Designing effective cyber store user interface

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Introduction

Electronic commerce (e-commerce) has provided many benefits to almost every sector of business worldwide over the last two decades. Even though it is becoming a fast emerging industry and a significant global economic force, it is only a few years since e-commerce gained widespread attention among the general public thanks to online retail stores. Before online retail stores were so popular, transactions of e-commerce were mostly among business organizations as a form of electronic data interchange (EDI). In a broader sense, e-commerce is concerned with not only buying and selling on the Internet, but also working together with business partners, servicing customers, and performing electronic transactions among companies.

Business-to-consumer (B2C) e-commerce is so common in most countries that many of us consider e-commerce to be synonymous with B2C-e-commerce. Because online shopping is based on an electronic transaction, it is commonly believed that online shopping can accommodate shoppers with fast and easy comparison shopping (Zellweger, 1997), reverse advertising to find the best deal (Tenenbaum, 1998), and the most competitive price (Alba et al., 1997) as well as merchandise availability to meet customer demand rapidly.

Online stores need to endeavor to enhance customer satisfaction to maintain a positive relationship with customers. Totally satisfied customers are loyal to the company and purchase merchandise repeatedly (Jones and Sasser, 1995). Totally satisfied customers mean that the four elements (product or service, basic support, recovery of bad experience, and extraordinary service) that affect customer satisfaction are fulfilled. Jones and Sasser (1995) also claimed that customers who are not totally satisfied might not purchase a product (or service) from a store if they have a choice of shopping somewhere else. Even though it is not guaranteed that customers who are satisfied with the user interface design of online stores are loyal customers to that store it is certainly one important aspect of making customers satisfied. In that regard, this study investigates the features that possibly influence the perceived satisfaction of online retail shopping among the young generation (especially university students).

Turmoil of business to consumer e-commerce

It is widely known that many online stores have spent huge amounts of their budget on advertising their Web sites to attract potential customers. At the same time they have engaged in fierce price competition. As a result, their financial status became weak. Due to these reasons, Forrester Research Inc. (2000) predicted that most dot-com business-to-consumer retailers would be out of business by 2001. We already witnessed the turmoil among online companies during the last year. For example, 17 online retailers advertised during the Super Bowl XXXIV in 2000 while only three online companies (E-Trade.com, HotJobs.com and Monster.com) advertised during the Super Bowl in 2001. Even though many dot-coms collapsed recently, Visa USA reported that its cardholders spent more than $2.5 billion on the Internet in the holiday season of year 2000, about the double of last year’s total of $1.3 billion in the same period of time (Machlis, 2000).

In this environment, it may be a better strategy to emphasize improving customer satisfaction instead of spending heavily on advertisement. Bezos (2000) said:

The success of Amazon (especially, the book division) is because Amazon is an excellent management company that knows how to satisfy customers while it is a mediocre
marketing company. The question is not what merchandise you sell on the Internet but how to please customers to purchase merchandise from your online store.

It entails how important customer satisfaction is, especially to online stores.

### Technology for online shopping convenience and security

There is a wide range of technologies to improve customer satisfaction of online shopping. Some of them are intelligent agents, electronic wallet (e-wallet) and electronic commerce modeling language (ECML). It is well known that Amazon utilizes the intelligent agent software to suggest similar items to shoppers based on their purchase preferences and personal profiles. It also provides a one-click purchase process similar to the capability of e-wallet that was introduced to simplify the online purchasing process.

### Intelligent agents

Today's first-generation agent-mediated e-commerce systems are already creating new markets (such as low cost consumer-to-consumer goods) and beginning to reduce transaction costs in a variety of business processes. An intelligent agent is defined as:

> Anything that can be viewed as perceiving its environment through sensors and acting on that environment through effectors (Russel and Norvig, 1995).

