

# The relationship between consumer characteristics and attitude toward online shopping

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## Keywords

Electronic commerce,  
Consumer behaviour,  
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## Abstract

The purpose of the experiment reported here was to examine Internet user concerns and perceptions of online shopping. The attitude of Internet users toward online shopping was measured using the Fishbein model. The relative factors influencing user attitudes toward online shopping and the relationship between the attitude and the influence factors were explored. The results show that the Fishbein model can effectively measure consumer attitudes and the examined consumer characteristics were important influence factors on consumer attitudes and online shopping decisions.

## Introduction

The Internet has been widely cited in the popular press (Miyazaki and Fernandez, 2001). Reports in 2000 stated that over half of all American adults used the Internet (Sefton, 2000). Moreover, approximately half of the current Internet users have purchased products or services online (Sefton, 2000). Ernst & Young (2000) reported that 79 percent of non-buyers planned to purchase via the Internet, resulting in increasing online sales. Unlike traditional media, the Internet encompasses the entire sales process. Marketing campaigns can create awareness then drive consumers all the way through the process to actually making a purchase online (Goodwin, 1999).

Attitudes, perceptions and motivations are not apparent from clicks on banners or online purchases, but are an important part of the success or failure of online marketing strategies (Goodwin, 1999). A person's buying choices are further influenced by four major psychological factors: motivation, perception, learning and beliefs and attitude (Armstrong and Kotler, 2000). This is central to a buyer's purchase behavior process. These are the tools people use to recognize their feelings, gather and analyze information, formulate thoughts and opinions and take action (Wells and Prensky, 1996). That means that, through motivation, perception and learning, attitudes are formed and consumers make decisions. Thus, attitudes directly influence decision making. Attitudes serve as the bridge between consumers' background characteristics and the consumption that satisfies their needs. Attitudes describe a person's relatively consistent evaluations, feelings and tendencies toward an object or idea. Attitudes put people into a frame of mind for liking or disliking things, for moving toward or away from them

(Armstrong and Kotler, 2000). Because attitudes are difficult to change, to understand consumer attitudes toward online shopping can help marketing managers predict the online shopping rate and evaluate the future growth of online commerce. However, attitudes are developed from personal experiences and learning with reality, as well as from information, from friends, salespeople and news media. They are also derived from both direct and indirect experiences in life (Loudon and Delk. Bitta, 1993).

It is thus important to recognize that numerous factors precede attitude formation and change. Consumer background characteristics are the innately stable characteristics of a consumer's life based on the consumer's cultural background, values and demographics, psychological, and social attitudes (Wells and Prensky, 1996). The object of this research was to explore the consumer characteristics influencing consumer attitudes toward online shopping. The results from investigating the relationships among online shopping levels, attitude and the relative influence factors are presented.

This study begins with an examination of Internet user concerns and perceptions regarding online shopping. The attitudes of Internet users toward online shopping are then measured. The relative factors influencing consumer attitudes toward online shopping are then explored. The relationship between the attitudes and influence factors are discussed with in concert with the policy issues that surround these attitude influence factors.

## Attitude measure method

Attitude surveys are widely used throughout marketing today. One of the most influential



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and widely researched models in the literature is Fishbein's behavioral model (Burnkrant and Page, 1982). Many marketers and consumer behaviorists have given more attention to the Fishbein model (e.g. Woodside and Clokey, 1974; Bass and Talarzyk, 1972; Mazis *et al.*, 1975; Etter, 1975). Etter (1975) examined the relationship between Fishbein's attitude model and decision theory models. Lutz (1977) reported on two laboratory-type experiments designed to investigate the causal relationships within the Fishbein model. Fishbein's position was that people form attitudes toward objects on the basis of their beliefs (perceptions and knowledge) about these objects. Fishbein's model was constructed so that a person's overall attitude toward some object could be derived from his beliefs and feelings about various attitudes about the object. The Fishbein model can thus be used as a multi-attribute attitude measurement model.

Fishbein's attitude model can be expressed in equation form as (Fishbein, 1967a, b):

$$A_o = \sum_{i=1}^n b_i e_i$$

where:

- $A_o$  = the person's overall attitude toward object o.
- $b_i$  = the strength of his belief that the object is related to attribute i (such as the strength of the belief that online shopping is convenience).
- $e_i$  = evaluation or intensity of feelings toward attribute i.
- $n$  = the number of relevant beliefs for that person.

The strength ( $b_i$ ) of each belief can be measured on a scale such as the following:

Online shopping is convenience				
Likely	—	—	—	Unlikely
(True)	5	4	3	2 1 (False)
	(2)	(1)	(0)	(-1)(-2)

After obtaining the belief score, the consumer would be asked to indicate their evaluation ( $e_i$ ) of each product or service attribute for which a salient belief exists.

The convenience of online shopping is:				
Good	—	—	—	Bad
(Important)	5	4	3	2 1 (Unimportant)
	(2)	(1)	(0)	(-1)(-2)

Each of the consumer's belief scores ( $b_i$ ) is now multiplied by its respective evaluation score ( $e_i$ ) and all of the scores for the product or service attributes are then added, producing the consumer's overall attitude regarding this product or service.

New modeling efforts were necessary to account for the additional complexity

introduced by more factors. Fishbein responded with the behavioral intentions models. Many researchers used this model to measure and account for consumer behavior. Harrell and Bennett (1974) reported on a comprehensive physician drug prescribing behavior study using a national sample of private practicing physicians. The Fishbein behavioral intentions model was tested and cross-validated in this study. Evans (1977) applied Fishbein's behavioral intention model and path analysis to the subject of message content assessment. The results indicated that the evaluative message was the most effective and had the most influence. Burnkrant and Page (1982) empirically examined issues relevant to the construct validity of Fishbein's behavioral intention model. The results supported a model in which a single attitude construct and single normative construct were antecedents of intention.

