

## Attribute Perceptions, Customer Satisfaction and Intention to Recommend E-Services<sup>☆</sup>

Adam Finn<sup>a,\*</sup>, Luming Wang<sup>a</sup> & Tema Frank<sup>b</sup>

<sup>a</sup> *University of Alberta School of Business, Edmonton, Alberta, Canada T6G 2R6*

<sup>b</sup> *Web Mystery Shoppers International Inc., Canada*

### Abstract

Academic research has focused on the quality perceptions that drive customer satisfaction as the key to achieving e-service success. This paper develops a process-based model that relates perceptions of managerially actionable site characteristics to online satisfaction, which mediates the effects of site characteristics on intention to recommend e-services. A unique data set provided by Web Mystery Shoppers International Inc. ([webmysteryshoppers.com](http://webmysteryshoppers.com)), a market research supplier, enables the model to be refined using data from samples of responses to each of the competitive websites for one financial service, and then to be tested using similar data for another financial e-service and then for a travel e-service. The model, which accounts for most of the variance in online satisfaction and online intention to recommend in the fitted data, is largely confirmed on cross validation. Process evaluations and satisfaction mediate the effects of actionable website characteristics on intention to recommend e-services.

© 2009 Direct Marketing Educational Foundation, Inc. Published by Elsevier Inc. All rights reserved.

*Keywords:* E-services; Web interaction cycle; Intention to recommend; Online customer satisfaction; System disconfirmation; Offering disconfirmation; Website attribute perceptions; Online mystery shopping

### Introduction

Companies have long viewed creating customer satisfaction as an important goal. Satisfaction is seen as the major determinant of subsequent loyalty, with positive consequences for company performance. The literature substantiates the positive effect of customer satisfaction on desirable outcomes. At the customer level it is positively related to various aspects of customer loyalty (Anderson and Sullivan 1993; Szymanski and Henard 2001; Fassnacht and Köse 2007; Blattberg, Malthouse and Neslin 2009), including behavioral intentions (e.g., Mittal and Kamakura 2001; Mittal, Kumar and Tsiros 1999), repeat purchase (Szymanski and Henard 2001), customer retention (Bolton 1998;

Jamal and Bucklin 2006) and share of wallet (Cooil et al. 2007). At the firm level, customer satisfaction is related to profitability (Anderson, Fornell and Lehmann 1994; Bernhardt, Donthu and Kennett 2000), long-term financial performance (Mittal et al. 2005), and shareholder value, through its effects on future cash flows (Anderson, Fornell and Mazvancheryl 2004) that include increased growth and reduced variability (Gruca and Rego 2005).

Customer satisfaction is also an antecedent of positive word of mouth or recommendation (De Matos and Rossi 2008; Swan and Oliver 1989; Zeithaml, Berry and Parasuraman 1996). Consumers often turn to others for a recommendation when they are thinking of purchasing (Punj and Staelin 1983). Word of mouth has been described as a dominant force in the marketplace (Mangold, Miller and Brockway 1999) and the ultimate test of the relationship with a customer (Bendapudi and Berry 1997). Satisfied customers can create a viral effect if they recommend a company to their friends, families, and colleagues (Reichheld 2003).

The Internet is magnifying the availability and importance of word of mouth in the marketplace (Zinkhan et al. 2003; Dwyer 2007; Brown, Broderick and Lee 2007; Dellarcas, Zhang and Awad 2007; Sen and Lerman 2007). Online shoppers view

<sup>☆</sup> Support for this research was provided by a Social Sciences and Humanities Council of Canada Initiative on the New Economy Research Grant. The authors appreciate the valuable suggestions made by the anonymous reviewers. An earlier version of this research was presented at the 2007 Marketing Science Conference, Singapore.

\* Corresponding author. 3-23, University of Alberta School of Business, Edmonton, Alberta, Canada T6G 2R6.

E-mail address: [adam.finn@ualberta.ca](mailto:adam.finn@ualberta.ca) (A. Finn).

eWOM information as more credible, relevant and emphatic than corporate website information (Bickert and Schindler 2001). Dye (2000) attributes much of the success of companies such as Amazon, Google, and Hotmail to word of mouth. Thus Internet companies need to understand how to manage all the stages of the web interaction cycle (Messinger 2002; Farris 2003) to maximize customer satisfaction and encourage recommendation. Although customer satisfaction has been heavily researched in an e-service context, as discussed below, willingness to recommend has received less attention. Understanding the specific factors that influence how consumers interact with an e-service to produce consumer satisfaction and how they relate to willingness to recommend it is of great importance for web site design and management.

The purpose of this research is to develop and test a model that relates actionable site characteristics to intention to recommend e-services, while accounting for the stages in the web interaction cycle and the mediating role of online customer satisfaction. The model in which process evaluations and satisfaction mediate the effects of site characteristics accounts for most of the variation in online satisfaction and intention to recommend in an initial online bank dataset. The model is largely confirmed on datasets for another financial e-service, credit cards, and for a travel e-service, airline tickets.

## Theoretical perspective

### *Online customer satisfaction*

Academic research has typically portrayed the evaluation of customer satisfaction as disconfirmation of expectations (see Oliver 1997 for a full review). In the multi-attribute model of customer satisfaction (Oliver 1997, Ch.2–4; Mittal, Ross and Baldasare 1998), a consumer compares the perceived performance on an attribute with a pre-consumption standard or expectation, formed from prior purchase experience and external information. Overall satisfaction is a function of the extent of the multiple attribute disconfirmations, and mediates their effects on behavioral intentions. The determinants of online consumer satisfaction could be different from those for offline consumer satisfaction (Shankar, Smith and Rangaswamy 2003), as the online consumer is both a shopper and a computer user (Koufaris 2002). Consumers cannot use all five senses to make online purchase decisions; instead, they are confronted by limited representations such as photographs and text descriptions. Therefore, online decisions are also responsive to well designed web pages and powerful web features, such as recommender systems and one-click checkouts (Koufaris 2002).

The dual identity of the online consumer as a traditional shopper and a computer user means that attracting and retaining customers not only depends on marketing appeal, but also on the technical support provided (Straub and Watson 2001). The online customer not only has expectations about the marketing mix (e.g., prices, product assortment), but also has expectations about system issues, such as loading speed. To fully understand online customer satisfaction, we need to look at consumers' interaction with the web site both as a store and as a system interface.

### *Determinants of online service customer satisfaction*

The empirical literature on e-service satisfaction has focused on two questions. First, along what dimensions do customers evaluate an e-service organization? Second, what are the relationships between quality of performance on those dimensions and measures of overall service performance, such as customer satisfaction?

The work on what dimensions are evaluated has generally followed the precedent that SERVQUAL (Parasuraman, Berry and Zeithaml 1988) established for expectations and/or perceptions of service quality (Rowley 2006). Scales such as SITEQUAL (Yoo and Donthu 2001), eTailQ (Wolfenbarger and Gilly 2003) and E-S-QUAL (Parasuraman, Zeithaml and Malhotra 2005) follow the classical test theory approach to scale development (Churchill 1979; Gerbing and Anderson 1988) and treat individual items as reflective of quality dimensions that are identified using exploratory factor analysis. Rowley (2006, Table II) shows the considerable variability in the dimensions identified in 29 such e-service studies published between 1996 and 2006. In order of frequency of appearance, the e-service dimensions identified are site features (used as an umbrella term for such descriptors as site aesthetics, ease of use, ease of navigation, appearance, design, intuitiveness, visual appeal, ease of ordering, structure, and interaction and sensation, which are reported in 25 sources), security (24), responsiveness (15), reliability (13), accessibility (13), information (10), communication (8), delivery (7), personalization (7), customer support (5), and other (18).

