysis. This allowed us to focus on empirically tested constructs and relationships rather than those that have only been conceptualized.

Based on the stated criteria, we conducted a thorough search of the following major IS journals: *Communications of the ACM*; *Decision Sciences*; *Decision Support Systems*; *IEEE Transactions on Systems, Man, and Cybernetics*; *Information Systems Research*; *Information Technology and Management*; *Information and Management*; *International Journal of Electronic Commerce*; *Journal of End User Computing*; *Journal of Management Information Systems*; and *MIS Quarterly*. These journals were con-

sidered to be mainstream IS journals that are appropriate outlets for research on online consumer behavior. Studies were located via computer searches of large bibliographic databases (UMI-Proquest and ScienceDirect) and by manually scanning the journals. Upon completion, a total of 42 nonredundant papers were identified for inclusion.

As shown in Table 1, the most popular outlets for online consumer behavior research were *Information Systems Research* (11 articles), *International Journal of Electronic Commerce* (11 articles), and *Information and Management* (9 articles). Two recent special issues on e-commerce metrics were the main sources of the *Information Systems Research* articles. While the number of articles published each year was increasing over time, most articles were published in 2000 and thereafter (7 articles before 2000, 7 articles in 2000, 7 articles in 2001, and 21 articles in 2002).

Two researchers read each of the papers and independently coded and tabulated the following items in independent tables: methodology, sample size, sample source, independent and dependent variables, task, theory basis, and study findings. The coders then met to compare the tables and resolve the discrepant cases in order to reach a consensus in their categorization and tabulation as shown in Table 2. The overall inter-rater agreement between the two coders for the categorization of study methodology, sample source, theory basis, and task was 94%. Analysis showed that the most common research method is survey (23 studies), followed by laboratory experiments (15 studies), combined approaches (3 studies), and secondary data analysis (1 study). Half of the studies used consumers and the other half used student (including undergraduate and graduate) subjects as the source of samples. A total

Table 1: Number of Online Consumer Behavior Studies Published in IS Journals

Journals	Count
Information Systems Research	11
International Journal of Electronic Commerce	11
Information & Management	9
Communications of the ACM	3
MIS Quarterly	2
IEEE Transactions on Systems Man and Cybernetics	2
Journal of Management Information Systems	1
Information Technology and Management	1
Decision Support Systems	1
Journal of End User Computing	1
Total	42

