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# DETERMINANTS OF ON-LINE CONSUMER SATISFACTION: A CONJOINT ANALYSIS

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## Abstract

*Metrics for assessing online customer satisfaction (e-satisfaction) are essential in gauging the success and failure of e-commerce. The Internet business must determine and understand the values of its existing and potential customers. Hence, it's important for researchers to develop and validate a diverse array of metrics to comprehensively capture the attitudes and feelings of online customers. What factors make on-line shopping appealing? What customer values take priority? This study's purpose is to answer these questions, examining the role of several technology, shopping, and product factors using a conjoint analysis of consumer preferences to measure e-satisfaction. The study will result in the development of an e-satisfaction conceptual model and metric.*

**Keywords:** On-line customer satisfaction, e-satisfaction, conjoint analysis, e-commerce metrics

## Introduction

E-commerce involves the sale and purchase of products and services over the Internet (Keeney 1999). It was touted to have massive sales potential, with previous expectations of over \$1 trillion by 2002 (Burke 1997). However, expectations have fallen short, with recent studies suggesting that although total online retail spending is increasing, per person online retail spending is rapidly declining (Pastore 2000). For example, 15 percent of 1997 online buyers did not buy online in 1998.

Understanding spending per person warrants further exploration of e-commerce growth barriers. Clearly, consumers must be satisfied with their shopping experience to acquire more goods and services. Given the need to understand what users want in a Web site (Straub & Watson 2001), it's important for researchers to develop and validate a diverse array of metrics to comprehensively capture the attitudes and feelings of the online customers. What factors make on-line shopping appealing? Which customer values take priority? This study's purpose is to answer these questions using a conjoint analysis to measure online customer satisfaction (e-satisfaction). The study examines the role of several technology, shopping, and product factors in the development of the e-satisfaction scale.

## Background

Metrics for assessing e-satisfaction are essential in gauging the success and failure of e-commerce. Different customers have varying perceptions for a particular Web site. An experienced online customer may find their experience to be enjoyable and fulfilling, and is more likely to have an easier time navigating the site, searching for information, as well as ordering. Online shopping is salient in this customer's mind because of past experiences with the use of technology. They are more likely to leave the Website with a feeling of satisfaction, given certain delivery expectations are met. The inexperienced online shopper may find it difficult and impersonal. Different customers will have varying beliefs and expectations that must be met. For customer retention to measure customer satisfaction level, accurate metrics must be in place.

### Conceptual Model

Literature e-satisfaction and values reveals several antecedents. Our conceptual model of e-satisfaction proposes that there are three categories of factors: technology, shopping, and individual product factors (Figure 1).