Numerous researchers have investigated the contribution such quality dimensions make to measures of overall service performance (Bolton and Drew 1991; Bolton and Saxena-Iyer 2009). Table 1 summarizes the results reported in 17 articles that used a general measure of customer satisfaction as their measure of overall service performance. Most of these studies regress customer satisfaction ratings for a service on customer perceptions of a set of e-service quality dimensions.

The dimensions that were significantly related to customer satisfaction the majority of times they were investigated are reliability (6/7), navigation (5/6), information (12/15), responsiveness (4/5), site design (5/7), customer support (5/7), ease of use (7/10) and security (6/11). These studies rely on retrospective reports, asking about the website experience at the conclusion of the interaction cycle (or sometimes even later). For example, Szymanski and Hise (2000) and Evanschitzky et al. (2004) recruited respondents who reported on their cumulative online experience, and Wolfenbarger and Gilly (2003) used data collected from respondents who had received a physical product purchased from an online store. As a result, these studies have several limitations.

First, there is no recognition of the extended service experience and the multiple stages in the web interaction cycle (Messinger 2002). As a result, the models only consider direct effects on final customer satisfaction, not differential effects at different stages of the interaction with the website. Nor do they consider whether customer satisfaction fully mediates the effects of the quality dimensions on future intentions.

Table 1  
Summary of the effects of e-service quality dimensions on online customer satisfaction.

Sources using an overall measure of satisfaction	Services	Resp	Enjoyment	Aesthetics	Customize	Security	Trust/assur.	Ease of use	Design	Navigation	Intuit/oth.	Reliability	Delivery	Information	Accessibility	Responsive	Cust. support	Other
Szymanski and Hise (2000)	eTail	1c 1007				*** <sup>a</sup>		***	***					***			***	Mix <sup>b</sup> ns
Van Riel, Liljander and Jurriens (2001)	Portal	1 52									**			***			***	
Kim et al. (2002)	B2C	60 16679				*		*	*					*	*		*	
Galan and Sabadie (2002)	Utility	1 216		*						ns		ns		***	ns	***		
Wolfenbarger and Gilly (2003)	eTail	n 1013				ns			***			***				ns		
Balasubramanian, Konana and Menon (2003)	eBroker	29 428					***					***						Mix***
Montoya-Weiss, Voss and Grewal (2003)	Financial	1 1137		ns						***				***				
Montoya-Weiss, Voss and Grewal (2003)	Education	1 493		ns						***				***				
Kim and Stoel (2004)	Apparel	n 273	ns	ns		ns								***				Transactions**
Evanschitzky et al. (2004)	eTail	1c 298				* <sup>a</sup>		***	*					ns				Mix*
Evanschitzky et al. (2004)	Financial	1c 297				ns <sup>a</sup>		***	***					*				Mix ns
Hong and Kim (2004)	Websites	300 2381		***		***				***				*	***			Community ns
Jun, Yang and Kim (2004)	eTailers	n 137				ns	ns	*				***				***	*	
Cheung and Lee (2005)	Portal	1 515						*		***		***		***	ns			Usefulness*
Posselt and Gerstner (2005)	eTailers#	1580 m		*				ns				***		ns			***	Mix***
Trabold, Heim and Field (2006)	eTailers#	726 m				**			***				ns	**		***	***	Mix ns
Flavian, Guinaliu and Gurrea (2006)	B2C	n 351					***											
Bauer, Falk and Hammerschmidt (2006)	eTailers	n 384	*								***	***		**		**		
Kim and Lee (2006)	Penny US	1 278	ns	ns		**	ns	ns	ns		ns			ns	ns		ns	Innovativeness***
Kim and Lee (2006)	Penny Kr	1 347	**	*		ns	ns	ns	ns		ns			ns	ns		ns	Innovativeness ns
Combined (Sign./Total)			2/4	4/8	0/0	6/11	1/4	7/10	5/7	5/6	2/4	6/7	0/1	12/15	4/8	4/5	5/7	

Results from analyses over respondents except where # indicates an analysis over services.

Significance levels \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

<sup>a</sup> Financial security. <sup>b</sup> a marketing mix variable, <sup>c</sup> class of services, n unknown number.

Second, the data are susceptible to halo effects (Nisbett and Wilson 1977; Cooper 1981) in which the respondents' overall evaluation of the service drives their response to the specific items or dimensions that may not have even been observed during the service experience. As a result, the assumed direction of causality from quality dimension to overall customer satisfaction may be invalid.

#### *Intention to recommend*

The importance of word of mouth has generated interest in the use of intention to recommend as a predictor of firm performance (Keiningham et al. 2007b; Morgan and Rego 2006; Reichheld 2003). Some resulting evidence shows intention to recommend predicts firm performance better than customer satisfaction (Keiningham et al. 2007a; Pingitore et al. 2007). To be a superior predictor of future performance, intention to recommend must reflect something that is not already captured in customer satisfaction. Therefore, this paper investigates whether such factors can be identified by modeling customer satisfaction and intention to recommend as distinct concepts that are determined by a customer's interaction with a consumer website.

#### **Theoretical model**

Our model builds on the multi-attribute model of customer satisfaction, in which customer satisfaction is primarily an outcome of the disconfirmation of multi-attribute expectations (see Oliver 1997, Ch 2–4 for a full review). This view holds that for each e-service attribute a consumer compares what is perceived to be received with a pre-consumption standard or expectation, which itself was formed by the consumer utilizing prior online experiences and external information, including word of mouth received from others. Satisfaction is a function of the extent of these multiple attribute disconfirmations. Satisfaction is then the major determinant of behavioral intentions, including the intention to recommend the website to other consumers, mediating the effects of disconfirmation. These generic satisfaction relationships are used to develop our model.

However, a single stage satisfaction model is unlikely to adequately account for the complexity of the e-service shopping experience. First, consumers have expectations about the product offering of an e-service as an alternative to a bricks and mortar supplier, and expectations about an e-service as a software system. Given these are two distinct sources of expectation, we model specific actionable attributes as giving rise to either offering disconfirmation or system disconfirmation. Each of these disconfirmations has an effect on customer satisfaction, which mediates their effects on intention to recommend.

**Hypothesis 1.** System disconfirmation (a) and offering disconfirmation (b) have a positive effect on overall consumer satisfaction with an e-service.

**Hypothesis 2.** Overall satisfaction has a positive effect on intention to recommend.

**Hypothesis 3.** Overall satisfaction mediates the effects of system disconfirmation (a) and offering disconfirmation (b) on intention to recommend.

Second, consumers move through multiple stages of the web interaction cycle, beginning with the home page and proceeding through middle pages, possibly including customer support and a search page, to an ordering page, and finally leaving with some overall satisfaction. Each stage has actionable attributes, creating a stage experience that can provide its own stage specific satisfaction. The effect of attributes could be primarily stage specific, making it necessary to integrate these stages for a valid model of overall satisfaction with the experience. Specific stages have not been investigated, so exactly how they best fit together into an overall model is left open, and our empirical research below is forced to include some exploration as well as theory testing. In principle, the experience at earlier stages in the cycle, such as the home page, could influence subsequent stages, such as ordering, as well as overall satisfaction. Thus, we begin with a tentative structure in which there is a sequential structure for the stage evaluations, and the primacy of initial impression means the response to the home page also influences system disconfirmation. But we explore the modifications needed for the stage structure to fit adequately on part of our data.