Table 2: Summary Review of Online Consumer Behavior Literature

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
1997	Jarvenpaa & Todd	Experiment	220	Primary household shoppers	Product perceptions, shopping experience, customer service, & consumer risk	Attitude and intentions toward electronic shopping	N/A	Retail patronage (Arnold et al., 1978)	Product perceptions, shopping experience, and customer service were found to affect consumer behavior.
1998	Agarwal & Parasad	Survey	175	Part-time MBA students	Computer playfulness & personal innovativeness	Acceptance behavior	N/A	TAM (Davis 1989) & Innovation diffusion theory (Rogers, 1983)	Personal innovativeness construct was developed and validated and was proposed to affect individual perceptions about a new IT.
1998	Liang & Huang	Survey	85	Internet users	Uncertainty, asset specificity & transaction cost	Perceived acceptance of electronic channel	Product purchase: books, shoes, toothpaste, microwave & flower	Transaction cost economics (Williamson, 1979, 1985)	Experienced shoppers were found to be more concerned about the uncertainty in electronic shopping, which subsequently increased transaction costs and reduced acceptance of electronic channels.
1998	Parthasarathy & Bhattacharjee	Survey	145	Consumers	External influence, interpersonal influence, utilization, usefulness, ease of use, compatibility, & network externality  Time of adoption, external influence, interpersonal influence, & utilization	Discontinuers and continuing adopters  Discontinuer type: replacement Vs disenchantment	Evaluation of an online service	Innovation diffusion theory (Rogers, 1983; Brancheau & Wetherbe 1990)	External influence, interpersonal influence, utilization, usefulness, compatibility and network externality were found to be the distinguishing factors between discontinuers and continuing adopters. Time of adoption, interpersonal influence and utilization explained whether discontinuation results from replacement or disenchantment.
1998	Westland & Au	Experiment	116	Under-graduate students	Catalog look up interface, bundles (pre-selected assortment or kits) and virtual reality based store fronts	Money spent, time spent & number of items	N/A	Virtual reality shopping behavior (Burke, 1996)	No difference was found in the amount of money spent or item purchases by customers interacting with three different types of Web interfaces, but subjects did spend much more time while interacting with a virtual reality interface.
1999	Bellman, Lohse, & Johnson	Survey	10,000	Household shoppers	Looking for product information, wired lifestyle, discretionary time, email use, demographic variables (gender, education, age, income) & privacy	Online purchase & annual online spending	N/A	Shopping behavior life cycle (Rich, 1968)	Wired life style and time starvation were found to be the most important predictors of online purchase behavior. Privacy and security issues were important but were becoming increasing less important predictors of online shopping.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
1999	Kraut, Mukhopadhyay, Kiesler, & Scherlis	Experiment	229	Household members	School days percent of week, race, gender, generation, gender* generation, sociability, computer skills, period (0-26 weeks and 27-56 weeks), sample (high school or comm. org), other family member's Internet hours, period*computer skills, period*other family members use of email, & period*other family members' use of Web	Total number hours connected to the Internet	N/A	Innovation diffusion theory (Rogers, 1983)	Race, gender, computer skills, and Web use by other family members were related to Web use behavior. The use of email and Web declined over time but the drop in Web use was steeper. Those who used email more than the Web were also more likely to continue using the Internet over the course of a year.
2000	Agarwal & Karahanna	Survey	288	Students	Temporal dissociation, focused immersion, heightened enjoyment, control, curiosity	Behavioral intentions to use the Web	N/A	TAM (Davis, 1989) & Flow theory (Csikszentmihalyi, 1988)	Scales for cognitive absorption using the Web as the target technology were developed and validated. Cognitive absorption was found to impact usefulness and ease of use.
2000	Grazioli & Jarvenpaa	Experiment	80	MBA students	Assurance, trust, deception, risk, trust, & attitude	Actual purchase	Product purchase: laptop	Social exchange theory (Cosmides, 1992)	Trust mechanisms and assurance mechanisms enhanced trust and reduced perceived risk. Deception moderated the relationship between assurance mechanisms and perceived risk, impacted trust negatively, and also directly increased perceived risk. Perceived risk and trust were found to determine the consumer's attitude toward online purchase, which subsequently affected willingness to purchase and actual purchase behavior.
2000	Han & Noh	Survey	325	Consumers	Lower level of data security, inconvenient use, unstable system, unsatisfactory purchase, lack of awareness of e-commerce, & social disturbance	Satisfaction, usage, expectation of e-commerce usefulness	N/A	Critical failure factors (Ginzberg, 1981)	Satisfaction was negatively associated with unstable system, lower levels of data security, inconvenient use, and unsatisfactory purchase. Usage was negatively related to unstable system and lower levels of data security. Expectation of e-commerce usefulness was negatively impacted by unsatisfactory purchase, social disturbance, and inconvenient use. Subjects with different levels of experience with online purchases had different perceptions regarding the importance of unstable system, inconvenient use, unsatisfactory purchase, and social disturbance.
2000	Jarvenpaa, Tractinsky, & Vitale	Experiment	184	Undergraduate students	Perceived size, perceived reputation, trust in store, attitude, & risk perception	Willingness to buy	Product purchase: Book, gift, & airline ticket	Trust (Quech & Klein, 1996) & Theory of planned behavior (Ajzen, 1991)	Size and reputation of the Internet stores were found to influence the consumer assessments of the store's trustworthiness, their perceived risk, and their willingness to patronize the store.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2000	Limayem, Khalifa, & Frini	Survey	705	Web shoppers	Personal innovativeness, subjective norms, behavioral control, perceived consequences, & intention	Internet shopping	N/A	Theory of planned behavior (Ajzen, 1991)	Shopping behavior was found to influence intentions and behavioral controls. Intentions were determined by attitudes and were also moderately affected by perceived consequences, personal innovativeness and subjective norms. Attitudes were strongly influenced by perceived consequences and moderately by personal innovativeness
2000	Liu & Amett	Survey	119	Webmasters	Information quality, learning capability, playfulness, system quality, system use, & service quality	Website success	N/A	TAM (Davis, 1989)	Information service quality, system use, playfulness, and system design were found to impact Web site success.
2000	Otto, Naidawi, & Caron	Experiment	60	Under-graduate students	Download time	Web-user satisfaction, format, ease of use, graphics appeal, responsiveness	N/A	User information satisfaction (Doll & Torkzadeh, 1988, 1994)	Delays of 15 seconds or less did not impact a user's overall level of satisfaction.
2000	Vellido, Lisboa, & Meehan	Survey	2,180	Web users	Shopping experience, consumer risk perception, customer service & product perception	Propensity to buy online	N/A	Consumer's reaction to the Web (Jarvenpaa & Todd, 1997)	Shopping experience (compatibility), consumer risk perception (trust and security), affordability, ease of use (effort), and customer service (effort, responsiveness and empathy) were found to be the main predictors of online purchase behavior. Demographic variables such as age, income, and Web usage pattern did not add to the predictive power of the model.
2001	Barnes & Vidgen	Survey	96	Students	Tangibles, reliability, responsiveness, assurance, & empathy	N/A	Evaluation of Web site selling books	SERQUAL (Parasuraman et al., 1988)	WebQual is developed and used to evaluate Internet bookshops' Web site quality.
2001	Griffith, Krampl, & Palmer	Experiment	336	Students	Consumer involvement with retailer's offerings, product evaluation, attitude change	Shopping intentions	Evaluation of Web based and print catalogs	Interface-involvement theory (Reeves & Nass, 1996)	A print physical-medium interface was found to be more effective than a Web-based physical-medium interface in stimulating consumer involvement with retailer offerings and a positive consumer response.
2001	Lee & Turban	Survey	405	Students	Trustworthiness of Internet merchant (ability, integrity and benevolence), trustworthiness of Internet shopping medium (technical competence, reliability, and medium understanding), & contextual factors (effectiveness of third party certification & effectiveness of security infrastructure)	Consumer trust in Internet shopping	N/A	Trust (Mayer et al., 1995)	Merchant integrity was found to be a major positive determinant of consumer trust in Internet shopping, and that its effect was moderated by the individual consumer's trust propensity.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2001	Liao & Cheung	Survey	312	Household members	Price (market participation and retail price), shopping experience, vendor quality, IT education Internet usage, & network speed	Willingness to shop online	N/A	IS and Marketing literature	Transaction security, retail price, and shopping experience were found to negatively impact willingness to purchase on the Internet. Vendor quality, IT education and training, and level of Internet usage were positively related to willingness to purchase. The network speed had no significant impact.
2001	Moon & Kim	Survey	152	Graduate students	Ease of use, usefulness, playfulness & attitude toward use	Behavioral intention to use the Web	N/A	TAM (Davis, 1989)	The study extended and validated the TAM within a Web context by introducing playfulness as a new factor that reflected the user's intrinsic belief in Web acceptance.
2001	Ramaswami, Stader, & Brett	Survey	154	Users of financial services	Agent performance (task and return performance) satisfaction, conflict, knowledge of financial products, confidence in decision making, & time availability	Willingness to use online channel searches for financial information & online-purchase	Purchase product: financial products	Motivation-opportunity framework (Macinnis et al., 1991)	Performance of the agent was related to higher levels of online information search, but did not impact online purchase. Disagreements between the client and the agent acted as an antecedent to use of online channel and online purchase. Knowledge and confidence were not related to information search or online purchases. Willingness to use the online channel was positively related to information search but not actual purchases. Time availability, money, age, and amount of advice by the agent were not found to be significant.
2002	Agarwal & Venkatesh	Survey	1475	Household consumers & investors	Content, ease of use, promotion, made for the medium, & emotion	Website usability	Evaluation of Web sites: airline, bookstore, auto manufactures, and car rental	Human Computer Interaction literature and Microsoft usability guidelines	Content was found to be equally important across all industries and tasks. Customer deemed ease of use to be more important than investors. In contrast, investors found promotion to be more important than customers.
2002	Aladwami & Palvia	Survey	101 127	Students	Technical adequacy, specific content, quality, appearance	N/A	Evaluation of Web site: banks, bookshops, car, and electronics	Web quality literature	Perceived Web quality is conceptualized as consisting of technical adequacy (security, navigation, search facilities), specific content (general information, contact information, policies), content quality (accuracy, completeness, clarity, currency, usefulness, and conciseness), and appearance (attractiveness, colors, multimedia).
2002	Ba & Pavlou	Experiment & Field Study	393	e-Bay's users	Feedback profile, trust in seller	Price premium	Product purchase: auction goods	Literature on trust & rating systems	Appropriate feedback mechanism induced calculus-based credibility trust without repeated interactions between two transacting parties. Trust mitigated information asymmetry by reducing transaction-specific risks, which eventually generated price premiums for reputable sellers.



Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2002	Bhattacharjee	Survey	147	Evening MBA students	Ability, integrity, benevolence & overall trust	Willingness to transact	Product purchase: books and bank account	Nomological model of trust	Scales for ability, integrity, benevolence, and overall trust dimensions were developed and validated within the Web context.
2002	Chau, Cole, Massey, Weiss, & O'Keefe	Experiment & Survey for each study	119 (US A) 150 (Hong Kong)	Students	Culture and purpose of Internet use	Attitude toward Internet use	Evaluation of Web site: automobile (Ford)	Literature on culture	Subjects in the U.S. had a higher level of use of the Web for electronic commerce and information search, while subjects in Hong Kong used the Web more for hobby activities and social communication.
2002	Chen, Gillenson, & Sherrill	Survey	253	Web shoppers	Compatibility, perceived usefulness, perceived ease of use, attitude toward use, & intention to use	Use (purchase or seek information)	Purchase product: multiple (Books, CDs etc.)	TAM (Davis, 1989) & Innovation diffusion theory (Rogers, 1983)	Compatibility, perceived usefulness and perceived ease of use were found to predict attitude toward using a Web site. Compatibility and perceived ease of use also impacted perceived usefulness. Attitude determined intention of use, which in turn predicted actual use.
2002	Chen & Hitt	Secondary Data Analysis	2902	Investors	Demographics, Web site usage, change in usage, use of multiple brokers, Web site quality, product breadth, cost, personalization, ease of use, minimum deposit, & investment in retention	Switching & attrition	Product purchase: use of online brokerage services	Random utility modeling framework (McFadden, 1974)	Usage and change in usage were found to be good predictors of switching and attrition. Site quality, minimum balance requirement and costs also influenced customer behavior. The low minimum balance attracted customers but also subsequently increased their propensity to switch.
2002	Devaraj, Fan, & Kohli	Experiment	134	Consumers	Ease of use, usefulness, uncertainty, asset specificity, empathy, responsiveness, reliability, & assurance	Channel satisfaction & channel preference	Product purchase: books and CDs	TAM (Davis, 1989), Transaction cost economics (Williamson, 1979), & SERVQUAL (Parasuraman et al., 1988)	Technology acceptance and transaction cost economics variables were found to be good predictors of channel satisfaction. Empathy and assurance were the only variables in SERVQUAL that predicted channel satisfaction. It was found that the integrated model that combined the three models provided a better picture of factors that affected channel satisfaction, which impacted channel preference.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2002	Koufaris	Experiment	280	Web shoppers	Product involvement, Web skills, value and non-value added services, & challenges Perceived control, Shopping enjoyment, Concentration, Perceived usefulness, & Perceived ease of use	Unplanned purchases & intention to return	Product purchase: books (bookamillion.com)	TAM (Davis, 1989) & Flow theory (Csikszentmihalyi, 1988)	Product involvement, Web skills, and challenges impact concentration, while these factors along with value and non-value added services impacted shopping enjoyment. None of the variables in the model significantly predicted unplanned purchases. Shopping enjoyment and usefulness were found to be significant predictors of intention to return. It was concluded that the interface and Web functionalities might be equally important to retain a customer as compared with customer service and lower prices.
2002	Koufaris, Kambil, & LaBarbera	Survey	332	Consumers	Search mechanism used, positive challenges, shopping enjoyment, perceived control	Unplanned purchases & intention to return	Product purchase: video (Kozmo.com)	Theory of planned behavior (Ajzen, 1991) & Flow theory (Csikszentmihalyi, 1988)	Perceived control and shopping enjoyment impacted the intention of new Web customers to return, but did not influence repeat customers to return. It was also found that Web store that utilized value added search mechanisms and presented a positively challenging experience improved customer's shopping enjoyment.
2002	Liang & Lai	Experiment	30	Students	Motivators, hygiene factors, & media richness	Purchase from an online store, future visit, & future purchase	Product purchase: books	Online consumer behavior literature	Motivators (search engines, shopping carts), hygiene (security, risk), and media richness (feedback, chat channels) were found to be good predictors of channel choice. Motivators were found to be the most important factors followed by media richness and hygiene factors.
2002	Liao & Cheung	Survey	323	Consumers	Security, accuracy, speed of transaction, user involvement, convenience, ease of use, & experience	Willingness to use e-banking	Product purchase: e-banking	Literature on information technology use and cognitive analysis	Security, accuracy, speed of transaction, user involvement, and ease of use were found to play a significant role in predicting willingness to use Internet based e-banking.
2002	Lu & Lin	Experiment	145	Under-graduate students	Content belief, context belief, infrastructure belief, & customer attitude	Customer loyalty	Evaluation of an e-publishing Web site (News (News))	Rayport & Sviokla model & Theory of reasoned action (Fishbein & Ajzen, 1975)	Content belief, context belief, and infrastructure belief were found to predict consumer's attitude, which subsequently impacted their loyalty. Content belief also had a direct effect on customer loyalty.
2002	McKinney, Yoon, & Zahedi	Survey Experiment	568 312	Students consumers	Web information quality and Web service quality	Web customer satisfaction	Product search: airline tickets	End user satisfaction literature, IS use and success literature, and expectancy disconfirmation paradigm	The difference between information quality expectation and information quality perceived performance led to information quality disconfirmation. Similarly, the difference between service quality expectation and service quality perceived performance led to service quality disconfirmation. Both these factors impacted Web information quality and Web service quality and these factors then determined Web customer satisfaction.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2002	McKnight, Choudhury, & Kacmar	Experiment	1403	Students	Disposition to trust, (control for personal innovativeness), institution-based trust (control for general we experience), trusting beliefs, & trusting intentions (control for perceived site quality)	Trust related behavior	Evaluation of a Web site offering legal advice	Theory of reasoned action (Fishbein & Ajzen, 1975)	The trust construct is proposed and validated as a multi-dimensional construct (disposition to trust, institution-based trust, trusting beliefs, and trusting intentions).
2002	Palmer	Experiment	35 30 35	Undergraduate, graduate, executive MBA students	Download delay, navigation/organization, interactivity, responsiveness, & information/content	Website success	Evaluation of 750 Web sites	Website usability and design literature & Media richness theory	Results from three studies suggested that Web site success was significantly associated with Web site download delay, navigation, content, interactivity, and responsiveness.
2002	Ranganathan & Garapathy	Survey	214	Online shoppers	Information content, design, security, & privacy	Intent to purchase	N/A	Literature on Web site characteristics and functionalities	Information content, design, security, and privacy were found to discriminate between shopper who had high intent to purchase and low intent to purchase. In terms of order of importance, security had the highest ranking followed by privacy, design, and information content.
2002	Slyke, Comunale, & Belanger	Survey	511	Students	Gender, full-time work experience, computer use, major, age, email use, word processing use, Web browser use, prior Web experience, access to credit card and access to the Web	Intention to shop on the Web	N/A	Innovation diffusion theory (Rogers, 1983)	Gender, computer use, email use, prior Web use, and access to credit card were found to be significant predictors of intent to shop on the Web. Men rated compatibility, relative advantage, result demonstrability, and trustworthiness of Web shopping higher, and its complexity lower than did women. It was argued that women viewed shopping as a social activity and were less technology oriented as compared to men.
2002	Stafford & Stern	Survey	329	Students	Affinity with the computer, intention to use, ease of use, perceived usefulness, & involvement	Bid behavior	Product purchase: auction goods	TAM (Davis, 1989), Affinity theory (Rubin, 1981, 1984), & Involvement theory (Zaichkowsky, 1985)	Propensity to bid in on-line auctions was influenced by acceptance of technology, involvement with auctions, and affinity for computers.