Because one of the attitude models stated that the conceptual foundation for marketing studies is the Fishbein model (Ahtola, 1975; Fishbein, 1963, 1965, 1967a, b; Fishbein and Raven, 1962), this study measured the attitudes of Internet users toward online shopping using the Fishbein model and explored the relative factors which influenced consumer attitude toward online shopping. The attitude model proposed by Fishbein is somewhat similar to the subjectively expected utility models. In this model the attitude is a sum of the evaluative reaction to a salient property of the product or service and the strength of the belief connecting this property to the object or event across all salient properties (Ahtola, 1975): for example, in a pilot study some subjects say: "online shopping is very safe". The problem with this approach is that when the belief strength ( $b_i$ ) is measured by scales like: "probable-improbable", "true-false", or "likely-unlikely", the evaluation ( $e_i$ ) of this is measured by scales like: "good-bad", "very important-not important at all". In this model the overall attitude is a sum of the evaluative reaction to a salient property and the strength of belief connecting that property to the attitude, object or event across all salient properties. When the consumers' overall attitudes are acquired, the relationship between the consumer's characteristics and the attitudes toward online shopping can be explored.

### Consumer characteristics and attitude

Consumer purchases are influenced strongly by cultural, social, personal and

psychological characteristics. For the most part, marketers cannot control such factors, but they must take them into account (Armstrong and Kotler, 2000). The external influences upon consumer behavior include demographic, economic, social, situational and technological factors. The internal factors, such as beliefs and attitudes, learning, motives and needs, personality, perception, and values are involved. The lifestyle is between the external and internal influences on consumer buying behavior, because it truly involves elements of both. Although external factors have a substantial effect on the behavior of buyers, no less important are the internal factors (Keegan *et al.*, 1992). Wells and Prensky (1996) divided these underlying factors into two broad components that were the key parts of the framework for consumer analysis: consumer background characteristics, and behavioral processes. Consumer background characteristics are an innate part of a consumer's makeup. These are the things that consumers are – the way that individuals describe themselves and the way they label others. These characteristics are stable aspects of a consumer's life that cannot be changed. Demographic characteristics, such as gender, age, or ethnic background, are examples of background characteristics. Behavioral processes are the motivational, perceptual, learning, attitude formation, and decision-making tools consumers use to complete the activities that satisfy their needs. Unlike background characteristics, behavioral processes can be affected by a person's environment because they are applied on specific occasions. The background characteristics are the influence factors of behavioral processes. Marketers and public policy actors are particularly interested in these processes because they offer opportunities for them to exert their influence over consumers. Because attitudes are easier to change than beliefs or values, they are often the focus of marketing efforts to get consumers to buy.

According to the above theory and viewpoint, this study arranged and combined the influence factors of attitude and identified the consumer characteristics using four areas that are: consumer demographics, consumer purchase preference, consumer benefit perception, and consumer lifestyle. Consumer demographics are the external influence factors that include the consumer's gender, age, occupation, education, income, interest, and living area, etc. Consumer purchase preferences belong to internal factors that include the consumer's purchase motivation and preference. The consumer

benefit perceptions are the sum of online shopping advantages or satisfactions that meet an individual's needs or wants. Consumer lifestyle is defined as a person's pattern of living. It involves measuring the consumers' major AIO dimensions: activities, interests and opinions. These four areas are all important influence factors toward a consumer's attitude and purchase decisions.

## Methodology

### Framework

The conceptualization of the relationship construct is shown in Figure 1. This particular framework for consumer attitude is affected by the consumer characteristics and directly affects the shopping decision.

According to this framework, the four parts of consumer characteristics extend influence upon the consumer's attitude toward online shopping and direct consumer purchases. These consumer characteristics have a significant relationship with the attitude toward online shopping and the attitude toward online shopping has a significant relationship with the online shopping rate. The following hypotheses are offered with assumed consumer evaluations of the relationship between the attitude toward online shopping and the other influence variables:

- H1. The attitude toward online shopping is significantly different based on the various consumer demographics.
- H2. The attitude toward online shopping is significantly different based on the various consumer purchase preference.
- H3. The attitude toward online shopping has a significant relationship with the consumers' benefit perception.
- H4. The attitude toward online shopping has a significant relationship with the consumer lifestyle.
- H5. The attitude toward online shopping is significantly different based on the various online shopping rates.

### Measure

An initial focus group with ten potential customers was conducted to collect original consumer needs and attitudes associated with online shopping. About 150 descriptions of benefit needs were collected. All possible and non-redundant needs obtained from the first focus group were recorded as primary needs. The second focus group, with ten customers, was used to combine and reduce the number of primary needs. The results generated 40 representative items about the

respondents' benefit need perceptions and attitudes toward online shopping. A third focus group, composed of ten Internet users, was used to verify the descriptions in order to design a questionnaire concerning the benefit needs and attitudes for online shopping. Finally, 38 items concerning benefit needs and attitudes were obtained and put into a questionnaire for a random sampling survey. The SRI value and lifestyles (VALS) Program (Piirto, 1991) was used to design and acquire 26 lifestyle questions. Lifestyle was defined as a person's pattern of living. It involves measuring consumers' major AIO dimensions: activities, interests and opinions. In this study, consumer benefit needs were measured using a five-point semantic difference scale, lifestyle were collected using a five-point Likert scale. Consumer purchase preferences, demographic data and the online shopping rate were assessed using a nominal scale.

Attitude beliefs toward online shopping were measured using 38 semantic difference items on benefit needs and attitudes that respondents evaluated with true/false responses on a five-point scale. Attitude toward online shopping in general was measured with 38 five-point semantic differential items requesting respondents to evaluate whether their attitude toward online shopping was important/unimportant (Craig *et al.*, 1994). For example, each subject rated profiles with the form:

	Online shopping is cheap					
True	—	—	—	—	—	False
	5	4	3	2	1	
Important	—	—	—	—	—	Unimportant
	5	4	3	2	1	

	Online shopping is effective					
True	—	—	—	—	—	False
	5	4	3	2	1	
Important	—	—	—	—	—	Unimportant
	5	4	3	2	1	

Respondent evaluation scores were multiplied by each of the consumer belief scores and all 38 items were added, producing the consumer's overall attitude.