#### *Website design effects*

As shown in Table 1, the extensive research which has been done on the drivers of online customer satisfaction has often identified reliability, navigation, information, responsiveness, site design, customer support, ease of use and security as significantly related to overall online customer satisfaction. However, many of these dimensions are measured at a level that limits them from being used by managers or website designers. We expect items that measure website characteristics that are related to these dimensions to help account for customer satisfaction primarily through effects on system disconfirmation as shown in the original core model in Fig. 1. However, we do not expect them to have direct effects only. As a consequence of the customer's multi-stage online experience, some may have their direct effect at an initial stage in the interaction cycle, such as the home page, while others have an effect at a later stage, such as when ordering. Therefore, this research considers the multiple stages of the online interaction cycle, but for data reasons described below, stops at the point where a customer who has filled in an online order form is about to submit the order to the organization. That is, the satisfaction we consider in this research reflects neither the fulfillment process generated by the order nor the outcome of the consumption experience. Previous research, where data were collected from mystery shoppers who had not engaged in a complete transaction, found privacy had a direct effect on behavioral intentions rather than an indirect effect via customer satisfaction (Finn in press). Therefore, we hypothesize one direct effect on intention to recommend.

**Hypothesis 4.** Privacy has a direct effect on intention to recommend an e-service.

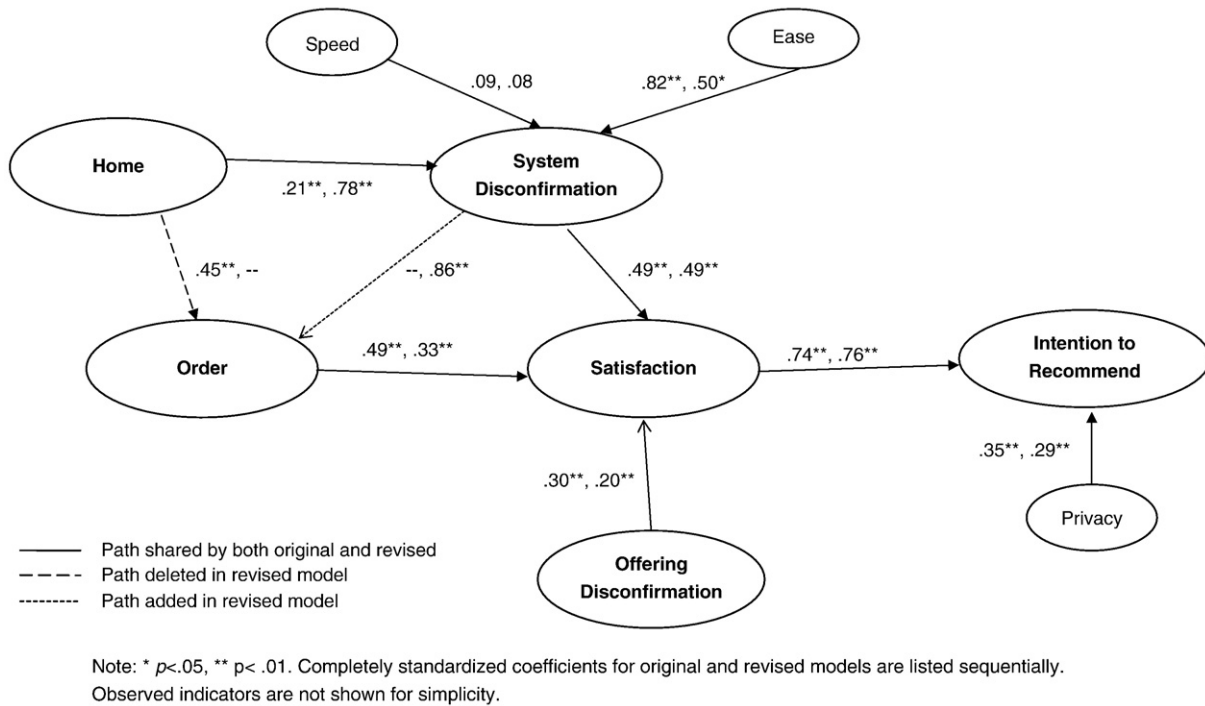


Fig. 1. Original and modified core model for banks.

In summary, the research consists of both confirmatory theory testing and exploratory theory development. We take a confirmatory approach to testing hypotheses 1 to 4, the core relationships proposed for disconfirmation, satisfaction and intention to recommend. Given the limited prior research, we cannot provide specific hypotheses for how the web interaction cycle stages fit into this core model. Rather, we begin with a tentative structure for the stage evaluations, and modify the core model in an exploratory way based on fit to part of our data. Then, we use the remainder of our data to cross validate the modified structure in a full model.

#### Data

The data for the current study were provided by Web Mystery Shoppers International Inc. ([webmysteryshoppers.com](http://webmysteryshoppers.com)), a market research company that conducts online mystery shopping studies. The methodology used is to have mystery shoppers demographically matched to a client's requirements go to a particular site from their own computers at their own preferred time. The mystery shoppers try to accomplish a project specific task at the website, providing structured and unstructured feedback on every page they visit. After examining a page, questions about the page appear for the shopper to answer before being allowed to move on to the next web page. Thus the firm collects answers to structured questions about the home page (10), the customer support (e-mail, phone and online) (12), the ordering process (13), the search function (2), each middle page visited (4), and overall response to the site (15). These questions address both specific page characteristics and overall evaluation at the stage in the interaction cycle.

For the current study the company provided data collected to compare providers in several categories of B2C services. We use data for one financial service, namely banks to test the four core hypotheses and, in the partially exploratory mode, refine a core model with some web interaction cycle stages introduced with a sequential effect on outcome customer satisfaction. Then, we extend the model by incorporating the effects of the available actionable site characteristics. Finally, we cross validate the resulting model for a second financial service, namely credit cards, and then for a travel service, namely airline tickets.

For banks, data were collected for 23 providers from a total of 552 respondents distributed fairly equally across the providers. For credit cards, 455 respondents were distributed over 15 providers, while for airline tickets, 1125 respondents were distributed over 21 providers.

#### Measures

The wording and response format of the items used in the analysis are shown in the Appendix. Single item measures were available for intention to recommend (see [Bhattacharjee 2001](#)) and for satisfaction (see [Oliver 1980](#); [Zeithaml, Berry and Parasuraman 1996](#)). There were identifiable evaluation questions for five intermediate stages in the web interaction cycle. However, the levels of missing data (see the Appendix) were unacceptable for the customer support, search and middle page questions. Thus only the home page and ordering page stages could be incorporated into the model. For the home page, a 3-point item asked whether the mystery shopper would continue exploring the site if they were not doing a test shop. There were two evaluation items for the ordering process.

The data set did not include any measures of the mystery shopper's expectations prior to visiting the websites, so expectations could not be modeled. The data set did include perceptions of two aspects of website system performance, namely loading speed (a single item) and ease of finding things on the site (two items). These performance measures were modeled as exogenous antecedents to system disconfirmation. Consistent with the dual nature of the online service experience, there were separate direct measures of disconfirmation for the website as a system (one item) and for the service selection (two items). Use of such direct measures was supported by Van Dyke, Kappelman and Prybutok (1997) and by marketing studies such as Churchill and Surprenant (1982), Spreng, MacKenzie and Olshavsky (1996) and Cronin and Taylor (1992). Both disconfirmations were treated as antecedents of satisfaction.