Table 2: Summary Review of Online Consumer Behavior Literature (continued)

Year	Cite	Method	N	Sample Source	IV	DV	Task	Theory Basis	Findings
2002	Torkzadeh & Dhillon	Survey	421	Students	Online payment, Internet product choice, Internet vendor trust, shopping travel, & Internet shipping errors  Internet shopping convenience, Internet ecology, Internet customer relation, & Internet product value	N/A	N/A	Keency's (1999) framework	Two sets of measures, means objectives and fundamental objectives, were developed in this study. Means objectives were measured in terms of Internet product choice, online payment, Internet vendor trust, shopping travel, and Internet shopping errors. Fundamental objectives were measured in terms of Internet shopping convenience, Internet ecology, Internet customer relation, and Internet product value.
2002	Zhang & von Duan	Survey	67	Graduate students	Up-to-date, accuracy, multiple sources, easy to navigate, & timely	N/A	Evaluation of a Web site providing news (CNN.com)	Kano model (Kano et al., 1984)	Kano model of quality was used in an exploratory investigation of customer quality expectations of a specific type of cite (CNN.com). It was found that customer's quality expectations changed over time, and thus no single quality checklist would be good for an extended time period.

number of 27,202 individuals participated in the studies that were included in the final set. Laboratory experiment-based studies either used actual Web sites (Web site for books, airline tickets, legal services, automobiles, car rental, etc.) or resorted to simulated replicas of actual Web sites.

Books were the most popular product type used in the studies. Other product types included CDs, airline tickets, used laptop computers, videos, and flowers. In terms of virtual products, legal services, e-banking services, financial products, and news services were employed by the studies. Subjects were typically asked to respond to the instrument based on their immediate prior experience or their general impression regarding behavior in an online environment. The tasks ranged from rating Web site attributes that may influence their behavior to making purchases for a specific product.

## REVIEW OF STUDY FINDINGS

Our review of the 42 studies focused on understanding the interrelationships between the study variables. We first present our review of the study findings organized around three related but distinct categories of the dependent variables of online consumer behavior research: Web use, online purchase, and post-purchase. The Web use category included variables such as current Web site use, future intention to use a Web site, and satisfaction with the use of the Web or Internet-based services. However, if the underlying purpose of use was to "purchase", that behavior was classified in the second category called online purchase. Post-purchase behaviors such as future purchase and satisfaction with purchase were classified in the third category. Following the review, we present the results of our quantitative analysis conducted

for the theoretic models and variable relationships commonly found across studies. Table 3 summarizes the list of study variables for the dependent variables of online consumer behavior research

### *Studies on Web Use*

The Internet has evolved to become a technology that serves multiple needs. Users can access various types of services (such as news, e-banking, information search, etc.). Studies that evaluated use behavior focused on actual use or willingness to use these services. Some studies assessed use of the Internet in general, without contextualizing use for a specific service. The predictors of the use behavior can be segmented into user characteristics, user perceptions, and the social context of the user (Table 3).

## User Characteristics

Two dominant aspects within user

characteristics that have been subjected to empirical analysis are demographic variables and psychographic variables. The demographic variables investigated by studies as predictors of Internet use included race, gender, generation, and culture. The findings supported the notion that the white population used the Internet more than minorities, males were marginally heavier users than females, and subjects younger than 19 years of age displayed a much higher usage behavior (Kraut et al., 1999). Culture (subjects in the U.S. and Hong Kong) not only impacted the use behavior but also influenced the underlying purpose of the use (Chau et al., 2002). The subjects in the U.S. were found to be more oriented toward using the Internet for commerce and entertainment, while subjects in Hong Kong primarily used the Internet for hobbies and social communication. In terms of psychographics, researchers have found that personal innovativeness, playfulness, and computer skill were distal determinants

*Table 3: List of Study Variables for the Dependent Variables of Online Consumer Behavior Research*

Dependent Variable	Consumer Characteristics	Consumer Perceptions	Technology Attributes	Vendor and Channel Characteristics	Social Context
Web Use	<ul style="list-style-type: none"> <li>Race</li> <li>Gender</li> <li>Culture</li> <li>Personal Innovativeness</li> <li>Playfulness</li> <li>Computer Skills</li> </ul>	<ul style="list-style-type: none"> <li>Data and system security</li> <li>Stability of the system</li> <li>Information quality</li> <li>System design quality</li> <li>Responsiveness</li> <li>Ease of use</li> <li>Usefulness</li> <li>Cognitive absorption</li> </ul>			<ul style="list-style-type: none"> <li>Internet use by other family members</li> <li>Promotion of the Web site</li> <li>Influence of relatives and colleagues</li> </ul>
Online Purchase	<ul style="list-style-type: none"> <li>Age</li> <li>Income</li> <li>Education</li> <li>Gender</li> <li>Lifestyle</li> <li>Personal Innovativeness</li> <li>Discretionary time</li> <li>Search for product information</li> <li>Web skills</li> <li>Prior Web use</li> </ul>	<ul style="list-style-type: none"> <li>Perceived consequences</li> <li>Perceived risks</li> <li>Usefulness</li> <li>Ease of use</li> <li>Content quality</li> <li>Service quality</li> <li>Design quality</li> <li>Trust</li> <li>Security</li> <li>Privacy</li> <li>Vendor size and reputation</li> </ul>	<ul style="list-style-type: none"> <li>Website Interface</li> <li>Comparative shopping</li> <li>Assurance mechanisms</li> <li>Web page download speed</li> <li>Value added search mechanisms</li> <li>Shopping carts</li> <li>Feedback mechanisms</li> <li>Chat channels</li> </ul>		<ul style="list-style-type: none"> <li>Social norms (Media and family)</li> </ul>
Post-Purchase	<ul style="list-style-type: none"> <li>Age</li> <li>Education</li> <li>Gender</li> <li>Website usage</li> <li>Accounts with multiple vendors</li> </ul>	<ul style="list-style-type: none"> <li>Data security</li> <li>Inconvenient use</li> <li>Stability of the system</li> <li>Satisfaction with previous purchase</li> <li>Usefulness</li> <li>Ease of use</li> <li>Web site quality</li> <li>Time saving</li> <li>Empathy</li> <li>Assurance</li> <li>Shopping enjoyment</li> </ul>	<ul style="list-style-type: none"> <li>Download time</li> </ul>	<ul style="list-style-type: none"> <li>Breadth of offering by the vendor</li> <li>Minimum deposit required by the vendor</li> <li>Price differential between online and offline channel</li> </ul>	

of use, achieving their effects through ease of use and usefulness (Agarwal & Karahanna, 2000; Agarwal & Prasad, 1998; Kraut et al., 1999; Moon & Kim, 2001).