**Sample**

The primary data from this research were collected using a survey of 600 Internet users through personal interviews. Members were randomly selected in Taiwan. Because some responses were not usable, the final sample was 539 for an effective response rate of 89.83 percent. Respondent ages ranged from 15 to 40 years old. Gender was almost equally balanced (49.9 percent male, 50.1 percent female). Education levels ranged from junior high school to graduate degree. Monthly individual gross income ranged from US\$0 to US\$550 to over US\$2,251. Respondent occupations were engineers (32.84 percent) or students (32.10 percent) followed by businessman (11.50 percent). Their interests were variant and most lived in the city (58.07 percent) followed by villages (30.06 percent). These demographic characteristics were similar to those of Internet users.

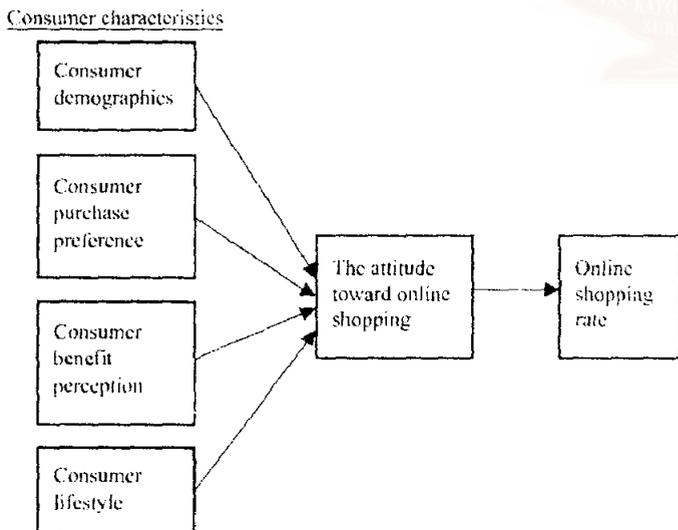
**Analysis of data**

This study used analysis of variance to provide evidence that consumer attitudes toward online shopping had significant differences based on consumer demographics. The results showed that the attitude toward online shopping had significant differences in all the items of the consumer demographics ( $p < 0.05$ ), as shown in Table I. This supports *H1*.

Using analysis of variance, the online shopping attitude was shown to have significant differences on two items in the consumer purchase preference ( $p < 0.05$ ). It was shown that the attitude toward online shopping had a significant relationship with these two consumer purchase items, number of times and payment method. This supports *H2* partly, as shown in Table II.

The consumer benefit needs data were submitted to a principal component factor analysis with a varimax rotation. Using an eigenvalue greater than 1 as a selection criterion, nine factors emerged. These factors were:

**Figure 1**  
 Consumer characteristics, attitude and online shopping



**Table I**  
Analysis of variance for consumer demographics

Consumer demographics item	Attitude mean	F	p	Scheffe test
<b>Gender</b>				
1. Female (50.1 percent)	446.84	8.972	0.003**	
2. Male (49.9 percent)	477.44			
<b>Age (years)</b>				
1. 15-20 (21.0 percent)	480.93	8.920	0.000**	(1,3)(1,4)
2. 21-25 (18.0 percent)	487.16			(2,3)(2,4)
3. 26-30 (19.0 percent)	428.41			(3,1)(3,2)(3,5)
4. 31-35 (21.0 percent)	423.07			(4,1)(4,2)(4,5)
5. 36-40 (21.0 percent)	490.68			(5,3)(5,4)
<b>Education</b>				
1. Junior high school (20.41 percent)	470.56	3.425	0.017*	(1,4)
2. Senior high school (32.1 percent)	463.99			(2,4)
3. College (42.67 percent)	464.91			(3,4)
4. Graduate School (4.82 percent)	390.19			(4,1)(4,2)(4,3)
<b>Occupation</b>				
1. Student (32.1 percent)	484.57	2.283	0.027*	
2. Soldier (1.86 percent)	500.80			
3. Government employees (4.45 percent)	464.38			
4. Financial worker (5.57 percent)	443.23			
5. Engineers (32.84 percent)	444.88			
6. Businessmen (11.50 percent)	477.29			
7. Housewife (8.53 percent)	440.44			
8. Others (3.15 percent)	425.35			
<b>Income monthly (US\$)</b>				
1. below 550 (34.51 percent)	483.88	5.314	0.000**	(1,2)
2. 551-1,150 (42.49 percent)	437.84			(2,1)(2,3)
3. 1,151-1,700 (9.46 percent)	498.88			(3,2)
4. 1,701-2,250 (7.42 percent)	455.20			
5. above 2,251 (6.12 percent)	460.27			
<b>Interest</b>				
1. Sports (19.85 percent)	480.37	14.122	0.000**	(1,2)
2. Reading (16.14 percent)	389.13			(2,1)(2,4)(2,5)(2,6)
3. Music (22.82 percent)	437.30			(3,6)
4. Internet (11.69 percent)	476.62			(4,2)
5. Travel (15.96 percent)	488.83			(5,2)
6. Watching TV (13.54 percent)	520.53			(6,2)(6,3)
<b>Living area</b>				
1. City (58.07 percent)	448.43	5.023	0.007**	(1,3)
2. Suburban (11.87 percent)	478.73			
3. Village (30.06 percent)	482.15			(3,1)

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$

- 1 effectiveness and modern;
- 2 purchase convenience;
- 3 information abundance;
- 4 multiform and safety;
- 5 service quality;
- 6 delivery speed;
- 7 homepage design;
- 8 selection freedom; and
- 9 company name familiarity.

These nine factors accounted for 71.05 percent of the variance. Cronbach's  $\alpha$  of all factors was greater than 0.52, as shown in

Table III. Examining the correlation between attitude and the nine factors of benefit perception tested  $H3$ . As shown in Table IV, there was positive association in every case ( $p < 0.05$ ). This supports  $H3$ . Thus, all of the consumer benefit perception factors were shown to have a positive influence on attitude toward online shopping.