The intelligence may have the features of responding to the environment, adapting to the relevant external environment, and initiating an action to achieve a goal. In other words, agents are atomic software entities operating through autonomous actions on behalf of the user - machines and humans - without constant human intervention. To be an intelligent agent, it needs to have the capability of agency, intelligence, and mobility. These qualities help optimize the whole buying experience, revolutionizing commerce as we know it (Moukas et al., 1996).

Agent technology can be helpful in automating or assisting the buyer with different aspects in consumer buying behavior model such as need identification. Specifically, agents can help in purchases that are repetitive (such as supplies) or predictable (such as habits). Currently, there are several representative intelligent agents used in online shopping such as PersonaLogic, Firefly, BargainFinder, Jango, Kasbah, AuctionBot, and Tete-a-Tete. Among these, PersonaLogic, Firefly, and Tete-a-Tete can be used to lower the customers' search cost. Tete-a-Tete can recommend complex products based on multi attribute utility theory. It provides an unique negotiation approach to retail sales such as consumer owned agents and merchant owned agents cooperatively negotiating across multiple terms of a transaction including warranties, delivery times, service contracts, return policy, loan options, gift services, and other value-added services (Gutman and Maes, 1998). Most other online negotiation systems competitively negotiate over price while Tete-a-Tete utilizes integrative negotiations comprised of an exchange of XML-based proposals, critiques, and counter proposals. As described, intelligent agents are becoming comprehensive transaction brokers instead of simple searching programs.

### Electronic wallets and electronic commerce modeling language

Many online shops offer a one-button purchase system that retrieves the stored customer profile information to make the purchasing process much simpler. For example if you provide your e-mail address and password, your profile will be retrieved. You do not need to provide your name, addresses (billing and shipping) as well as phone numbers again. It is generally believed that many customers abandon the purchasing process if they are asked to provide the personal information over and over again. To simplify online purchasing processes, the use of e-wallet is becoming popular. E-wallet holds credit cards, electronic cash, owner identification, and owner address information and provides that information at an electronic commerce site's checkout counter. The difference between single-click systems and e-wallet is that a single-click system works particularly for each store, not for general use.

To standardize this service, W3C (World Wide Web Consortium) is trying to standardize e-wallets. The consortium of several companies including IBM, Visa, MasterCard, and Microsoft has introduced ECML that is a universal format for online checkout form data fields in 1999. ECML provides a simple set of guidelines for Web merchants that enable e-wallets from multiple vendors to automate the exchange of information between consumers and merchants. The end-result is more consumers will find shopping on the Web to be easy and compelling. Merchants are encouraged to modify their forms and other commerce-related Web pages to conform to the ECML standard that requires no license to use.
Secure socket layer encryption

Secure socket layer (SSL) encryption is commonly used to provide message privacy and security. To provide secure transmissions of data between your Web server and customers, a session key is generated by a server using the customer's public key and sending it to the customer's Web browser. Each session key is used only once, during a single session (which may include one or more transactions) with a single customer. Because a customer's public key is used to encrypt a message, it is only possible to decrypt the message using the same customer's private key. It is necessary to use public key and private key complementary to each other. A public key is distributed to anyone who needs it while a matching private key is only maintained and used by one person – the same customer. For maintaining message integrity, the sending and receiving computers each generate a code (known as message digest) based on the message content when a message is sent. If even a single character in the message content is altered en route, the receiving computer will generate a different code, and then alert the recipient that the message is not the same as originally sent. With message integrity, both parties involved in the transaction know that what they are seeing is exactly what the other party sent. These layers of message protection ensure that information cannot be viewed or unknowingly altered if unauthorized parties intercept it. In the USA, 128 bit SSL sessions are used with the browsers that would take a trillion years to crack an encrypted message while 40 bit SSL for export-version of Web browsers that is strong enough for most intranets and lower-volume Web sites (VeriSign, 2000).