The home page was modeled as an antecedent of system disconfirmation and of evaluation of the ordering process. The ordering process was also modeled as an antecedent of satisfaction. Privacy (i.e., the impression created by the whole visit) was modeled as a direct antecedent of recommendation. The a priori core model for the nine constructs accounting for the covariance observed between the twelve observable measures is shown in Fig. 1.

### Analysis

We used structural equation modeling (SEM) to investigate both the core structural model and the full site features model. The full site model introduced site attribute effects using the detailed questions about specific stages. Some questions could not be used because of their high proportion of missing data. Questions with lower levels of missing data were included in the analysis using multiple imputation, which makes full use of the available data and limits bias (Arbuckle 1996, p. 246). We employed the EM multiple imputation option in PRELIS 2.71 to estimate an EM covariance matrix for analysis using ML in LISREL 8.7.1.

To avoid the undesirable effects of unmodeled random measurement error (Rigdon 1994), we specified an a priori reliability of .81 for the single 5-point rating scale items measuring satisfaction and intention to recommend. We chose this relatively high level because the respondents knew they were going to evaluate the website and were used to such questions and five-point rating scales from their everyday life experience. We specified a lower reliability of .64 for the other less familiar constructs with only one observed measure. The specific values reflect the reliability of single items reported in the consumer behavior literature (e.g., Bearden and Teel 1983). For the latent constructs with multiple measures, we estimated the item error variances and item reliabilities empirically.

We supplement the ML exact fit test with several measures of goodness of fit (Hu and Bentler 1995). We report the comparative-fit index (CFI), normed-fit index (NFI), and the root mean square error of approximation (RMSEA). We employ standards consistent with recent work calling for more rigorous assessment of close fit (Hu and Bentler 1999). For CFI and NFI, values higher than .95 are considered indicative of a good fit.

For RMSEA, values of less than .06 are considered evidence of a close fit of the research model to the observed covariance data. The estimates and standard errors of the individual effects and covariances were also checked. None of the standard errors were abnormally large.

## Results

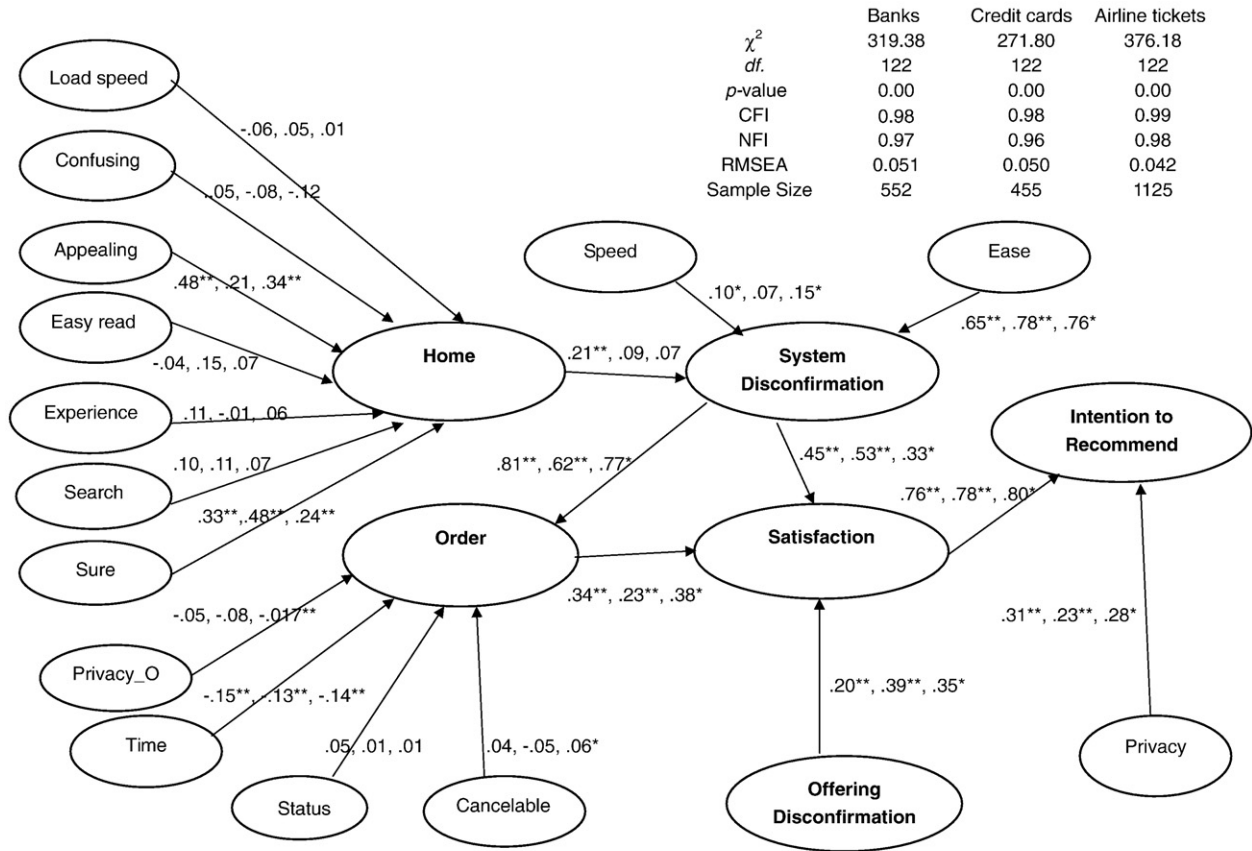
### Core model for banking

As shown in the first set of completely standardized parameters in Fig. 1, hypotheses 1 to 4 for the core relationships for system disconfirmation, offering disconfirmation, customer satisfaction and intention to recommend were all supported. But, the core model with nine latent constructs captured by twelve observed variables was clearly rejected in a test of exact fit ( $\chi^2$  (df=41)=362.41,  $p$ =.00), with other fit indices at levels that were not consistent with close fit (CFI=.96, NFI=.96, RMSEA=.12). We first considered a model in which privacy had a direct effect on satisfaction as well as intention to recommend, but it failed to significantly improve overall fit. Therefore, the LISREL modification indices and standardized covariance residuals were examined to diagnose the most substantive sources of the misfit. This exploratory process identified the effect of the home page on the ordering process as indirect only, through its effect on system disconfirmation.

Fig. 1 reports the LISREL completely standardized parameter estimates for the banking data for this revised structural model as its second set of parameters. This revised model was still rejected in a test of exact fit ( $\chi^2$  (df=41)=84.01,  $p$ =.00), but other fit indices were all quite consistent with close fit (CFI=1.00, NFI=.99, RMSEA=.044). The average reliability for the five-point items that were estimated empirically was .86. Thus, the estimated values were reasonably consistent with the values we had assumed elsewhere in the model. As shown in Fig. 1, all four hypotheses were still supported and the structural relationships were in the expected direction and all except one, loading speed, were significant at the .05 level. The modeled relationships accounted for 94% of variance in satisfaction and 92% of variance in intention to recommend.