There were 26 lifestyle variables employed in a principal component factor analysis with varimax rotation, using eigenvalues greater than 1 as the criterion. Eight lifestyle factors were successfully retained. The eight

**Table II**  
Analysis of variance for consumer purchase preference

Purchase behavior item	Attitude mean	F	p	Scheffe test
<b>Purchase times</b>				
1. Once a month (20.76 percent)	547.00	3.422	0.024*	(1,4)
2. Once every three months (24.53 percent)	523.15			
3. Once every six months (26.41 percent)	503.64			
4. Once a year (28.30 percent)	434.53			(4,1)
<b>Payment method</b>				
1. Credit card (36.18 percent)	509.33	25.083	0.000**	(1,2)(1,3)(1,4)
2. Cash (23.19 percent)	442.06			(2,1)(2,4)
3. Transfer account (36.36 percent)	443.43			(3,1)(3,4)
4. Check (4.27 percent)	331.23			(4,1)(4,2)(4,3)
<b>Delivery</b>				
1. Sent to home (73.47 percent)	468.74	2.304	0.101	
2. Take at store (8.53 percent)	447.63			
3. Mail (18.0 percent)	442.21			

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$

**Table III**  
Factor analysis and reliability for benefit perception

Benefit factor	Eigenvalue	Cumulative percentage of variance	Cronbach's alpha
1. Effectiveness and modern	15.2807	39.95	0.9298
2. Purchase convenience	2.2481	45.87	0.8460
3. Information abundance	1.9507	51.00	0.8138
4. Multiform and safety	1.7709	55.66	0.8191
5. Service quality	1.3427	59.19	0.8079
6. Delivery speed	1.2481	62.48	0.6373
7. Homepage design	1.1377	65.47	0.5181
8. Selection freedom	1.0780	68.31	0.7044
9. Company name familiarity	1.0420	71.05	0.6084

- 1 leadership;
- 2 actively;
- 3 knowledge searcher;
- 4 like computer;
- 5 fashion;
- 6 attach to appearance;
- 7 spend time at home; and
- 8 regular life.

Examining the correlation between attitude and the eight factors of lifestyle tested  $H_4$ . As shown in Table VI, there was positive association in three cases ( $p < 0.05$ ). This supports  $H_4$  partly. Thus, it shows consumer's lifestyle factors "like computer", "attach to appearance", and "regular life" were a positive influence on attitude toward online shopping.

Through analysis of variance, this study confirmed that consumer attitude toward online shopping showed significant differences based on the various consumer online shopping rate ( $p < 0.05$ ). Consumers shopping on online who had a significantly higher attitude mean score than consumers who were not shopping online, as shown in Table VII. This supports  $H_5$ .

**Table IV**  
Correlation analysis between attitude and consumer benefit perception

Benefit factor	Attitude (Pearson correlation coefficient)	p
1. Effectiveness and modern	0.537	0.000**
2. Purchase convenience	0.244	0.000**
3. Information abundance	0.246	0.000**
4. Multiform and safety	0.182	0.000**
5. Service quality	0.110	0.010*
6. Delivery speed	0.129	0.003**
7. Homepage design	0.242	0.000**
8. Selection freedom	0.216	0.000**
9. Company name familiarity	0.302	0.000**

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$

common factors account for 64.19 percent of the total variance. Based on the corresponding factor loads for each variable, the eight lifestyle factors are named in Table V. They are:

## Results

The results of this study supported nearly all of the hypotheses. It was shown that consumers who shop online have higher attitude scores and this higher attitude score is directly related to online purchase decisions. The group with the higher attitude score should be the target market. The consumer demographic items all had a significant relationship with the attitude toward online shopping. The mean attitude

score for males was significantly higher than that for females. Consumers 36 to 40 years old had the highest attitude scores. Consumers with a junior high school education and the following occupations: soldiers, student, who like to watch TV, with a monthly income from US\$1,151 to US\$1,700 and live in villages, have higher attitude scores. Consumers who like computers, are attached to their appearance and have regular life activities have higher attitude scores. Thus, the group with the above consumer characteristics is a target segment for online shopping. Marketing managers could design a marketing strategy to focus on this group. The marketing strategist must emphasize the

benefits of online shopping, effectiveness and modern, company name familiarity, purchase convenience, information abundance and selection freedom etc., then design an excellent homepage to catch the attention of consumers and meet the consumer's information needs.

## Conclusion

The purpose of the experiment was to examine Internet user concerns and perceptions of online shopping and measure the attitude of Internet users toward online shopping using the Fishbein model. The relative influences factors on attitude toward online shopping and were explored and the relationship between the attitude and the influence factors was presented. The results showed that the Fishbein model could effectively measure consumer attitudes and the important consumer characteristics that influence online shopping attitude and shopping decisions. Future research can use the Fishbein intention model to account for the additional complexity introduced by more factors. It should be a more effective research tool to measure and account for consumer behavior.

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**Table V**  
Factor analysis and reliability for lifestyle

Lifestyle factor	Eigenvalue	Cumulative percentage	
		of variance	Cronbach's alpha
1. Leadership	4.9407	19.00	0.7051
2. Actively	2.7998	29.77	0.5341
3. Knowledge searcher	2.0005	37.47	0.7094
4. Like computer	1.6255	43.72	0.6344
5. Fashion	1.5153	49.55	0.6337
6. Attach to appearance	1.4273	55.04	0.4527
7. Spend time at home	1.3298	60.15	0.5364
8. Regular life	1.0504	64.19	0.4784

**Table VI**  
Correlation analysis between attitude and lifestyle factor

Lifestyle factor	Attitude (Pearson correlation coefficient)	p
1. Leadership	0.014	0.753
2. Actively	-0.059	0.173
3. Knowledge searcher	-0.074	0.088
4. Like computer	0.110	0.010*
5. Fashion	0.058	0.179
6. Attach to appearance	0.171	0.000**
7. Spend time at home	0.046	0.284
8. Regular life	0.123	0.004**