Questionnaire development

Even though online retail stores use the Internet and WWW as a transaction medium, it is commonly believed that there are many similar characteristics between online retail stores and physical retail stores (Loshe and Spiller, 1998a). Jarvenpaa and Todd (1996-1997) examined electronic shopping behavior and found that the shoppers did not find Web shopping very different from catalog shopping. They surveyed consumer reactions to online retail stores using a sample of 230 shoppers in a university lab environment. They claimed that the factors affecting the intention toward shopping on the Internet (satisfaction measure) were significantly influenced in the order of product perceptions (variety, price, quality), shopping experience (convenience, comparability) and service quality (responsiveness, tangibility, reliability) of online retailers.

Many researchers identified attributes that shoppers might possibly consider when choosing a physical retail store. Lindquist (1974-1975) compiled the findings of previous studies and grouped the store components into four categories such as:
1. merchandise;
2. service;
3. promotion; and
4. convenience.

These four categories were extended into six categories (Arnold et al., 1977) including:
1. merchandise;
2. service;
3. promotion;
4. convenience;
5. fast checkout; and
6. ease of navigation through the store.

Based on these study findings, Spiller and Loshe (1987-1998) categorized a sample of 137 online retail stores into five distinct Web interface categories:
1. superstores;
2. promotional stores;
3. plain sales stores;
4. one-page store; and
5. product listings.

In addition, they suggested that their list of features and attributes could be used as a checklist for online store designs. These same features were used to measure the variances of store traffic and sales in another study (Loshe and Spiller, 1998b). For example, these authors found that the number of products in a store explained 17 per cent of all variances of store traffic, but had no effect on sales.

Loshe and Spiller (1998a) described attributes that possibly influence store traffic and sales for the six categories described. They surveyed the interface design for several online retail stores to explain the positive and negative aspects of features an online retail store should have to attract more customers and generate sales. Their study concluded that the growth of the Internet retail sales would depend, at least partially, on these interface design issues (Loshe and Spiller, 1998a).

As discussed in the previous section, it is important to include security and privacy issues in designing an online store interface as well as the currency of information. Currency of information on a Web page means that shoppers want to see the most recent information on the Web page as much as possible. As an example, we witnessed that United Airlines honor its mistakes on its
Web page – an airline ticket of $25 to Europe that was displayed on the Web page for a couple of hours in February 2001. Online companies should emphasize providing a consumer oriented information privacy model to improve the commercially valuable relationship with customers (Wang et al., 1998). Swamianathan et al. (1999) tested the hypotheses of security and privacy on online shopping using the GUV (Georgia Visualization and Usability Center) survey data (GUV, 1998). Their findings were that consumers seemed to be more concerned about some aspects of information privacy than the security of electronic exchanges.

Based on the studies mentioned above, the authors developed questionnaire items using the features similar to those used in the previous studies as a checklist for online store designers. In addition, the authors added a few additional items that might be necessary in enhancing the perceived satisfaction of online shopping customers such as the issues of security and privacy, and the currency of information. As a result, the authors generated 27 questionnaire items to measure the perceived satisfaction of online retail store shopping.

**Data collection and research methodology**

The survey instrument (see the Appendix) was administered to 91 undergraduate and MBA students in a university in Connecticut and 36 undergraduate students in a university in Missouri. Among these sample subjects, 93 subjects (65.4 per cent) are non-traditional students who have full time jobs in various companies. Some students (61 students) participated in this survey during the class hour while others (66 subjects) were surveyed using e-mail. The return rate of the e-mail survey was very high (66 returns out of 91 which is 72.5 per cent) possibly due to the acquaintanceship between surveyor and respondents. Participation was voluntary even though it was administered in a class.

The raw matrix of 127 responses was analyzed by the principal components analysis with the latent root criterion (eigenvalue 1 criterion) applied to obtain the initial solution of six factors (factor loadings greater than 0.40). In principal components analysis, only those factors with eigenvalues (the column sum of squares for a factor) greater than one are interpreted as significant. Based on this initial analysis, several more trial rotations are performed to find the factors by considering the initial criterion and factor structure that best represents the underlying relationship of the variables. We chose the Varimax rotation method with Kaiser normalization. Kaiser’s Varimax method (Kaiser, 1958) maximizes the sum of variances of squared loadings in the columns of the factor matrix. It is one of the most widely used methods to obtain an orthogonal rotation.