### Full site features model

The full model incorporating the effects of 14 site features on the processing stages is shown in Fig. 2. This model failed a test of exact fit ( $\chi^2$  (df=122)=319.38,  $p$ =.00), but other fit indices were at levels consistent with close fit (CFI=.98, NFI=.97, RMSEA=.051). The model accounted for 94% of variance in satisfaction and 91% variance in intention to recommend. As shown by the first set of parameters reported in Fig. 2, the initial visual appeal (Appealing) and clarity of where to click next (Sure) had significant effects on the evaluation of the home page. Anticipated time until delivered (Time) had a significant negative effect on evaluation of the ordering process, and respect for privacy (Privacy) had a significant effect on intention to recommend after controlling for satisfaction.



Note: \*  $p < .05$ , \*\*  $p < .01$ . Completely standardized coefficients for banks, credit cards and airline tickets are listed sequentially. Observed indicators are not shown for simplicity.

Fig. 2. Full site features model for banks, credit cards, and airline tickets.

Cross validation

The full site features model was developed on the banking data using a partially exploratory process. To cross validate the resulting model, we subjected it to full confirmatory testing first on the credit cards data and then on the airline tickets data.

Credit cards

When tested on the credit card data, the full site features model failed the test of exact fit ( $\chi^2$  (df=122)=271.80,  $p=.00$ ), but other fit indices were all at levels consistent with close fit (CFI=.98, NFI=.96, RMSEA=.050). A careful examination of the standardized covariance residuals and the modification indices reported by LISREL provided nothing to suggest that including other direct effects on intention to recommend would significantly improve fit. The completely standardized structural parameter estimates for the model are reported as the second set of parameters in Fig. 2. The model accounted for 81% of the variance in satisfaction and 80% of the variance in intention to recommend. Three of the significant feature effects for banking were also significant for credit cards. Clarity of where to click next (Sure) had a significant effect on the evaluation of the home page;

anticipated time until delivered (Time) had a significant negative effect on evaluation of the ordering process, and respect for privacy (Privacy) had a significant effect on intention to recommend after controlling for satisfaction. Because of a somewhat larger standard error than for other parameters, initial visual appeal (Appealing) failed to reach significance.

Airline tickets

When tested on the airline tickets data the full site features model failed the test of exact fit ( $\chi^2$  (df=122)=376.18,  $p=.00$ ), but other fit indices were again at levels consistent with close fit (CFI=.99, NFI=.98, RMSEA=.042). Once again the standardized covariance residuals and the modification indices reported by LISREL provided nothing to suggest that including other direct effects on intention to recommend would improve fit. The completely standardized structural parameter estimates for the model are reported as the third set of values in Fig. 2. The model accounted for 88% of the variance in satisfaction and 89% of the variance in intention to recommend. All the four significant feature effects for banking were also significant for airline tickets. However there was an additional significant negative effect of asking for unnecessary information when ordering (Privacy\_O) on the evaluation of the ordering process for airline tickets.

## Discussion

The goal of this research was to test hypotheses and develop a model that relates actionable website characteristics to online customer satisfaction and intent to recommend e-services, while accounting for the stages in the web interaction cycle. Our intention was to provide fresh insight into consumer satisfaction and intention to recommend by treating the online service experience as a process consisting of a number of stages, which are experienced and can be evaluated separately.

### *Theoretical contribution*

As a theoretical contribution, we differentiate between online customer satisfaction and online intention to recommend, and propose, refine and cross validate a process-based model in the e-service domain. We apply the multi-attribute model of customer satisfaction (Oliver 1997) to an online context, but differentiate system disconfirmation and offering disconfirmation to explicitly acknowledge the dual nature of online shoppers (i.e., both computer users and shoppers). Thus, we blend theory from psychology, marketing and information systems. Our findings support our hypotheses and confirm the traditional structural relationships in that system disconfirmation and offering disconfirmation both influence customer satisfaction, which mediates their effects on intention to recommend.

However, customer satisfaction is not the only determinant of intention to recommend. Online service technology creates information security and privacy issues that have more complex effects on customer satisfaction and intention to recommend. For airline tickets we found a negative effect of asking for what is considered to be unnecessary information (Privacy\_O) on the evaluation of the ordering stage, and through it, on customer satisfaction. However, respect for privacy (Privacy) was also confirmed to significantly and directly affect intention to recommend when controlling for customer satisfaction.

Technology in general and the Internet in particular have become integral parts of the marketplace. Customers are increasingly offered the option of serving themselves through the use of technology. Our model provides information that may help technology providers understand how the online shopping process is structured and help them improve the technology they offer.

In accordance with early research that demonstrated the utilitarian nature of online consumers (Jarvenpaa and Todd 1997), we found that both perceived ease of use and loading speed have significant effects on customer satisfaction via system disconfirmation. However, we also found that the initial visual appeal of the website can also have a significant indirect effect on customer satisfaction via home page, system disconfirmation and the ordering process. These results support the Koufaris' (2002) finding that online shoppers are not purely utilitarian, valuing only efficiency in shopping, but they may also enjoy shopping online.

Our results also draw attention to the interaction between website and online shoppers. We found clarity of where to click next (Sure) had a significant effect on the evaluation of the

home page, whereas availability of a site search tool (Search) was not significant. This emphasizes the importance of the role of human–computer interaction. Researchers have long believed that improved interactivity should guide technological development of the Web (e.g., Ha and James 1998). Ghose and Dou (1998) noted that the higher the interactivity level of a website, the more attractive it is. However, the level of interactivity needs to reflect users' available bandwidth and skills (Hoffman and Novak 1996). Too much interactivity may compromise access speed and so soon wear out its welcome.

Using a banking data set collected at different stages of the online shopping process and applying a process-based model represents a systematic attempt to understand how different stages of the online shopping process and website characteristics within each stage affect online shoppers' satisfaction and intention to recommend. This approach has the advantage of examining the interaction between online shoppers and websites. The work represents an attempt to move from a static to a more dynamic model by collecting process tracing data and fitting a process model within a one-wave data collection.

When cross validated using structural equation modeling, the process-based model developed on banking websites provides a good fit to data for both another financial service in credit card websites and to data for a travel service in airline ticket websites. Moreover, the model accounts for much of the variation in the online consumers' satisfaction and intention to recommend the websites. Our findings have significant implications for practitioners who are seeking to increase the volume of online shopping and are eager to know how to satisfy online consumers.

### *Managerial implications*

From the results of the current study, it is apparent that online consumer satisfaction is formed during the interaction between consumers and components of the web site: home page, ordering process and overall evaluation. From the revised core model, we can see that the response to the home page has a significant direct effect on system disconfirmation, which in turn has both a positive direct effect on online consumer satisfaction and a positive indirect effect on customer satisfaction via the ordering process. Response to the ordering process has a positive direct effect on customer satisfaction. From the full site features model, the initial visual appeal (Appeal) and clarity of where to click next (Sure) on the home page have significant effects on the evaluation of the home page.

This suggests that making a service website functional is not enough for online service customers. They are concerned about aesthetics. They respond positively to websites that are not only functional, but also visually appealing. Designers of e-service websites need to consider how to make their web pages more attractive than those of their competitors. Online shoppers also need to be sure where to click next to reach the information they want. Therefore aesthetic improvements should not be at the expense of clarity of navigation into the website.

At the ordering stage, online shoppers are very concerned about how long it will take to get what they order. But, the



shoppers' evaluation of the ordering process does not only depend on the characteristics of the ordering page. Disconfirmation of expectations about the web design carries over to the ordering page and directly influences their overall evaluation of the ordering process.