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$

**Table VII**  
Analysis of variance for online shopping

Item	Attitude mean	F	p
<b>Online shopping</b>			
1. Yes (9.83 percent)	497.87	5.289	0.022*
2. No (90.17 percent)	458.27		

Note: \*  $p < 0.05$

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# Consumers' perceptions of e-shopping characteristics: an expectancy-value approach

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## Keywords

Electronic commerce, Internet, Shopping, Expectation, Value analysis, Attitudes

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## Abstract

An increasing number of consumers are turning to the Internet to make their purchases. Yet, many e-tailers are going out of business or retrenching. If e-tailers hope to attract and retain satisfied online shoppers, they need to know what evaluative criteria consumers use when selecting an e-tailer. Past research has provided some insight into what characteristics shoppers assess in cyberspace outlets. The extant work, though, has not been without its limitations. Consequently, the present study utilizes a literature review, qualitative research, and quantitative research to identify the underlying e-store choice dimensions of shoppers. In addition, results of multiple regression analysis show that merchandise and interactivity Web attributes are predictors of consumers' attitude toward online shopping. Implications for e-store managers and future research are also provided.

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An executive summary for managers can be found at the end of this article.

Internet shopping is becoming an accepted way to purchase various types of goods and services (Donthu, 1999). In 2001, online sales were \$48.3 billion, representing an annual growth rate of 45.9 percent, and online sales are expected to grow to \$108 billion by 2003 (Shim *et al.*, 2001). Through a computer-mediated shopping environment, online retailers have attracted consumers by offering a reduction in search costs for products and product-related information (Janssen and Moraga, 2000; Shankar *et al.*, 1999).

Attendant with the explosion in Internet shopping is tremendously increasing interest in e-commerce research, particularly with respect to e-shopping attributes. For instance, previous researchers have examined e-store characteristics as predictors of online consumers' intention (Shim *et al.*, 2001), satisfaction (Szymansky and Hise, 2000), and acceptance of new technology (Morrison and Roberts, 1998). In these studies, e-store characteristics were developed from either qualitative research (e.g. Morrison and Roberts, 1998; Szymansky and Hise, 2000; Yoo and Donthu, 2001) or a literature review (e.g. Shim *et al.*, 2001).

Notwithstanding the extant literature, there are limitations in previous studies that demand attention. First, there has been discordance in categorizing e-shopping attributes. For example, some studies have included the navigation function (e.g. access to the Web site, locating an item on the Web site) with convenience characteristics (e.g. Morrison and Roberts, 1998; Shim *et al.*, 2001), yet others have classified these attributes as two independent criteria (e.g. Lohse and Spiller, 1998).

Another problem with prior work on e-store dimensions lies in the inconsistent research methods. For example, Lohse and Spiller (1998) attempted to identify attributes of online retail stores in terms of merchandise, service, promotion, convenience, and navigation. Their findings, however, were predicated on a survey of stores rather than consumers – thus, critical consumer input regarding e-tailer Web site characteristics was overlooked. As a result, they analyzed only descriptive attributes of e-stores (e.g. merchandise, service, promotion, convenience, navigation) but did not consider other attributes that are reported to be important factors affecting cyber shoppers' online transactions, such as security and privacy policies.

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(eMarketer, 2001b, c), as well as download waiting time (Dellaert and Kahn, 1999; Weinberg, 2000).

The foregoing weaknesses in previous research indicate additional empirical work is needed to identify evaluative criteria consumers consider when selecting a cyberspace store. By knowing these criteria, e-tailers should be able to enhance the design of their commercial sites and quality of service fulfillment in order to increase customers' positive attitude about a given e-tailer.

Consequently, a study was designed to explore consumers' perceptions of e-shopping attributes, including Web site design and service fulfillment, *vis-à-vis* online shopping attitude. We did so utilizing an expectancy-value approach, as promulgated by Fishbein and Ajzen (1975). Although previous studies categorized e-shopping attributes using either a literature review or qualitative research, the present investigation identifies e-shopping attributes through a literature review (i.e. traditional retail stores, home-based shopping such as TV and paper catalogs, online shopping), qualitative research, and quantitative research. Exploratory factor analysis and confirmatory factor analysis are conducted to create profile categories shared by multiple attributes. Then, multiple regression analysis is employed to examine the impact of these underlying e-store dimensions on consumers' attitude towards online purchase.

An e-store can be defined as a commercial Web site on which consumers can shop and make a purchase. E-stores can be operated by either a pure player (i.e. a retailer that has only an online outlet) or a traditional retailer (i.e. a retailer that owns both brick-and-mortar stores as well as an online outlet). In this study, attributes of general e-stores (i.e. both pure players and traditional retailers) are considered. Essentially, then, the objectives of the study are to:

- (1) determine the underlying dimensions of consumers' perceptions of e-shopping attributes; and
- (2) explore their effect on consumers' attitude toward online purchasing.

## Literature review

Lindquist (1974) has underlined the importance of store image as a predictor of consumers' store choice. A person's behavior is not only a function of knowledge and information but also is predicated on the consumer's image of a product or store. From a marketer's viewpoint, store image is characterized by two elements:

- (1) a store's "tangible or functional qualities" (e.g. merchandise selection, price ranges, credit policies, store layout); and
- (2) "intangible or psychological attributes" (e.g. a sense of belonging, the feeling of warmth or friendliness, a feeling of excitement or interest).

"Attributes" represent the combined concept of functional and psychological factors that exist in a store. When making a store choice decision, consumers evaluate store alternatives on a number of store attributes (Lindquist, 1974). Patrons and non-patrons have different perceptions of a store's image. As such, retailers need to ensure that dimensions that their loyal customers view as being important are designed to be attractive to them.