As a result, four factors are extracted that count for 58.16 per cent of the total variance of the data set. To test the reliability of these components, Cronbach’s alpha was examined on each dimension. The alpha coefficients of four dimensions are 0.9134, 0.8837, 0.6866, and 0.6938 respectively. They are high enough to be considered a reliable measure of a construct for the exploratory study (Nunnally, 1978). Cronbach’s alpha is a model of internal consistency, based on the average inter-item correlation that is one of the established techniques for reliability testing.

**Analysis of results**

Table I presents the results of the four-factor model that are extracted from the correlation matrix using principal components analysis. These four factors capture a great share of the variance in the data explaining 58.2 per cent of total variance.

As shown in the Table I, 11 variables load particularly high on the first factor that explains 22.06 per cent of the total variance. This factor is referred to as “convenient and dependable shopping”. The first factor includes the features of:

- convenience;
- guaranteed delivery; and
- secure transaction mechanism.

Convenience includes the features of:

- convenient search functions;
- flexible shopping hours;
- flatter hierarchy of Web page structure (less clicks from home page to the end product); and
- easy to find contact information (e-mail or phone numbers).

To improve the perception of guaranteed delivery among shoppers, online stores need to provide information regarding the anticipated delivery date or out-of-stock status, prompt feedback on order and delivery status, confirmation e-mail of order number for tracking or return, and selective cancellation of purchased items. Secure transaction mechanisms may include the variables of currency of information on the Web page, and secured transaction mechanism (a secure Web page).

The second factor, “retailer reliability”, includes eight variables as listed in Table I.
Regarding the online store itself, production promotions, other customers' testimonials, and frequently asked questions (FAQs) sections. This factor explains 10.03 per cent of total variance. All of these variables are related to the additional information on retailers and products that may improve trust between shoppers and a vendor as discussed in an earlier section. They seemed to like to know about the product quality and promotions that include appetizers, frequent buyer programs, or other customers' testimonials. Other customers' testimonials could be interpreted as a quality measure of a product as well as a promotion of a product. Providing store information (company history, mission statement, location, etc.) is important because customers want to know with whom they are dealing and to whom they are sending credit card information (Farr and Grady, 1995). The store information will be more valuable to satisfy online shoppers through an enhanced relationship based on trust as the number of online retailers increases.

The next factor is named "tangibility and variety of merchandise" and explains 9.09 per cent of total variance. It includes a proper size picture of merchandise, a good quality picture of merchandise, a what's new section, and broad product variety. Because customers cannot touch or try on any merchandise on the Web, they often heavily depend on a good quality picture of a product to evaluate it.

Among these four components, there exists very little covariance. Therefore, it may be concluded that these four components represent different aspects to improve customer satisfaction of online shopping among university students. It does not mean that these four components are the only factors influencing online shopping satisfaction. There could be additional components because these four components together explain 58.16 per cent of total variance.

### Implication of the results

Most importantly, online shoppers want to know the order status promptly and accurately. In other words, they want to have accurate information of merchandise availability, anticipated delivery date, and confirmation e-mail for a specific order. Most shoppers do not want to contact online retailers again and again to track their orders or to obtain information about returning the merchandise they purchased. Web shoppers responded that on-time delivery is the one biggest feature that
improves the perceived satisfaction of online shopping. Not only actual delivery on the promised date, but also prompt notice of any delays or changes in the delivery schedule (or reminder of delivery status) may improve online shoppers' perceived satisfaction. In the USA, it is generally said that most of us maintain our everyday lives based on a preplanned schedule. Thus, having accurate, up to date information on order and delivery status matches our life style in the USA well.