Privacy has the expected direct effect on intention to recommend even after controlling for customer satisfaction. People talk and share shopping experiences with each other. When managers take this social network effect into consideration, more concern for the need to protect customers' privacy may increase the probability of existing customers bringing more business to the company. This finding may justify the extra expense incurred to address the privacy issue.

Traditional reliance on customer satisfaction as a firm performance measure doesn't address the fact that in addition to their own future buying, customers can influence others to buy too. Customer recommendation can take the customer network effect into consideration. The marketing literature has acknowledged the existence of these network effects, and pointed to the importance of recommendation. Our work identifies privacy as particularly important for a satisfied customer to recommend the service to others.

#### Limitations and future research

One limitation of this research is its reliance on secondary data. The research instrument was designed to address specific

managerial questions, not to operationalize theoretical concepts for structural equation modeling. The available measures do not capture all of the constructs it would be useful to model, and sometimes do not fully capture those that are modeled. Additional measures would eliminate the need to assume a level of reliability for measures of constructs such as customer satisfaction and intention to recommend. The samples used for the data sets could also be a limitation. The web mystery shoppers who are sent to a website are selected to match customer demographics, but they may not match the customers who are attracted to a website through normal marketing activities on other consumer characteristics. For example, mystery shoppers and customers could differ in their comfort level with e-commerce (Devaraj, Fan and Kohli 2002). Third, final satisfaction and intention to recommend may also depend on the outcome of the ordering process or experience with returns or exchanges, or may even develop over multiple visits or transactions. It is hard to model such effects adequately using data collected during a single visit; even one that recognizes a visit is a multiple stage process. This may raise an interesting research question for future research.

This research has provided initial insight into factors that are significant antecedents in a process-based model of online shopper satisfaction and intention to recommend. However, stages such as customer support, search, and site middle pages remain to be investigated. We hope this work will spur further research on extensions in these areas.

#### Appendix. Model constructs and questionnaire items

Interaction cycle stage	Question name	Question description	Percent of missing data		
			Bank	Airline ticket	Credit card
Home page	Loading speed	This page loaded: 1=very slowly, 5=very fast	1.8	2.1	2.4
	Confusing	At first glance, this page looks: 1=very confusing, 5=not confusing at all	.7	.6	.9
	Appealing	At first glance, this page looks: 1=unappealing; not tempting to spend time at, 5=appealing; very tempting to spend time at.	.4	.5	1.1
	Easy read	The words on this page are: 1=very difficult to read, 5=very easy to read	.7	1.4	1.5
	Experience	Have you visited other sites offering similar products or services? 0=no, 1=unsure, 2=yes	.4	.5	1.7
	Search	Can you search the site from this page? 0=no, 1=unsure, 2=yes.	.5	1.4	2.6
	Sure	How sure are you of where to click next to get the information you want? 1=Not at all sure, 5=Extremely sure.	.4	.7	2.6
	Home	If you were not doing a test shop but where looking for this type of product or service, would you at this point continue exploring this site? 0=no, 1=unsure, 2=yes	1.4	.6	2.4
	Customer support	12 items not used because of levels of missing data			
	Ordering process	Order (Measure 1)	Overall, how do you rate the process of placing an order at this site? 1=not at all positive, 5=extremely positive	19.7	11.1
Order (Measure 2)		How efficient was the process for placing your order? 1=not at all efficient, 5=extremely efficient.	21.6	11.1	4.9
Privacy_O		Did the order form(s) ask for information you think they should not be asking for? 0=no, 1=unsure, 2=yes	26.1	12	6.3
Time		If you had sent the order, when would you expect your order be delivered? 1=one day, 7=seven days	13.4	11.3	7.7
Status		Does the site let you check on the status of your shipment? 0=no, 1=unsure, 2=yes	62.7	24.8	27.8
Search function	Cancelable	Can you cancel an order after placing it? 0=no, 1=unsure, 2=yes	52.4	13.8	27.1
	Middle pages	2 items not used because of missing data			
		4 items per page not used because of missing data			

(continued on next page)

## Appendix (continued)

Interaction cycle stage	Question name	Question description	Percent of missing data		
			Bank	Airline ticket	Credit card
Overall	Satisfaction	Overall, how would you rate your experience on this site? 1=not at all positive, 5=extremely positive	.5	.5	1.3
	Offering disconfirmation (Measure 1)	How did its selection of products or services compare to what you'd expect on such a site? 1=much less than what I'd expect, 5=much more than what I'd expect.	1.1	.9	.4
	Offering disconfirmation (Measure 2)	How did its selection of products or services compare to what you want on such a site? 1=much less than what I'd want, 5=what I'd want, and even more	1.4	1.5	1.3
	Ease (Measure 1)	How easy was it to find what you were looking for on this site? 1=not at all easy, 5=very easy	.7	.6	.7
	Ease (Measure 2)	How quickly could you find what you were looking for on this site? 1=not at all quickly, 5=very quickly	.5	.7	1.1
	Speed (Speed)	Overall, did it take a reasonable length of time for this site's pages to become readable on your screen? 1=no, it was way too slow, 5=yes, they become readable very quickly	.2	.3	.9
	System disconfirmation	In general, did you get what you expected when you clicked on things in this site? 1=no, I often got something different from what I expected, 5=yes, I almost always got what I expected	.2	.6	.2
	Privacy	Do you feel confident that this organization will respect your privacy? 0=no, 1=unsure, 2=yes	2.7	1.9	.7
	Recommendation	Would you recommend this site to a friend? 1=absolutely not, 5=definitely	1.1	.3	1.1