Similarly, e-store image is likely to have a major influence on online customers when they determine from which e-tailer to buy. E-store image, though, will likely be defined differently from bricks-and-mortar store image. After all, the way in which consumers shop in e-tail venues is different from how they shop in a physical store, owing to the absence of a physical store milieu. Conceivably, then, consumers seemingly will likely assess some unique store attributes in online shopping *vis-à-vis* those utilized in physical store shopping.

Arguably, e-stores do share *some* common features with a physical store in terms of merchandise, service, and promotion. There is also some similarity between traditional modes of in-home shopping, such as TV and catalog shopping, and online shopping. Owing to the nature of computer-mediated communication, however, online retail stores have unique features that do not exist in either the physical store or in-home shopping. Prior to developing *e-stores'* unique attributes, those of the physical store and in-home shopping (TV and catalogs) are discussed. Features of each shopping alternative are identified through a review of literature pertaining to store image and consumer store choice.

### Evaluative criteria of physical retail stores

Sheth (1983) expanded determinants of store choice by classifying consumers' shopping motives into two levels: functional and non-functional. Functional motives involve tangible features (such as price, convenience, and merchandise assortment); non-functional motives involve intangible features (such as store atmosphere, sales personnel service, and psychological reasons for shopping). By evaluating functional and non-functional qualities of a retail store simultaneously, consumers form their store image (Lindquist, 1974). Consumers ultimately choose a store that

maximizes their satisfaction with these perceived qualities (Sheth, 1983). Retail physical store characteristics identified by previous researchers are presented in Table I.

#### Evaluative criteria of in-home shopping

Traditional in-home shopping venues have included chiefly TV and catalog shopping. Shopping via TV affords consumers the opportunity to experience convenience through reduced shopping costs vis-à-vis physical effort. A distinct feature of TV shopping over catalog shopping is the role of the host/hostess. Also, the entertainment aspect of TV shopping appears to be an important factor for senior citizens (*USA Today Magazine*, 1997). Catalog shopping has carried consumers' favor with enhanced merchandise variety, as well as the reliability and security that can be garnered from established companies. Also, consumers seem to like catalog shopping owing to its ease of use: products tend to be clearly portrayed, and product information provides rapid comparisons. Moreover, telephone associates are available to help answer consumers' questions about products and services (*Consumer Reports Buying Guide*, 2000).

In-home shopping, however, can present certain disadvantages, such as the intangibility of products and relatively high shipping and handling fees (thus increasing the catalog's effective cost to the consumer). For example, one study found a

high incidence of consumer complaints about bad quality and poor delivery with TV shopping (Benterud and Sto, 1993). Also, consumers often complain about out-of-stock merchandise (*Consumer Reports Buying Guide*, 2000). For these reasons, consumers likely feel impelled to pay heed to shipping and handling information, satisfaction guarantees, and availability of a toll-free phone number to minimize dissatisfaction from home-based shopping. A summary of in-home shopping attributes is presented in Table II. (It is based solely on paper catalog shopping research, however, as prior work has not investigated TV shopping characteristics.)

#### Evaluative criteria of e-tailers

Online retail stores have some similar features to physical retail stores and catalogs. For example, online retailers offer e-mail addresses of sales associates or frequently asked questions (FAQ) sections to communicate with their customers, just as physical stores have sales personnel. Also, they share common attributes with paper catalogs by providing consumers with the convenience of in-home shopping and purchase delivery. And like catalogs, retail Web sites typically provide a toll-free telephone number through which their customers may contact sales associates for further information. Compared to other retail formats, however, many online retail stores have the advantage of seemingly unlimited merchandise

Table I Relevant attributes of physical retail stores

Factors	Attributes	Berry (1969)	Lindquist (1974)	Tigert (1983)	McDaniel and Burnett (1990)
Merchandise	Wide selection	✓	✓	✓	✓
	Numerous brands		✓		✓
	Well-known brands			✓	✓
	Availability in stock			✓	✓
	Price	✓	✓	✓	✓
Product quality	Value for money	✓		✓	✓
Convenience	Locational convenience	✓	✓	✓	✓
	Parking		✓		✓
	Moving through a store				✓
	Location of items				✓
	Exchange				✓
Physical facilities	Acceptance of credit cards				✓
	Store attractiveness	✓	✓	✓	✓
Sales personnel	Friendliness/courtesy	✓	✓	✓	✓
	Information service	✓	✓	✓	✓
Service	Ease of returns	✓	✓		
	Delivery service	✓	✓		
Promotions	Sales promotion	✓	✓		
	Advertising	✓	✓		
Institutional factors	Reputation		✓		
	Reliability		✓		
Clientele of a store	Social class appeal		✓		
	Self-image congruency		✓		

Table II Relevant attributes of home-based shopping

Catalog factors	Attributes	Eastlick (1989)	McDonald (1993)	Seaver and Simpson (1995)
Merchandise	Quality	✓		
	Assortment	✓		
	Style	✓		
	Price	✓	✓	✓
	Uniqueness	✓	✓	
	Availability of merchandise in stock	✓	✓	
Convenience	Accessibility	✓		
	Time-saving	✓		
	Effort-saving	✓		
	Ease of order placement	✓	✓	
Ease of catalog use	Method of payment	✓	✓	
	Easy to find merchandise		✓	
	Well-displayed merchandise		✓	
Home environment	Easy to read and understand		✓	✓
	Comfort at home	✓		
Service	Guarantees	✓	✓	
	Ease of merchandise return	✓	✓	
	Delivery service	✓	✓	
Promotions	Clearance			✓
Reputation	Recommendation by friends		✓	
	Well-known national brands		✓	
	Trust company's merchandise		✓	

and product information. Furthermore, e-tailer store design and layout have distinct features compared to those found in physical stores and paper catalogs (Spiller and Lohse, 1998).

The e-shopping attributes presented in Table III were drawn from an analysis of literature pertaining to physical retail stores, paper catalogs, and e-tailers. However, store dimensions of a physical store that are *not* applicable for online outlets (e.g. clientele of the store, physical facilities, store atmosphere) were excluded.