It is true that some vendors do not provide the contact information such as e-mail or toll free phone numbers in an easy to find location on their Web site, probably due to simple ignorance or to reduce the operating cost. Some online vendors mentioned that the toll charge mounted rapidly when they provided the 800-phone number on the Web (MCCCC, 1999). Whatever the reason may be, it will negatively impact the vendor's credibility or trust if the contact information is omitted (especially phone numbers). It may be a good approach to utilize the electronic customer relationship management (CRM) applications such as a call center system that collapses queries from various channels – phone calls, e-mail, fax and the Internet. For example, the retailer, Birmingham, which operates Saks Fifth Avenue, Proffitt’s and Parisian, implemented a call center system to improve customer relationships. The company had announced the ramp-up had boosted productivity by 40 per cent without requiring additional staffing, a saving of $1 million in payroll costs (Songini, 2001). In addition, Saks reported that a call center in Jackson, Mississippi, was able to take on 16 per cent more customer contacts without adding any staff. Additionally, the new system, based on the applications from Aspect Communications Corp., a San Jose CRM software vendor, has resulted in call response times dropping from 45 seconds per call to eight seconds.

It is generally believed that the security issue is one of the most important reasons that some people do not purchase online. However the results of previous studies are somewhat inconclusive. For example, security is one big issue to prevent online shopping for many people (Hoffman et al., 1999) while security is of less concern than other aspects of online shopping (Swaminathan et al., 1999). To convince shoppers how secure the site is, an online store may display the security certificate (seal or logo) provided by Internet security certificate agencies such as VeriSign. It will help shoppers believe your site is secure under the current technology available. In this study, the respondents consider that Internet security is a necessary feature to achieve convenient and dependable shopping in cyberspace.

The reliability (or trust) of online retailers is one significant factor in explaining customers' perceived satisfaction. During the holiday season of the year 2000, the online stores of traditional retailers sold a high volume of goods. For example, BlueLight.com of Kmard corp. posted a 1,060 per cent jump in sales compared to one year previously. Yahoo.com also reported that its order volume doubled in the USA in the holiday season of the year 2000, while volumes outside the USA rose six-fold (Machlis, 2000). A number of analysts have said that while some online retailers may post strong results, others are likely to struggle to meet growth targets. For example, compared to the previous year, DisneyStore.com's revenue went up 85 per cent; Yahoo Inc. sales doubled, and BlueLight.com of Kmard sales increased 1,060 per cent between 30 October and 12 December over the same period in the previous year. Jacobs, spokeswomen of BlueLight.com, said that the name value of Kmard and brand name products, such as the Martha Stewart and Route 86 clothing lines helped the BlueLight.com's sales (Martha Stewart line was the third most popular item on the site behind toy and electronics sales) (Sullivan, 2000). This incidence tells that the critical aspect of online store survival may be brand name, product, and credibility of a vendor because online shoppers seemed to prefer the online stores of well-established, reliable, traditional retailers. Thus providing equivalent reliability as that of traditional retailers to the online shoppers is one important aspect for online stores to survive and be prosperous.

Regarding shipping and handling costs, it is often mentioned that one of the most important concerns in international online purchasing is the shipping cost. To reduce the shipping cost, it is desirable to have an alliance with local companies when an online company expands internationally. In addition, Jupiter Research (2001) suggested that online companies align with local companies in each global operation market to gain a better understanding of local customers' preferences, local customs and business practices, brands and fulfillment. Some online stores have already established alliances with local companies to expand internationally. For example, most of the global expansions of Amazon.com have been through alliances with local companies (Bezos, 2000). Nevertheless, it was mentioned that some customers prefer other sites than
Amazon to purchase merchandise due to economic reasons (ICTEC, 2000). It shows that competitive price is one important issue of customer satisfaction even in cyberspace shopping.

Suggestions for online store management

Online shoppers often evaluate the online store’s objectives, policies, and management philosophies based on each store’s Web pages. Thus, providing the Web page that customers want is very important to satisfying customers and possibly leading your business to success. Accordingly, based on survey results, it is possible to compile suggestions to guide online store managers.