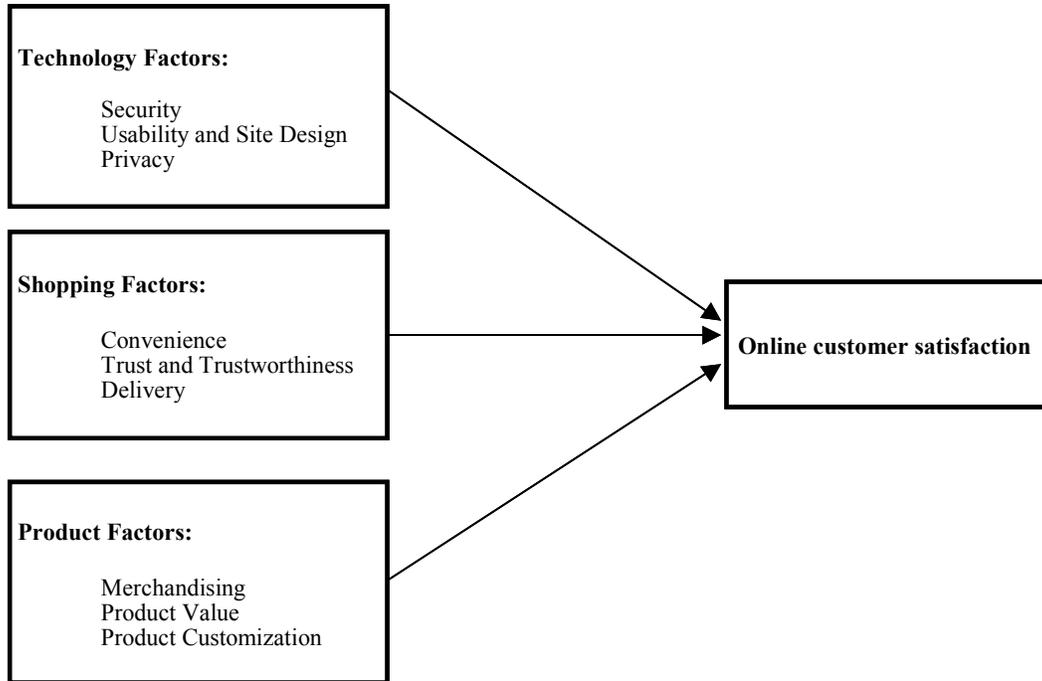


Figure 1. Conceptual Model

### Online Consumer Satisfaction (E-satisfaction)

Internet businesses need to determine and understand the values of its existing and potential customers. E-satisfaction is a key factor in ensuring that customers will return (Szymanski & Hise 2000). The need for research is accentuated by demand for long-term profitability of dotcom and traditional Net-enhanced companies (Straub et al. 2002).

Customer satisfaction is the consequence of experiences during various purchasing stages: (1) needing something, (2) information gathering about it, (3) evaluating purchasing alternatives, (4) actual purchasing decision, and (5) post purchasing behavior (Kotler 1997). During information gathering, the Internet offers consumers extensive benefits, because it reduces search costs, increases convenience, vendor choices, and product options (Alba et al. 1997; Bakos 1998). However, online consumers are dependent upon the Website information as a replacement for physical contact with salespersons (McKinney et al. 2002).

### Technology Factors

Technology factors include the qualities of a website that ensure functionality of the site, including: security, privacy, and usability/site design (e.g. Rasmussen, 1996; Jarvenpaa & Todd, 1997; Palmer & Griffith, 1998; Keeney, 1999; Torzadeh & Dhillon, 2002).

### Security

Despite the fact that security positively influences intention to purchase online (Ranganathan & Ganapathy, 2002; Salisbury et al., 1998), it remains one of the major concerns (Kiely, 1997; Mannix, 1999; Mardesich, 1999). To alleviate customers' fears,

many B2C Websites offer alternate forms of payment (e.g. telephone ordering) and/or accounts with ID's and passwords (Ranganathan & Ganapathy, 2002).

**H1:** *A customer's satisfaction with e-commerce increases as perceptions of online financial security becomes more positive, all else being equal.*

### **Privacy**

B2C Web sites gather information about visitors via explicit modes (e.g. surveys) and implicit means (e.g. cookies) (Ranganathan & Ganapathy 2002), providing the necessary data for decision making on marketing, advertising, and products. However, many users have concerns over potential misuse of personal information (Henderson & Snyder 1999; Torkzadeh & Dhillon 2002; Ranganathan & Ganapathy 2002). To address issues of privacy, many Websites display privacy policies (McGinity 2000). Also, independent companies (e.g. TRUSTE) can verify, audit, and certify privacy policies (Ranganathan & Ganapathy 2002).

**H2:** *A customer's satisfaction with e-commerce increases as perceptions of privacy concerns become more positive, all else being equal.*

### **Usability/Site Design**

Usability and site design of B2C Websites are essential to attracting, sustaining, and retaining customers' interest. Prior to the Internet explosion, usability focused on five elements: (1) interface consistency, (2) response time, (3) mapping and metaphors, (4) interaction styles, and (5) multimedia and audiovisual (Nielsen 1993). Designing Websites with user friendly interfaces critically influences traffic and sales (Lohse & Spiller 1998). Post Internet explosion, usability research focused on extending usability principles into Web environments (Nielsen 2000, Schneiderman 1998). This includes: (1) navigation, (2) response time, (3) credibility, and (4) content (Nielsen, 2000).

Navigation, product information, and site design are critical to e-satisfaction (Szymanski & Hise, 2000). Thus, a key to building a usable Website is to create good links and navigation mechanisms (Manes 1997; Radovesich 1997). An advantage of the Internet is its capacity to support interactivity for users (Palmer 2002), and online consumers are influenced by the interactivity of the Website (Alba et al. 1997; Jarvenpaa & Todd 1997). Fast, interactive, uncluttered, and easy-to-navigate sites should be perceived more favorably by consumers.

**H3:** *A customer's satisfaction with e-commerce increases as perceptions of usability and site design become more positive, all else being equal.*

### **Shopping Factors**

Shopping factors focus on customers' feelings during and after the shopping experience. Factors determining this include convenience, trust and trustworthiness of Web merchants, and delivery time (Belanger et al., 2002; Keeney, 1999; Nielsen, 2000; Pitkow and Kehoe, 1996; Torkzadeh & Dhillon, 2002).

### **Convenience**

E-commerce can economize on time and effort by making it easy to locate merchants, find items, and procure offerings (Balasubramanian, 1997). B2C sites should be designed so that consumers minimize time finding the product or information (Ranganathan & Ganapathy, 2002). Convenience includes ease of finding a product, time spent, post purchase service, complete contact information, and minimization of overall shopping effort.