## References

- Anderson, Eugene W., Claes Fornell, and Donald R. Lehmann (1994), "Customer Satisfaction, Market Share and Profitability: Findings from Sweden," *Journal of Marketing*, 58 (July), 53–66.
- , Claes Fornell, and Sanal K. Mazvancheryl (2004), "Customer Satisfaction and Shareholder Value," *Journal of Marketing*, 68 (4), 172–85.
- and Mary W. Sullivan (1993), "The Antecedents and Consequences of Customer Satisfaction for Firms," *Marketing Science*, 12 (Spring), 125–43.
- Arbuckle, James L. (1996), "Full Information Estimation in the Presence of Incomplete Data," in *Advanced Structural Equation Modeling: Issues and Techniques*, George Marcoulides and Randall E. Schumacker, eds. Manwah, NJ: LEA, 243–77.
- Balasubramanian, Sridar, Prabhudev Konana, and Nirup M. Menon (2003), "Customer Satisfaction in Virtual Environments: A Study of Online Investing," *Management Science*, 49 (July), 871–89.
- Bauer, Hans H., Tomas Falk, and Maik Hammerschmidt (2006), "eTransQual: A Transaction Process-based Approach for Capturing Service Quality in Online Shopping," *Journal of Business Research*, 59 (July), 866–75.
- Bearden, William O. and Jesse E. Teel (1983), "Selected Determinants of Consumer Satisfaction and Complaint Reports," *Journal of Marketing Research*, 20 (February), 21–8.
- Bendapudi, Neeli and Leonard L. Berry (1997), "Customers' Motivations for Maintaining Relationships with Service Providers," *Journal of Retailing*, 73 (Spring), 15–37.
- Bernhardt, Kenneth L., Naveen Donthu, and Pamela A. Kennett (2000), "A Longitudinal Analysis of Satisfaction and Profitability," *Journal of Business Research*, 47 (February), 161–71.
- Bhattacharjee, Anol (2001), "An Empirical Analysis of the Antecedents of Electronic Commerce Service Continuance," *Decision Support Systems*, 32 (2), 201–14.
- Bickert, Barbara and Robert M. Schindler (2001), "Internet Forums as Influential Sources of Consumer Information," *Journal of Interactive Marketing*, 15 (3), 31–40.
- Blattberg, Robert, Edward Malthouse, and Scott Neslin (2009), "Lifetime Value: Empirical Generalizations and Some Conceptual Questions," *Journal of Interactive Marketing*, 23 (2).
- Bolton, Ruth N. (1998), "A Dynamic Model of Duration of the Customer's Relationship with a Continuous Service Provider: The Role of Satisfaction," *Marketing Science*, 17 (1), 45–65.
- and James H. Drew (1991), "A Multistage Model of Customers' Assessments of Service Quality and Value," *Journal of Consumer Research*, 17 (March), 375–84.
- and Shruti-Saxena Iyer (2009), "Interactive Services: Framework, Synthesis and Research Directions," *Journal of Interactive Marketing*, 23 (1), 91–104.
- Brown, Jo, Amanda Broderick, and Nick Lee (2007), "Word of Mouth Communication within Online Communities: Conceptualizing the Social Network," *Journal of Interactive Marketing*, 21 (3), 2–20.
- Cheung, Christy M.K. and Matthew K.O. Lee (2005), "The Asymmetric Effect of Web Site Attribute Performance on Web Satisfaction: An Empirical Study," *E-Service Journal*, 3, 65–86.
- Churchill Jr., Gilbert A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (February), 64–73.
- and Carol Surprenant (1982), "An Investigation into the Determinants of Customer Satisfaction," *Journal of Marketing Research*, 19 (November), 491–504.
- Cooil, Bruce, Timothy L. Keiningham, Lerzan Aksoy, and Michael Hsu (2007), "A Longitudinal Analysis of Customer Satisfaction and Store Share of Wallet: Investigating Effect of Customer Characteristics," *Journal of Marketing*, 71 (January), 67–83.
- Cooper, W.H. (1981), "Ubiquitous Halo," *Psychological Bulletin*, 90 (2), 218–44.
- Cronin, Joseph and Steven A. Taylor (1992), "Measuring Service Quality: A Reexamination and Extension," *Journal of Marketing*, 56 (July), 55–68.
- Dellarocas, Chrysanthos, Xiaoquan (Michael) Zhang, and Neveen F. Awad (2007), "Exploring the Value of Online Product Reviews in Forecasting Sales: The Case of Motion Pictures," *Journal of Interactive Marketing*, 21 (4), 23–45.
- De, Matos, A. Celso, and Carlos A.V. Rossi (2008), "Word-of-Mouth Communications in Marketing: A Meta-analytic Review of the Antecedents and Moderators," *Journal of the Academy of Marketing Science*, 36 (4), 578–96.
- Devaraj, Sarv, Ming Fan, and Rajiv Kohli (2002), "Antecedents of B2C Channel Satisfaction and Preference: Validating e-Commerce Metrics," *Information Systems Research*, 13 (3), 316–33.