E-shopping attributes presented in Table III are now discussed.

#### *Merchandise characteristics*

Merchandise can be defined as either goods or services offered by a retail store (Eastlick, 1989; Lindquist, 1974). Because of the unique nature of the Internet-mediated shopping environment, consumers' evaluation criteria for e-tailer merchandise might be somewhat different from those for traditional retailers. For instance, unlike

Table III Summary of e-shopping attributes used in previous studies

E-store factors	Attributes	Examples
Merchandise	Product information	The perceived depth of product information
	Brand selection	Well-known national brands
	Price	Merchandise price
Convenience	Timely delivery	Delivery on time, delivery options
	Ease of ordering	Fast check-out, order confirmation by e-mail
	Product display	Product lists with both click buttons and pictures
Interactivity	Customer support	Software downloading, e-form inquiry, order status checking, customer comment and feedback
	Personal-choice helper	Keyword search, improved search function
Reliability	Surfer postings	Customers' review of product/service experience
	Reputation	Company information
	Security	Information on transaction security
Promotions	Privacy	Privacy policies for personal information
	Promotion on the cybermall home page	Clearance, free shipping, frequent buyer incentives, prize for participation
Navigation	Time to get to home pages	The time taken from ads on other sites to home pages
	Expected waiting time	The perceived duration of the time to download pages on the site
	Waiting information	Duration information at the beginning of the wait, countdown information

a physical store, e-tailers can provide customers with as much variety as they want without physical space restrictions. Also, consumers can compare product prices more easily than ever before. E-tailer dimensions traditionally ascribed to merchandise-related aspects include product information, brand selection, and price.

As in catalog shopping, accurate reproduction of descriptive and experiential *product information* is a critical factor influencing consumers' choice in electronic shopping because consumers cannot touch or see products (Alba *et al.*, 1997; Lohse and Spiller, 1998; Lynch and Ariely, 2000; Ward and Lee, 2000). Interestingly, despite the advantage of the lower cost in delivering text and images through the Internet versus paper catalogs, more than 50 percent of e-tailer sites provide fewer than three lines of text describing each product (Lohse and Spiller, 1998).

Previous studies about store attributes have shown that merchandise selection has an influence on consumers' store choice (Berry, 1969; Lindquist, 1974; McDaniel and Burnett, 1990; Tigert, 1983). The vast number of product alternatives is a key benefit for online retailers. However, Alba *et al.* (1997) argue that consumers might become tired and stressed by examining information on hundreds of products. Lohse and Spiller (1998) dispute the importance of merchandise variety in e-tailing. In particular, their work showed that the number of products increases e-store traffic, but it does not affect sales. Apparently, whether or not an e-tailer has a specific product a customer is looking for is more important than simply having a large variety of items (Lohse and Spiller, 1998). Therefore, *brand selection* might well be more likely to affect customers' buying decisions and subsequent e-store patronage than merchandise variety (Degeratu *et al.*, 2000). Indeed, brand names also appear to affect consumers' buying decisions, especially when they are unfamiliar with an e-tailer (Ernst & Young, 1998). Further, when consumers have difficulty in searching for products on the Internet, they tend to rely on brand names (Ward and Lee, 2000).

*Price* is a key attribute for customers when forming perceptions of retailers (Berry, 1969; Eastlick, 1989; Lindquist, 1974; McDonald, 1993; Tigert, 1983). Online shopping enables consumers to reduce search costs and compare product information and prices simultaneously. This benefit, concomitantly, has accelerated retailers' competition and made e-tailers especially concerned about consumers' increasing price sensitivity (Shankar *et al.*, 1999; Ward and Lee, 2000). However, previous studies have also found that price sensitivity can be reduced by increasing

the usability and perceived depth of online information (Lynch and Ariely, 2000; Shankar *et al.*, 1999).

#### *Convenience characteristics*

Convenience is a key motive behind in-home shopping (Eastlick and Feinberg, 1994).

Convenience is measured by effort savings (e.g. ease of locating a product in a store) and locational convenience (e.g. ease of locating a store and finding a parking space) (Lindquist, 1974). In online shopping, convenience includes timely delivery, ease of ordering, and product display (Lohse and Spiller, 1998).

Lohse and Spiller (1998) discerned that several factors can be subsumed under the convenience attribute of online shopping: number of links into the site, number and type of different shopping modes, average number of items per product menu listing, number of lists that require scrolling, presence of price information in product listings, and type of product lists. Among these attributes, they found that *product display* has a significant impact on site visits and sales. Specifically, displaying product lists using *both* click buttons and pictures leads to more positive reactions from consumers than simply displaying a product list using only a button or pictures in online catalogs.

*Ease of ordering* appears to influence home-shoppers' buying decisions (Eastlick, 1989; McDonald, 1993). Therefore, order processing on Web sites should be easy for customers to do. Moreover, receiving order confirmations via e-mail, including information about shipping, returns, and order tracking numbers, facilitates order-processing behavior. If order processing is time consuming and complicated, customers will likely become frustrated and give up purchasing from the e-tailer (Lohse and Spiller, 1998).

With in-home shopping, physical store dimensions of convenience, such as geographical location and parking, do not exist. Instead, in-home shoppers seek convenience through use of mail or phone shopping and through *timely delivery* (to home). A Price Waterhouse Coopers study revealed that "the biggest sources of dissatisfaction among e-shoppers had to do with gifts not arriving on time for the [Christmas] holidays" (eMarketer, 2001d).

#### *Interactivity characteristics*

Interactivity on the Internet refers to the degree to which customers and retailers can communicate directly with one another anywhere, any time (Blattberg and Deighton, 1991). For e-tailers, the degree of interactivity influences the perceived quality of the Web site (Ghose and Dou, 1998). Ghose and Dou (1998) surveyed 101 Web sites to identify key interactivity factors that influence Web

site appeal by usage frequency of each factor. They found that *customer support* was the interactivity aspect most frequently used by customers. In addition to customer support, several additional dimensions can be classified as "interactivity" characteristics – personal-choice helper, surfer postings, and promotion.