First, online shopping should be convenient to customers as much as possible. Even though it is true that online shopping inherently has the component of convenience, managers should provide more convenient features that are not common to many stores such as implementing ECML for e-wallet features. It will help more consumers find shopping on the Web to be easy and compelling through adopting a universal format for online checkout form data fields. Currently, several companies have implemented ECML standards including Costco, Crutchfield, EBWorld.com, Herrington & Company, and Toy Shoppe. It is also suggested that companies utilize intelligent agents to provide additional service for convenience such as selecting proper merchandise of the customer’s choice. For example, it is possible to utilize some agents such as Ksahah or Tete-a-Tete that can compare merchandise in many different dimensions including price, warranty, terms of delivery, and others (Guttman and Maes, 1998). Currently, Amazon and some other stores use some of these features—providing similar products based on a customer’s preferences.

Second, a Web site should have an easy to follow hierarchy. It is annoying if customers cannot go to the Web page they want easily. A Web site should be configured to allow customers to reach a desired Web page from anywhere in a hierarchy easily. Managers need to evaluate their Web site thoroughly from a customer’s perspective in order to not have any dead or broken links. In addition, a customer should be allowed to retreat to a home page from anywhere on the Web site in case any problem happens, and to jump to any Web page they visited to get additional information if needed.

Third, managers should provide dependable transaction processes to customers. This includes implementing a secure transaction mechanism and protecting privacy information. In previous studies, the perception of an insecure environment on the Internet is one of the primary reasons hindering online purchasing (Zellweger, 1997; Hoffman et al., 1999). There could be the issues of spoofing, unauthorized disclosure of transaction information, refusing the service by illegal actions, and data alterations (VeriSign, 2000). Even though everybody recognizes the importance of Internet security these days, it was found that nearly 600 of the world’s largest companies are still vulnerable to one of the most serious Internet security flaws yet discovered according to the survey conducted by Men and Mice, an Ireland-based software security company (Formski and Heavens, 2001). Many claimed that most security breaches are due to the lack of timely updates of security patches by the network administrators. It is very important not only to implement SSL encryption but also to subscribe the security-alert reports from the computer emergency response team (CERT) that provides the necessary information for Internet security. CERT collects reports on computer crime, provides information to vendors, and distributes information from vendors regarding vulnerabilities of their systems. Joining CERT will help you update your security features as needed. CERT may not guarantee your system immunity from security breaches, but it certainly can help you reduce the chances of being victimized.

Fourth, protecting private information is a very important concern among current online shoppers. For example, two privacy groups, the Electronic Privacy Information Center (EPIC) and Junkbusters Corporation, requested the Federal Trade Commission (FTC) to determine if Amazon deceived its US customers by changing its privacy policy to permit disclosure of personal customer information (Rosencrance, 2000). Due to these incidents, EPIC and Junkbusters severed their ties with Amazon. This incident shows how seriously online shoppers consider privacy issues. Thus having an explicitly specified policy about your private information treatment on the Web page is very important to prospective customers.

Fifth, it is recommended that customers are allowed (or encouraged) to do comparison shopping. In other words, it is suggested that intelligent agent technology be implemented to compare the merchandise between your store and competitors’. For example, as mentioned before, you may use Tete-a-Tete that recommends products based on a multi
attribute utility theory. The important aspect is not to compare merchandise based on one dimension only such as price. Instead you should allow all features of merchandise to be compared between your store and competitors’. If you do so, the shoppers may have more confidence in your store because they probably think you do everything you can to provide the right merchandise at the right price with the right features. In addition, if your store is selected for comparison from other agents, you should not block it even though it compares only one dimension that may be your store’s weakness. For example, your online store may emphasize service with a little higher price than competitors. Agents from other stores want to compare your merchandise and their merchandise in terms of price. Under this situation, some stores block the price requests from intelligent agents because they know they charge higher prices with better service. However, if your store is not listed in the search result, many shoppers will think either you do not sell that item or your merchandise is not reasonably priced. Thus, it is important to be included in any search or comparison and let online shoppers decide where to buy.