- Dwyer, Paul (2007), "Measuring the Value of Electronic Word of Mouth and Its Impact in Consumer Communities," *Journal of Interactive Marketing*, 21 (2), 63–79.
- Dye, Renee (2000), "The Buzz on Buzz," *Harvard Business Review*, 78 (November/December), 139–46.
- Evanschitzky, Heiner, Gopalkrishnan R. Iyer, Josef Hesse, and Dieter Ahlert (2004), "E-Satisfaction: A Re-examination," *Journal of Retailing*, 80 (3), 239–47.
- Farris, J. Shawn (2003), *The Human-Web Interaction Cycle: A Proposed and Tested Framework of Perception, Cognition, and Action on the Web*, Doctoral Dissertation, Kansas State University.
- Fassnacht, Martin and Ibrahim Köse (2007), "Consequences of Web-based Service Quality: Uncovering a Multi-faceted Chain of Effects," *Journal of Interactive Marketing*, 21 (3), 35–54.
- Finn, Adam (accepted for publication), "The Generalizability of the Effects of Retailer e-Service Quality Dimensions" *Canadian Journal of Administrative Sciences*.
- Flavian, Carlos, Miguel Guinaliu, and Raquel Gurra (2006), "The Role Played by Perceived Usability, Satisfaction and Consumer Trust on Website Loyalty," *Information and Management*, 43 (January), 1–14.
- Galan, Jean-Philippe and William Sabadie (2002), "Construction of a Measurement Tool to Evaluate the Satisfaction of Public Service Web Site Users," Paper presented at the 7th International Research Seminar in Services Management.
- Gerbing, David W. and James C. Anderson (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment," *Journal of Marketing Research*, 25 (May), 186–92.
- Ghose, Sanjoy and Wenyu Dou (1998), "Interactive Functions and Their Impacts on the Appeal of Internet Presence Sites," *Journal of Advertising Research*, 38 (May/June), 29–43.
- Gruca, Thomas S. and Lopo L. Rego (2005), "Customer Satisfaction, Cash Flow, and Shareholder Value," *Journal of Marketing*, 69 (July), 115–30.
- Ha, Louisa and E. Lincoln James (1998), "Interactivity Reexamined: A Baseline Analysis of Early Business Web Sites," *Journal of Broadcasting and Electronic Media*, 42 (Fall), 457–74.
- Hoffman, Donna L. and Thomas P. Novak (1996), "Marketing in Hypermedia Computer-Mediated Environments," *Journal of Marketing*, 60 (Fall), 50–68.
- Hong, Seoyoung and Jinwoo Kim (2004), "Architectural Criteria for Website Evaluation — Conceptual Framework and Empirical Validation," *Behavior and Information Technology*, 23 (5), 337–57.
- Hu, Li-tze. and Peter M. Bentler (1999), "Cutoff Criteria for Fit Indices in Covariance Structure Analysis: Conventional Criteria versus New Alternatives," *Structural Equation Modeling*, 6 (1), 1–55.
- , and Peter M. Bentler (1995), "Evaluating Model Fit," in *Structural Equation Modeling: Concepts Issues and Applications*, Rick H. Hoyle, ed. Thousand Oaks: Sage.
- Jamal, Zainab and Randolph E. Bucklin (2006), "Improving the Diagnosis and Prediction of Customer Churn: A Heterogeneous Hazard Modeling Approach," *Journal of Interactive Marketing*, 20 (3–4), 16–29.
- Jarvenpaa, Sirkka L. and Peter A. Todd (1997), "Consumer Reactions to Electronic Shopping on the World Wide Web," *International Journal of Electronic Commerce*, 1 (2), 59–88.
- Jun, Minjoon, Zhilin Yang, and DaeSoo Kim (2004), "Customers' Perceptions of Online Retailing Service Quality and Their Satisfaction," *International Journal of Quality and Reliability Management*, 21 (8), 817–40.
- Keiningham Timothy, L., Bruce Cooil, Lerzan Aksoy, Tor W. Andreassen, and Jay Weiner (2007a), "The Value of Different Customer Satisfaction and Loyalty Metrics in Predicting Customer Retention, Recommendation, and Share-of-Wallet," *Managing Service Quality*, 17 (4), 361–84.
- , Bruce Cooil, Tor W. Andreassen, and Lerzan Aksoy (2007b), "A Longitudinal Examination of Net Promoter and Firm Revenue Growth," *Journal of Marketing*, 71, 39–51.
- Kim, Jinwoo, Junwon Lee, Kwanghee Han, and Moonkyu Lee (2002), "Business as Buildings: Metrics for the Architectural Quality of Internet Business," *Information Systems Research*, 13 (3), 239–54.
- Kim, Soyoung and Leslie Stoel (2004), "Apparel Retailers: Website Quality Dimensions and Satisfaction," *Journal of Retailing and Consumer Services*, 11 (2), 109–17.
- and Yuri Lee (2006), "Global Online Marketplace: A Cross-cultural Comparison of Website Quality," *International Journal of Consumer Studies*, 30 (November), 533–43.
- Koufaris, Marios (2002), "Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior," *Information Systems Research*, 13 (2), 151–67.
- Mangold, W.G., Fred Miller, and Gary R. Brockway (1999), "Word-of-Mouth Communication in the Service Marketplace," *Journal of Services Marketing*, 13 (1), 73–89.
- Messinger, Paul (2002), *Harnessing the Web-Interaction Cycle for Canadian Competitiveness*, Initiative on the New Economy Research Grant Application to the Social Sciences and Humanities Research Council of Canada.
- Mittal, Vikas, Eugene W. Anderson, Akin Sayrak, and Pandu Tadikamalla (2005), "Dual Emphasis and the Long-Term Financial Impact of Customer Satisfaction," *Marketing Science*, 24 (Fall), 544–55.
- and Wagner A. Kamakura (2001), "Satisfaction, Repurchase Intent and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics," *Journal of Marketing Research*, 38 (February), 131–42.
- , Pankaj Kumar, and Michael Tsiros (1999), "Attribute-Level Performance, Satisfaction, and Behavioral Intentions over Time: A Consumption-System Approach," *Journal of Marketing*, 63 (2), 88–101.
- , William T. Ross Jr., and Patrick M. Baldasacre (1998), "The Asymmetric Impact of Negative and Positive Attribute-Level Performance on Overall Satisfaction and Repurchase Intentions," *Journal of Marketing*, 62 (January), 33–47.
- Montoya-Weiss, Mitzi M., Glenn B. Voss, and Dhruv Grewal (2003), "Determinants of Online Channel Use and Overall Satisfaction with a Relational, Multichannel Service Provider," *Journal of the Academy of Marketing Science*, 31 (Fall), 448–58.
- Morgan, Neil A. and Lopo Leotte do Rego (2006), "The Value of Different Customer Satisfaction and Loyalty Metrics in Predicting Business Performance," *Marketing Science*, 25 (5), 426–39.
- Nisbett, R.E. and T.D. Wilson (1977), "The Halo Effect: Evidence for the Unconscious Alteration of Judgments," *Journal of Personality and Social Psychology*, 35, 250–6.
- Oliver, Richard L. (1997), *Satisfaction: A Behavioral Perspective on the Consumer*. New York: McGraw-Hill.
- (1980), "A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions," *Journal of Marketing Research*, 17 (November), 460–9.
- Parasuraman, A., Leonard L. Berry, and Valarie A. Zeithaml (1988), "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing*, 64 (1), 12–40.
- , Valarie A. Zeithaml, and A. Malhotra (2005), "E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality," *Journal of Service Research*, 7 (3), 213–34.
- Pingitore, Gina, Neil A. Morgan, Lopo L. do Rego, Adrianna Gigliotti, and Jay Meyers (2007), "The Single-Question Trap," *Marketing Research: A Magazine of Management and Applications*, 19 (Summer), 8–13.
- Posselt, Thorsten and Eitan Gerstner (2005), "Pre-Sale vs. Post-Sale e-Satisfaction: Impact on Repurchase Intention and Overall Satisfaction," *Journal of Interactive Marketing*, 19 (Autumn), 35–47.
- Punj, Girish N. and Richard Staelin (1983), "A Model of Consumer Information Search Behavior for New Automobiles," *Journal of Consumer Research*, 9 (March), 366–80.
- Reichheld, Frederick F. (2003), "The One Number You Need to Grow," *Harvard Business Review*, 81, 47–54.
- Rigdon, Edward E. (1994), "Demonstrating the Effects of Unmodeled Random Measurement Error," *Structural Equation Modeling*, 1 (4), 375–80.
- Rowley, Jennifer (2006), "An Analysis of the e-Service Literature: Towards a Research Agenda," *Internet Research*, 16 (3), 339–59.
- Sen, Shahana and Dawn Lerman (2007), "Why Are You Telling Me This? An Examination into Negative Consumer Reviews on the Web," *Journal of Interactive Marketing*, 21 (4), 76–94.
- Shankar, Venkatesh, Amy K. Smith, and Arvind Rangaswamy (2003), "Customer Satisfaction and Loyalty in Online and Offline Environments," *International Journal of Research in Marketing*, 20 (June), 153–75.

- Spreng, Richard A., Scott B. MacKenzie, and Richard W. Olshavsky (1996), "A Reexamination of the Determinants of Consumer Satisfaction," *Journal of Marketing*, 60 (July), 15–32.
- Straub, Detmar and Richard T. Watson (2001), "Transformational Issues in Researching IS and Net-Enabled Organizations," *Information Systems Research*, 12 (4), 337–45.
- Swan, John E. and Richard L. Oliver (1989), "Postpurchase Communications by Consumers," *Journal of Retailing*, 65 (4), 516–33.
- Szymanski, David M. and David H. Henard (2001), "Customer Satisfaction: A Meta-Analysis of the Empirical Evidence," *Journal of the Academy of Marketing Science*, 29 (Winter), 16–35.
- and Richard T. Hise (2000), "e-Satisfaction: An Initial Examination," *Journal of Retailing*, 76 (3), 309–22.
- Trabold, Lauren M., Gregory R. Heim, and Joy M. Field (2006), "Comparing e-Service Performance Across Industry Sectors: Drivers of Overall Satisfaction in Online Retailing," *International Journal of Retail and Distribution Management*, 34 (4/5), 240–57.
- Riel, Van, C.R. Allard, Veronica Liljander, and Petra Jurriens (2001), "Exploring Consumer Evaluations of e-Services: A Portal Site," *International Journal of Service Industry Management*, 12 (4), 359–77.
- Dyke, Van, P. Thomas, Leon A. Kappelman, and Victor R. Prybutok (1997), "Measuring Information Systems Quality: Concerns on the Use of the SERVQUAL Questionnaire," *MIS Quarterly*, 21 (2), 195–208.
- Wolfenbarger, Mary and Mary C. Gilly (2003), "eTailQ: Dimensionalizing, Measuring and Predicting eTail Quality," *Journal of Retailing*, 79 (3), 183–98.
- Yoo, Boonghee and Naveen Donthu (2001), "Developing a Scale to Measure the Perceived Quality of an Internet Shopping Site (SITEQUAL)," *Quarterly Journal of Electronic Commerce*, 2 (1), 31–45.
- Zeithaml, Valarie A., Leonard L. Berry, and A. Parasuraman (1996), "The Behavioral Consequences of Service Quality," *Journal of Marketing*, 60 (August), 31–46.
- Zinkhan, George M., Hyokjin Kwak, Michelle Morrison, and Cara Okleshen Peters (2003), "Web-Based Chatting: Consumer Communication in Cyberspace," *Journal of Consumer Psychology*, 13 (1–2), 17–27.