### **User Perceptions**

User perceptions were widely used as the main variables of interest in a variety of studies. User perceptions regarding lack of data security, instability of the system, information content and accuracy, responsiveness, download delay, navigation, interactivity, system design quality, ease of use, and usefulness were found to be significant predictors of use behavior (Agarwal & Venkatesh, 2002; Han & Noh, 2000; Liao & Cheung, 2002; Liu & Arnett, 2000; Moon & Kim, 2001; Palmer, 2002). In addition, it was found that the difference between expectation and perceived performance regarding Web information quality and service quality significantly explained Web customer satisfaction (McKinney et al., 2002). Factors such as control, curiosity, heightened enjoyment, focused immersion and temporal dissociation collectively proposed as cognitive absorption were also found to influence perceptions such as ease of use and usefulness, which subsequently impacted use (Agarwal & Karahanna, 2000).

### **Social Context**

A limited number of studies has investigated the impact of social context on Web use behavior. Use of the Internet by other family members, external influence (articles, reviews, and promotion of the Web site), and interpersonal influence (relatives and colleagues) were identified as significant predictors of Web use (Agarwal & Venkatesh, 2002; Kraut et al., 1999;

Parthasarathy & Bhattacharjee, 1998).

### *Studies on Online Purchase*

The studies within this category focused on identifying factors that impacted the intention to purchase or the actual purchase behavior. The variables used as predictors of purchase behavior are categorized into consumer characteristics, consumer perceptions, technology attributes, and social context (Table 3).

### **Consumer Characteristics**

Studies found that the higher a person's income, education, and age, the more likely he or she was to buy online (Bellman et al., 1999; Liao & Cheung, 2001). Gender was found to significantly impact perceptions toward shopping through the Web. Women view shopping as a social activity and were found to be less technology oriented compared to men (Slyke et al., 2002). However, researchers have cautioned that demographic variables alone explain a very low percentage of variance in the purchase decision (Bellman et al., 1999). An interesting result that emerged was that consumers that are more likely to buy online have a "wired lifestyle". Such consumers have used the Internet for a long time, received a large number of emails everyday, believed the Internet improves productivity at work, and used the Internet for most of their other activities such as reading news and searching for information (Bellman et al., 1999). Other consumer characteristics, such as personal innovativeness, discretionary time, search for product information, Web skill, Internet self-efficacy, email use, and prior Web use were also found to be predictors of willingness to purchase (Agarwal & Prasad, 1998; Liao & Cheung, 2001; Limayem et al., 2000; Ramasawami et al., 2001). The

impact of those variables on intention to purchase may be mediated through factors such as ease of use, shopping enjoyment, and perceived control (Koufaris, 2002; Limayem et al., 2000).

### **Consumer Perceptions**

Consumer perceptions constituted an important category that influenced purchase related behavior. However, it was also one of the categories that showed a high level of diversity in terms of study variables. Perceived consequences and perceived risk were found to predict purchase behavior (Grazioli & Jarvenpaa 2000; Liao & Cheung, 2001; Limayem et al., 2000). Perceived control and involvement with the product were also found to significantly impact shopping behavior. Consumer perceptions about different types of quality attributes of the Web site and the vendor were also evaluated. Perceptual variables from the Technology Acceptance Model (TAM) (Davis, 1989) and Service Quality (SERVQUAL) (Parasuraman et al., 1988) were examined. The TAM variables of perceived usefulness and ease of use were found to be distinguishing factors between bidders and non-bidders in an online auction context (Stafford & Stern, 2002). The SERVQUAL construct consists of the five sub-dimensions of tangibles, reliability, responsiveness, assurance, and empathy (Pitt et al., 1995), and were often used in a disaggregated fashion resulting in mixed findings. Vendor quality was found to influence willingness to shop online (Liao & Cheung, 2001), and information or content quality was also a predictor of purchase behavior (Jarvenpaa & Todd, 1997; Ranganathan & Ganapathy, 2002).

### **Technology Attributes**

Factors included in this category related to the actual functionalities and at-

tributes of the Web site rather than the perceptions of the attributes. Paper based catalogs were found to generate higher levels of consumer involvement as compared to Web based catalogs (Griffith et al., 2001). No difference was found in money spent or number of products purchased among different interface designs, including catalog interface designs, bundle-based interface designs, and virtual reality-based stores (Westland & Au, 1998). Other attributes of the technology such as comparative shopping, assurance mechanisms, Web page loading speed, value added search mechanisms, shopping carts, feedback mechanisms, and chat channels were found to significantly influence intentions to shop and actual purchase behavior (Grazioli & Jarvenpaa, 2000; Koufaris, 2002; Liang & Lai, 2002; Limayem et al., 2000).

### **Social Context**

Studies in psychology and sociology have presented a wealth of knowledge about how individuals are influenced by the social structures in which they live. Limayem et al. (2000) found that media and family influences significantly affected intentions to purchase while friends' influence did not make a difference.

#### *Studies on Post-Purchase*

The primary dependent variables within this category were satisfaction with purchase, channel preference, switching, attrition, and re-visitation. These variables are grouped into consumer characteristics, consumer perceptions, technology attributes, and vendor and channel characteristics (Table 3).

### **Consumer Characteristics**

Chen and Hitt (2002) was the only



study that investigated the role of user characteristics in determining two types of post-purchase behavior (switching and attrition). The study found that age and education impacted attrition negatively, and that females showed a higher propensity to become inactive users. However, they concluded that demographics overall did not explain much variance.

### **Consumer Perceptions**

In the context of consumer perceptions, researchers found that perceptions regarding data security, inconvenient use, stability of the system, satisfaction with previous purchase, usefulness, ease of use, Web site quality, time saving, empathy, assurance, and shopping enjoyment were significant predictors of channel satisfaction, intention to return, switching, and attrition (Chen & Hitt, 2002; Devaraj et al., 2002; Han & Noh, 2000; Koufaris, 2002; Koufaris et al., 2002).