Sixth, it is useful to utilize the FAQ sections effectively to improve CRM. When you provide a FAQ section, managers need to emphasize what your customers want to know instead of what managers want to tell customers. It is also recommended to include intelligent search functions in the FAQ section because customers sometimes do not know how to phrase their questions. It will resolve the problem of using different terminologies between the online store management and customers.

Seventh, implementing an SSL encryption technique may not be enough to make customers feel safe when shopping at your store. Instead, the more important issue in e-commerce is to maintain trust between a seller and a buyer. In a traditional trading environment, it is possible to establish a trust relationship through physical contacts. However, in cyberspace it is different from a traditional trading environment to inspire user trust. For example, shallow commitments and broken promises are dangerously explosive in e-commerce (Shneideman, 2000). It will take several years of effort to regain lost trust because trust is based on the positive expectations a person has for another person or an organization based on past performance and truthful guarantees. Thus, once you specify your policy on the Web page, you need to do your best to keep that policy to maintain the trust relationship with your customers. It is possible to establish trust over the Internet if a media transmits a social experience, including its participants’ cultural and personal cues, which may not be visible to any of the parties, as in text-based exchanges (Olson and Olson, 2000). Thus, the design of interface needs to recognize the kind of experience and social cues people need to be able to feel trust and the kind of experience and social cues we actually get from those technologies. Some other features that may help to improve the trust relationship are:

- make it very easy for customers to make a contact;
- effective use of e-mail and the Web to keep customers informed of their order status;
- use a secure server technology to enhance the customer’s sense of security;
- prominent and useful FAQ pages;
- clear information on returned goods policy; and
- no surprises, such as failing to mention anything about border duties or extra shipping charges (Huff and Wade, 2000).

Lastly, it is important to online shoppers to download necessary features in a reasonable amount of time. If only downloading speed is important, all text-based message is the best option to online stores. However, it is obvious that not many customers will purchase merchandise if an online store has an all text-based Web page without any pictures and other features. It should be balanced between the proper level of service features and downloading speed. Sometimes, online stores provide features that cannot be downloaded at the customer’s site due to the technical limitations of devices the target customers have. For example, a 56K modem can deliver voice quality videos and slide shows with audio, while a digital subscriber line (DSL) or cable modem can perform a variety of tasks including near-CD quality audio and a full motion, full screen video. Thus, it is important to recognize what technology your target customers currently have and measure the download time under the target customers’ environment instead of a lab environment that may have the fastest connection available.

**Conclusion**

As more shoppers purchase merchandise and service from online stores, the expectations of customers may change rapidly. Therefore, this study describes the factors influencing online shoppers’ perceived satisfaction among young generations, especially college students (traditional and non-traditional students). The findings are somewhat different from previous studies. For example,
Jarvenpaa and Tod (1996-1997) claimed that the factors affecting the intention toward shopping on the Internet (satisfaction measures) were significantly influenced in the order of product perceptions (variety, price, quality), shopping experience (convenience, comparability), and service quality (responsiveness, tangibility, reliability) of online retailers. In this study, the significant factors are convenient and dependable shopping, reliability of the retailer, additional information, and product perceptions.

Convenient and dependable shopping is the most significant factor to satisfy online shoppers currently. Providing a convenient shopping environment may require established standards that need to be accepted by the industry as a whole as well as the advancement of technology. In this study, it was revealed that there can be many features to make online shopping much easier such as easy comparison shopping, easy navigation of a Web site, flatter hierarchy of a Web site, and easy to find contact information. It is true that almost all the features of online shops can be used to make the shopping experience convenient or difficult. For example, if it is difficult to locate the correct shipping and handling cost, it may affect negatively both shopping convenience and vendor credibility. Thus, the important guideline to online store management is how to provide shopping convenience to customers using the technologies available to most of us currently.