**H4:** *A customer's satisfaction with e-commerce increases as perceptions of convenience become more positive, all else being equal.*

### Trust and Trustworthiness

Trustworthiness is the perception of confidence in the e-marketer's reliability and integrity (Belanger et al. 2002). Buying decisions are partly based on trust in the product, salesperson, or company (Hosmer, 1995). Internet shopping decisions involve trust between customers and merchants, and their computer systems (Lee & Turban 2001).

**H5:** *A customer's satisfaction with e-commerce increases as their trust in the Internet merchant and the merchant's computer system increases, all else being equal.*

### Delivery Time

Delivery time is the total time between order placement and delivery, which includes: dispatch, shipping, and delivery. Dispatch is the amount of time necessary for an order to go from initial order placement to being shipped out. During shipping the purchase is in transit from the merchant's warehouse to the shipping company's distribution facility. Delivery is the amount of time necessary for the package to go from the distribution center to the customer's door. Customers must be made aware of delays to minimize disappointment when the delivery date isn't met. Satisfaction is somewhat dependant upon expectations being met.

**H6:** *A customer's satisfaction with e-commerce increases as their expectations of when their product will arrive are met, all else being equal.*

### Product Factors

Product factors pertain to the qualities of the product or service for sale. Often, products purchased online are no different than products purchased at brick and mortar stores. Customers choose between competing products, or no product, depending upon which offers the best value, a combination of benefits and price (Keeney 1999). As a result there has to be a perceived benefit to shopping online. Factors determining this include merchandising, the overall product value, and the availability of product customization (Keeney, 1999; Szymanski & Hise, 2000; Torkzadeh & Dhillon, 2002; Zhu & Kraemer, 2002).

### Merchandising

Merchandising involves selling offerings online (separate from site design and shopping convenience), including product variety and information available online (Szymanski & Hise 2000). Superior product assortment results in positive perceptions of customer satisfaction (Szymanski & Hise 2000), especially if the customer wants an item that isn't widely available. Similarly for product information, a wealth of readily available information will increase customer satisfaction.

**H7:** *A customer's satisfaction with e-commerce increases as their perceptions of online merchandising becomes more positive, all else being equal.*

### Product Value

Minimizing product cost and maximizing product quality are major factors in e-commerce success (Keeney 1999). Total cost includes product cost, taxes, shipping, Internet, and travel costs (Keeney 1999). Quality is an intrinsic property of a product. Maximizing product quality involves offering a product or service that customers will be pleased with. Torkzadeh and Dhillon (2002) combine these two objectives into an Internet product value measure (used in this study).

**H8:** *A customer's satisfaction with e-commerce increases as their perceptions of product value becomes more positive, all else being equal.*

### Product Customization

Product customization is the users' ability to customize products according to personal preferences (Zhu & Kraemer 2002). For example, configuring product features directly on the merchant's Website.

**H9:** *A customer's satisfaction with e-commerce becomes more positive when product customization is available, all else being equal.*

## Methodology

Engaging in e-commerce involves a complex decision making process. Consumers have to take into consideration various factors (previously discussed), yet, they can't maximize all factors. For example, will a consumer be satisfied with an e-merchant that provides no security through encryption but has a nice privacy policy? Conversely, will the consumer be satisfied with a merchant that has a strict security system that logs everything customers do, infringing on their privacy? To handle such trade-offs in consumer decision making, the technique of conjoint analysis is one of the most appropriate (AMA, 2000).

Conjoint Analysis is a research technique used to measure the trade-offs people make when making a decision. In this study, the decision is the prioritization of e-satisfaction values. There are three underlying e-satisfaction categories: technology, shopping, and product factors. Within these three categories there are three variables in each, and each individual variable has three levels (measures). A traditional conjoint analysis is really just a multiple regression problem. The respondents' ratings for the various customer values form the dependent variable. The measures of each customer value (the attribute levels) are the independent (predictor) variables. The estimated betas associated with the independent variables are the utilities (preference scores) for the levels. Conjoint analysis can be performed using SPSS, requiring the specification of attributes (e.g. factors in each category) and levels for those attributes. This will allow us to understand consumers' tradeoffs when deciding whether or not to buy from or return to an e-merchant.

## Conference Presentation

The instrument is being developed and data will be collected in May/June 2003. Full results will be available at the conference.

## Expected Contributions

The study will result in the development of a conceptual model of e-satisfaction and the development of an e-satisfaction metric. This study will also serve as the basis for further conjoint analysis research leading to the development of an e-satisfaction scale. Practitioner's implications will include answering questions such as: What factors make on-line shopping appealing to customers? What customer values take priority over others?

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