### **Technology Attributes**

The studies evaluating the role of attributes of technology on post-purchase behavior have yet to identify a significant predictor. No difference was found in Web satisfaction when the download time of the Web page was varied between 0 and 15 seconds (Otto et al., 2000). Chen and Hitt (2002) found no significant relationship between personalization enabled through the Web site and switching behavior.

### **Vendor and Channel Characteristics**

In the context of vendor characteristics, it was found that the breadth of offerings was negatively related to switching behavior, while a greater minimum deposit required to join an online broker reduced

attrition rate (Chen & Hitt, 2002). In terms of channel characteristics, price differentials between online and offline channels were found to be a significant predictor of channel satisfaction and subsequent channel preference (Devaraj et al., 2002).

### *Quantitative Analysis of the Theoretic Models and Study Variable Relationships*

The dominant theoretical model used in online consumer research was the Technology Acceptance Model (16% of the studies) (Davis, 1989), followed by the Theory of Planned Behavior (12%) (Ajzen, 1991), and Innovation Diffusion Theory (7%) (Rogers, 1983, 1995). Other theoretic models or paradigms included Transaction Cost Economics (5%) (Williamson, 1979, 1985), Flow Theory (5%) (Csikszentmihalyi, 1988), SERVQUAL (5%) (Parasuraman et al., 1988), and Involvement Theory (5%) (Reeves & Nass, 1996). These theories were used independently or in combination with each other. An effort to examine the predictive power of different theoretical models proved to be extremely difficult because studies combined variables from different theories and used different dependent variables, thus making the comparison task problematic. An exception is the study conducted by Devaraj et al. (2002), which compared three alternative models and found that TAM explained the most variance in electronic commerce channel satisfaction (76%), followed by Transaction Cost Analysis (72%) and SERVQUAL (56%).

A meta-analysis of the interrelationships between the study variables was conducted by aggregating the correlation coefficients reported by individual studies. Since path coefficients are influenced by other variables present in the model, methods that rely on correlations are deemed



more desirable (Hunter & Schmidt, 1990). Our review of the 42 studies identified only 17 studies with the correlation table reported in the paper. A subsequent review further showed that there were only eight relationships examined more than once across studies. Table 4 summarizes the analysis results of these common relationships. A weighted average of the correlation coefficients, instead of the simple average across studies, was computed for each relationship to correct for sampling error as recommended by Hunter and Schmidt (1990).

The most commonly studied relationship was found between ease of use and usefulness, with the weighted correlation average of .55. The highest correlation was found between information (or content) quality and system quality at  $r = .70$ , and the lowest correlation was between playfulness and system use at  $r = .26$ . Attitude was correlated with willingness to buy at  $r = .60$ . Intention to use was most correlated with usefulness ( $r = .67$ ), followed by enjoyment ( $r = .59$ ), ease of use ( $r = .51$ ), and perceived control ( $r = .45$ ).

## INTEGRATIVE FRAMEWORK

Figure 1 presents an integrative framework for online consumer behavior research. The framework builds upon prior research and integrates research findings across studies to develop a coherent and comprehensive understanding of the online consumer behavior research conducted in the IS field. The framework is also grounded on several theoretic perspectives developed outside of the online consumer behavior research such as IS success model (DeLone & McLean 1992; Seddon 1997), SERVQUAL (Pitt et al., 1995), and TAM (Davis, 1989; Davis et al., 1989).

Each element of the framework and relationships between them are further described below.

### *Dependent Variables*

Consistent with our review of the online consumer behavior research, the framework groups dependent variables into three categories: Web use, online purchase, and post-purchase. Studies have examined these behaviors independently or in combination with each other. However, an interesting aspect that has not been explicitly addressed in literature is the relationship between these behaviors. The framework proposes significant links between Web use and online purchase, between online purchase and post-purchase, and between post-purchase and use. First, frequent use of the system is likely to lead to online purchasing. Companies on the Internet try to increase traffic and make their Web sites "sticky," so that users can spend more time on the Web. Liang and Lai (2002) report that consumers are more likely to shop at well-designed Web sites. As the customer has to interact with the system to execute an online purchase, the use of the Web site is a crucial precursor to online purchase. Second, online purchase is likely to become a repeated pattern of behavior if customers are satisfied with their purchase. Online purchasing offers the opportunity to assess the quality of product and vendor service, as well as to experience the convenience of online transactions. Thus, the experience from the purchase becomes a determinant of post-purchase decision variables such as channel preference, switching, attrition, and re-visitation. Finally, post-purchase is likely to influence the level of Web use. Customers need to resolve post-purchase issues, receive technical support, and check product updates through the use of the Web. Further, as they are satisfied with the pur-

Table 4: Correlation Values for Common Variable Relationships

	Agarwal & Karahana (2000)	Aladwani & Palvia (2002)	Devaraj et al. (2002)	Jarvenpaa et al. (2000)	Koufaris (2002)	Liu & Arnett (2000)	Lu & Lin (2002)	Parthasarathy & Bhattacharjee (1998)	Stafford & Stern (2002)	Weighted Average
Study Sample Size	270	127	134	184	280	119	145	145	329	
Attitude vs. Willingness to Buy				.55			.67			.60
Control vs. Intention to Use	.52				.39					.45
Ease of Use vs. Intention to Use	.57				.47			.49		.51
Ease of Use vs. Usefulness	.55		.80		.68		.23	.49		.55
Enjoyment vs. Intention to Use	.56				.62					.59
Information Quality vs. System Quality		.76				.64				.70
Playfulness vs. System Use	.28					.21				.26
Usefulness vs. Intention to Use	.65				.62			.73		.67

chase, they will continue using the system to repeat the purchase.

### Mediating Perceptual Variables

Extending the prescriptions of the TAM, which theorizes usefulness and ease of use as fundamental mediating perceptions through which external factors influence usage behavior (Davis et al., 1989), the framework conceptualizes usefulness, ease of use, trust, and shopping enjoyment as perceptual variables that mediate the effects of system quality, information quality, service quality, and vendor and channel characteristics. Studies based on Flow Theory have found shopping enjoyment as a mediator between various predictor variables and intention to return (Koufaris 2002; Koufaris et al., 2002). Trust related literature emphasizes trust as a key mediating variable (Bhattacharjee, 2002; Gefen et al., 2003; Grazioli & Jarvenpaa, 2000; McKnight et al., 2002). Relationships between the mediating variables have also been found. The relationship between usefulness and ease of use is well established (Davis et al, 1989; Venkatesh & Davis, 2000). Gefen et al. (2003) found that ease of use, trust, and usefulness are related. However, the relationship between shopping enjoyment and usefulness, while im-

plicitly referred to, has not been empirically examined.