The emphasis on dependable shopping features may be due to the large number of online vendors who provide a variety of merchandise and competitive prices. Consumers want to search vendors and merchandise efficiently and effectively. They also want to have information about order and delivery status promptly. Because there are many online stores in cyberspace, it is important to convince online shoppers that they are dealing with reliable online vendors these days. To make shoppers more satisfied, you need to demonstrate how reliable your store is. One important aspect of vendor reliability is guarantees or warranties from the retailer or the manufacturer of merchandise. In contrast to this phenomenon, several years ago, it might be true that many online shoppers purchased merchandise from the few well known online stores and the reliability of an online retailer might not have been a serious issue. In today’s environment, if an online store provides convenient and dependable shopping as well as reliability of the vendor itself, it may put that store ahead of competitors in cyberspace.

The findings of this study suggest that online retailers need to emphasize specifying how they guarantee on-time delivery and prompt feedback on order status clearly on their Web pages. More importantly, they should follow what they promised as much as possible to improve shoppers’ satisfaction as well as trust. As mentioned earlier, a slight deviation from what is promised will damage your trust seriously. Thus, clearly specified policies or explanations and strictly following them will perhaps make customers more satisfied and trust your site more.

This study provides a snapshot of online shopping satisfaction among college students today. Due to the limited scope of sample domain and size, it is not clear if we can generalize the results of this study to the general public even though 65.2 percent of sample subjects are full time employees while they are pursuing an MBA degree. Therefore, it is suggested that a wider range survey conducted on the general public to investigate the factors influencing online shopping satisfaction.

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**Appendix. Survey questionnaire**

Dear Students:

We are conducting a survey of College Students Internet Shopper Satisfaction. Kindly assist in this study by completing this questionnaire and returning it to your instructor. All responses are totally confidential.

To what extent do you agree/disagree with the following statements. Circle the number that applies to each statement.

I believe that each of the following factors (1 through 27) _________ is important in increasing the customer satisfaction when shopping online.

<table>
<thead>
<tr>
<th>Q1. Good quality picture of a product</th>
<th>Very Strongly DisAgree</th>
<th>Very Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2. Proper size picture of a product</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q3. Broad product variety (number of products offered) that you may find additional or unexpected items</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q4. &quot;What’s new&quot; section that introduces new products</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q5. Any information on care, maintenance, and use of a product</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q6. Detailed information on warranty/guarantees and product quality information</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q7. Availability of links to the similar products, other sites</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q8. Lower price than other online stores or traditional stores</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q9. Detailed information on shipping and handling cost and other costs information</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q10. Easy to find the contact information such as E-mail address or phone number</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q11. Detailed description of a company such as history and mission statements</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q12. Detailed information of order processing such as return policy, credit policy, etc.</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q13. Clear and easy to read return and refund policy</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q14. Frequently Asked Questions for obtaining necessary information easily</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q15. Prompt feedback on order and delivery status at your request</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q16. Other customers’ opinions or testimonials</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q17. Promotions such as appetizers, frequent buyer schemes, magazine articles, and lottery games related to the product</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q18. Any time (24 hours, 7 days a week) purchase</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q19. Effective and efficient search function to find product and related information easily</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q20. Selective cancellation of purchased item (not canceling all items in a shopping cart)</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q21. Information on anticipated receiving date, out-of-stock items, etc. on when you order</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q22. Have confirmation E-mail with order number to provide cancellation or return</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q23. Easy navigation of online store, such as site index, product index, and back and forward without losing any information</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q24. Few clicks (pages) to get to the end product from the home page</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q25. Providing timely (up to date) information on the Web page of online store</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q26. Providing clearly written policy of managing credit information and handling privacy information</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
<tr>
<td>Q27. Providing secure transaction mechanism and detailed explanation how it works</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
</tr>
</tbody>
</table>

Thank you for your cooperation.