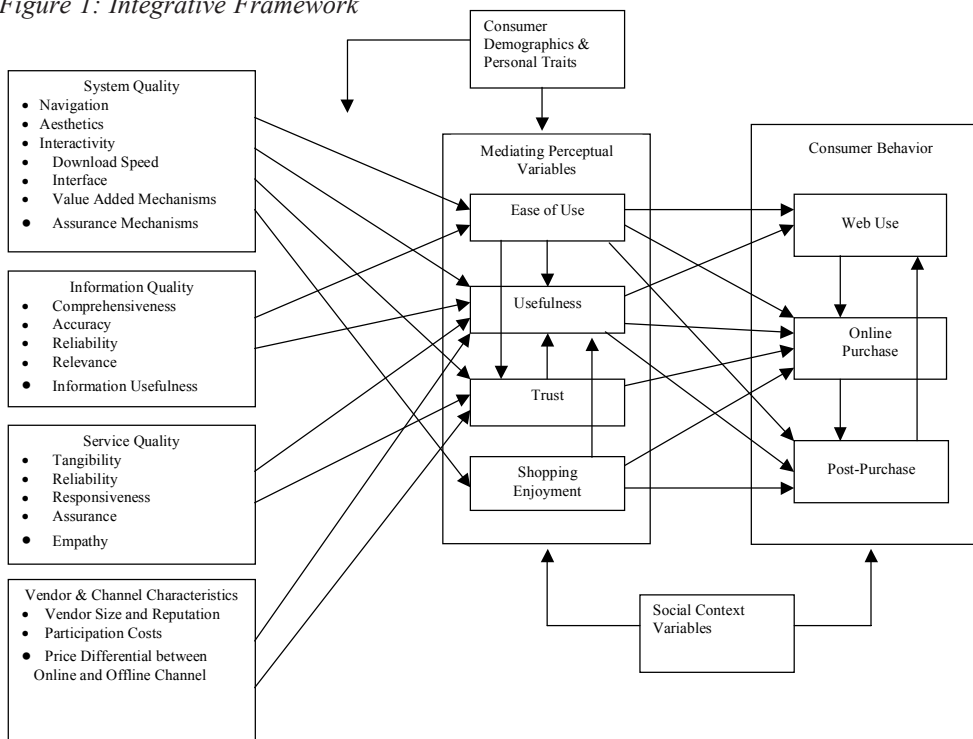
### Predictor Variables

Based on our review of the studies and the theoretical perspectives presented earlier, we propose that many variables used as predictors of online consumer behavior can be classified into system quality, information quality, and service quality. Other factors such as vendor and channel characteristics, consumer demographics and traits, and the social context of the consumer were also addressed in the studies and are included in the integrative framework.

### System Quality

System quality captures the user perceptions regarding the effectiveness of system attributes. The infusion of technology in the interaction between the consumer and the vendor increases the importance of the technology-enabled interface with which the consumers have to interact. Navigation, interface layout, download speed, digital seals, and value added mechanisms are some factors that constitute the notion of system quality (Han & Noh, 2000;

Figure 1: Integrative Framework



Liao & Cheung, 2001; Liu & Arnett, 2000; Westland & Au, 1998).

Koufaris (2002) has found support that value added search mechanisms play a significant role in shaping consumer's intention to return to the Web site and shopping enjoyment partially mediates the effect. Anecdotal evidence suggests that high performing companies are actively pursuing enhancements in Web site features and services that facilitate the consumer purchase experience (Zbar, 2000). Schubert and Selz (1997) structure an extensive list of Web site features into three phases common to purchase transactions (information phase, agreement phase, and settlement phase). TAM suggests that system features affect use through the perceptions of ease of use and usefulness (Davis et al., 1989). Therefore, the framework proposes that system quality influences online consumer behavior by altering consumer perceptions of ease of use, usefulness, trust, and shop-

ping enjoyment.

### Information Quality

Information quality captures the perceptions of the consumer regarding the characteristics of the Web site content such as accuracy, comprehensiveness, reliability, relevance and usefulness. Agarwal and Venkatesh (2002) found that content was equally important across industries (books, airline, car rental, and automotive) and tasks (customer and investor). Although studies suggested that information quality was an important determination of use and user satisfaction, its impact on purchase or post-purchase behavior was found to be rather moderate. For example, Palmer (2002) and McKinney et al. (2002) found that information quality impacted use, while Ranganathan and Ganapathy (2002) concluded that content was the least important discriminator between subjects with

low intent and high intent to purchase. A possible reason for such findings could be the underlying task or product. For example, content may be a dominant factor in the context of Web sites that provide information-based services (news, search, legal counseling, article delivery, etc.), while its role in purchasing physical products may be moderate. Liu & Arnett (2000) found a high correlation between information quality and learning capability ( $r = .72, p < .001$ ). Overall, prior research findings suggest that information quality is an important predictor of online consumer behavior, and its effect may be mediated by user perceptions of usefulness and ease of use.

### Service Quality

Service quality measures the perceptions of the consumers regarding their service experience. The peculiar nature of the technology in question (the Web site) and the context (online consumer behavior) creates complexity in application of service quality in electronic channels. This issue is also prevalent in the context of other information systems as pointed out by Seddon (1997) that the system and the IS department are two different entities. Thus, a distinction needs to be made regarding who is providing the service. If the service is being provided by the Web site, the elements of service quality such as tangibility, reliability and responsiveness will tend to overlap with system quality. However, if the vendor provides the service, service quality should emerge as a distinct factor. This may be one of the reasons for contradictory findings in the studies on dimensions of SERVQUAL. Consequently, we recommend that researchers make a clear distinction regarding the context and apply SERVQUAL with caution. Most prior studies operationalized SERVQUAL as a set

of service functions of a Web site. In our framework, we conceptualize SERVQUAL as vendor's effectiveness in providing customer service, rather than Web site's effectiveness in providing service functions. When a vendor's service quality changes, it is likely to change user perceptions of trust and usefulness, thereby changing the users intentions to buy online. Thus, the framework proposes that the service quality of the vendor influences online consumer behavior through its effects on trust and usefulness perceptions.

### Vendor and Channel Characteristics

Vendor characteristics such as vendor competence, size, reputation, and participation costs have shown consistent results across different studies (Chen & Hitt, 2002; Jarvenpaa et al. 2000). Vendor characteristics such as size and reputation enhance consumer perceptions regarding trust or the integrity of the vendor. Thus, brand issues seem to be as prevalent, if not stronger, in an online context as they are in an offline channel. These results raise concerns regarding the assertions that the Internet provides a level playing field for the companies. It is argued that electronic markets may be more efficient than offline markets (Devaraj et al., 2002). The main arguments presented in favor of such an assertion is that the Internet reduces search costs and makes the delivery processes more efficient, thus resulting in low prices for products. Empirical results show that lower prices play an important role in channel choice decisions (Devaraj et al. 2002; Liao & Cheung, 2001; Liang & Huang, 1998). Furthermore, prior research found that price differentials between online and offline channels (Devaraj et al., 2002) and participation costs (Chen & Hitt, 2002) influenced online behavior. The framework

proposes that these characteristics of the vendor and channel impact online consumer behavior by enhancing vendor trust and perceived usefulness of the channel.

### **Consumer Demographics and Personal Traits**

Factors that constitute demographics and personal traits have either been modeled as facilitating factors of certain types of perceptions or as factors that moderate the relationships between the independent and dependent variables. Three important findings have emerged concerning demographics. First, women have been found to be more conservative customers with respect to electronic channels (Slyke et al., 2002). Multiple arguments have been presented for these results. For example, women view shopping as a social activity, and show conservatism toward trying a new technology. Second, lifestyle has been suggested as an important variable. Researchers have found that a wired lifestyle (Bellman et al., 1999) and a net oriented life style (Kim et al., 2000) play a significant role in determining consumer behavior. Finally, studies have concluded that demographics overall do not explain much variance in behavior (Bellman et al., 1999; Chen & Hitt, 2002). Personal traits such as personal innovativeness, Web skills, Internet computer self-efficacy, and affinity with a computer have consistently been found to be significant variables across the studies.

### **Social Context Variables**

Social context consists of the external influences (mass media, advertising, and marketing related stimuli) and interpersonal influences (word-of-mouth, friends, relatives and other sources involving a

consumer's social network) (Agarwal & Venkatesh, 2002; Limayem et al., 2000; Parthasarathy & Bhattacharjee, 1998). Results were, for the most part, supportive of the significant effects of social context variables on the use of the Internet and online shopping intention. Outside of the online consumer behavior context, Venkatesh and Davis (2000) showed that social norm affected intention to use partially via perceived usefulness. Consistently, the framework includes social context variables as determinants of both perceptual variables and consumer behavior.

## **DISCUSSION**

Online consumer behavior is a complex phenomenon. By taking a meta-analytic approach and integrating previous findings across studies, this study seeks to overcome the inherent limitation of a single study and provide a comprehensive overview of the current status of knowledge within the domain of online consumer behavior research in the IS field. Furthermore, this study offers an integrative framework that is comprehensive enough to facilitate an understanding of how key variables fit together and detailed enough to allow investigation into sub-domains of online consumer behavior. The framework proposes that system quality, information quality, service quality, and vendor and channel characteristics are central variables that predict and determine online consumer behavior, achieving their effects primarily by altering the perceptions of ease of use, usefulness, trust, and shopping enjoyment. In addition, the framework includes individual difference variables and social context variables to further account for their potential influence on mediating perceptual variables and online consumer behavior variables.

Several major avenues for future re-



search emerge from the analysis presented in this paper. First, the relationships between Web site use, online purchase, and post-purchase have not been explicitly investigated. Research projects that focus on this issue can provide meaningful insights into what factors contribute toward converting users to customers and customers to repeat customers. An interesting extension in this regard could also be to investigate the role of services (such as buy online and subsequently pick up or return to the physical store) that leverage both virtual and physical channels in determining purchase behavior, and also the linkage between that purchase experience and post-purchase satisfaction.

Second, the integrative model proposes some new relationships between predicting and mediating variables and between mediating and dependent variables that have not been subjected to empirical examination, and thus provide areas toward which future research can be directed. For example, future research is needed to systematically vary the system quality factors such as navigation efficiency, interactivity, value added mechanisms, and assurance mechanisms, and trace their effects on ease of use, usefulness, trust, shopping enjoyment, and consumer behavior variables. While there are studies that examined the effects of system quality on consumer behavior (e.g., Koufaris, 2002; Liang & Lai, 2002; Limayem et al., 2000), and the effects of perceptual variables on consumer behavior (e.g., Agarwal & Karahanna, 2000; Agarwal & Prasad, 1998; Chen et al., 2002; Devaraj et al., 2002; Grazioli & Jarvenpaa, 2000; Koufaris, 2000; Stafford & Stern, 2002), only one study (Koufaris, 2000) examined the linkages between system quality factors and online consumer behavior via the perceptual variables.

Finally, future research can examine

whether task and product characteristics play a role in the factors that determine online consumer behavior. For example, task type can include information search, purchase, and online service use, while task complexity can range from programmed (routine, structured) task to non-programmed (novel, unstructured) task. Based on this categorization, a matrix for different types of tasks can be developed and subsequently used to identify important variables within a specific task context.

The business to consumer (B2C) segment within electronic commerce is under enormous pressure due to the frequent failures of a large number of e-tailers. By identifying specific variables that impact Web use, online purchase, and post-purchase behaviors of customers, this study provides meaningful guidance to managers seeking to wisely use limited resources to improve online transactions. Given that system quality, information quality, service quality, and vendor and channel characteristics are important drivers of consumer perceptions and subsequent online behaviors, companies should focus on providing consumers with a well-designed Web site, accurate and useful content, high-quality service, and low cost advantage.

Some limitations should be noted. The results and analysis presented in the study were limited to the pool of journals that satisfied our selection criteria. The scope of the study did not include other areas such as Marketing and Human Computer Interaction that have also examined online consumer behavior. In this study, our intention was to understand online consumer behavior from an IS perspective. It should also be noted that the number of studies included in the quantitative meta-analysis performed for the common relationships was rather small. Although we included all the variable relationships examined by more than

one study, due to the lack of the correlation table and incomparable sets of variables, there were only eight relationships based on a limited number of studies. Thus, the results of the meta-analysis should be interpreted with caution and should be expanded by future research.

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## CONCLUSION

The main objective of the present study was to integrate past research that investigated online consumer behavior. Through a rigorous search of several mainstream IS journals, we identified 42 papers. Our review of those papers revealed that the studies could be grouped into three categories based on the dependent variables of the online consumer behavior: Web use, online purchase, and post-purchase. Within each category, we evaluated the factors that were examined as predictors of the behavior. Further, building upon the results of the studies, we developed an integrative framework to provide a holistic perspective on online consumer behavior. This integrative framework is offered as a conceptual map to organize seemingly disparate findings across studies and develop a more coherent and comprehensive understanding of the dynamics involved in online consumer behavior. The framework also serves as a unified source of variables and their interrelationships, stimulating future research on online consumer behavior by drawing attention to the variables and linkages that need further additional investigation.

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