E-tailers provide several types of online service that can increase interactivity with customers, such as software downloading, e-form inquiry, order status tracking, customer comment, and feedback. In a physical store, customers interact with sales personnel; their friendliness and knowledge can affect consumers' purchasing decision (Berry, 1969; Lindquist, 1974; McDaniel and Burnett, 1990; Tigert, 1983). On the Internet, e-tailers offer consumers with sales clerk service in different forms, such as a toll-free phone number, e-mail addresses, FAQs, and customer feedback. Research has found that having FAQ sections and feedback increases e-store visits and sales (Lohse and Spiller, 1998). Empirical work about the usage frequency of *customer support* functions (e.g. e-inquiry, comments, and feedback) reveals that customers prefer two-way communication with e-tailers rather than merely being passive recipients of information (Ghose and Dou, 1998).

Online outlets provide various forms of search functions for customers to locate items for which they are searching. Ghose and Dou (1998, p. 32) define a *personal-choice helper* as "a function that can make relatively sophisticated recommendations on consumers' choices based on their input of preferences and decision criteria". This function (such as a keyword search) gives customers more refined alternatives. For example, multi-layered information assists customers to narrow down target items based on their decision criteria (e.g. [www.apartmentsplus.com](http://www.apartmentsplus.com); Shankar *et al.*, 1999).

Web sites provide customers with interactivity not only with e-tailers but also with online communities. Ghose and Dou (1998) found that online customers frequently use *surfer postings*, which are customers' reports of their feelings and experiences with products and e-tailers. E-tailers often provide a page of customer reviews (e.g. [www.amazon.com](http://www.amazon.com)), which gives customers indirect experience with the products and service.

Consumer behavior tends to be influenced by external environments, such as *promotion*. The behaviorist approach in consumer research posits that "the reinforcement of a series of behaviors will gradually bring the consumer to the desired final behavior" (Wilkie, 1994, p. 271). For instance, a "clearance sale" sign on a store window can stimulate consumer store traffic. In physical stores,

the purpose of promotional activities for particular products is to encourage consumers to buy either a particular product or some other products. Spiller and Lohse (1998) have drawn analogies among retail store, paper catalogs, and online catalogs and have characterized e-store promotion activities as being special offers, online games and lotteries, links to other sites of interest, and appetizers. Subsequently, they have also discerned that hours of promotion on the e-store entrance appears to increase consumers' buying decisions (Lohse and Spiller, 1998).

#### *Reliability characteristics*

Company reliability is an important criterion consumers utilize when making a store choice decision (Lindquist, 1974). Consumers might wish to protect themselves from unreliable e-tailers by paying close attention to company information. According to GVU's WWW user surveys (Graphics, Visualization, and Utilization Center, 1998), reliability of online companies is the third most important attribute consumers consider. In addition, security and privacy are gaining increased concern among online users (Bellman *et al.*, 1999) and thus merit research attention.

In home-based shopping, a retailer's *reputation* has a significant influence on consumers' purchase decisions (McDonald, 1993). The provision of service information (including company history) can help a customer feel more comfortable about dealing with a given firm and about sending credit card information through the Internet (Lohse and Spiller, 1998). So, in-depth company information might abate consumers' uncertainty and perceived risk in dealing with e-retailers.

Transactions in online shopping tend to be made with a credit card. However, consumers have been warned not to release their credit card information online but to make a phone order for online purchasing (Furger, 1996). Nearly two out of three Americans do not trust e-tailers, and consumers are worried about the security of credit card information (Jeffrey, 1999). By informing customers about the *security* of online transactions, e-tailers can help reduce online risk perceived by customers (Ernst & Young, 1998).

Company Web sites collect a vast amount of customer information through the Internet, which is a fundamental asset for companies. Consumers, in contrast, may feel uncomfortable releasing their personal information (such as credit card and social security numbers) via the Web (Ernst & Young, 1998). The top privacy concern of US consumers appears to be whether or not a Web site asks permission to share personal information with other companies (eMarketer, 2001c). A recent report reveals that almost 65 percent of respondents gave up online purchasing because of

privacy concerns (eMarketer, 2001c). Consumers are discomfited when they receive e-mail from a company with which they are unfamiliar (Sheehan, 1999).

#### Navigation characteristics

Lowering search costs for shopping is a key motivation for consumers to shop online. As the total number of working hours of households increases, online shopping has attracted working families, thus enabling them to save time by purchasing products and services in a non-traditional way. In physical-store shopping, consumers seek to lower their search costs (e.g. time and efforts): physical effort is employed when going into a store, finding products, and comparing alternatives across stores (Bell *et al.*, 1998). In online shopping, navigation time and efforts are analogous to the physical effort expended to locate items in traditional shopping.

Gupta and Chatterjee (1997) define search costs on the Internet as:

- (1) Internet connection time;
- (2) actual time and effort taken for the user to search an e-tailer's site (e.g. use of online search engines, links from related pages, suggestions from newspapers/magazines/friends); and
- (3) time to download information from an e-store (which essentially depends on the connection speed, usage charges, traffic on the network, traffic at the site, and the kind of information being obtained).

Internet users are not tolerant of the *waiting time* to arrive at a Web site's homepage. GVU's WWW user surveys showed that consumers are confused by and annoyed with long waits to download an e-tailer's homepage from Web ads (Graphics, Visualization, and Utilization Center, 1998). When downloading is delayed, potential customers are likely to drift to alternative e-tailers or give up online shopping, at least for that time (Weinberg, 2000).

Consumers are more affected by their perceived duration of *download waiting time* than by the actual waiting time (Dellaert and Kahn, 1999). That is, when the wait to download is shorter than expected, consumers' satisfaction with the service increases. Conversely, if the wait is longer than expected, consumers' satisfaction decreases.

Consumers are likely to feel disturbed by the wait when they are uncertain about the actual waiting duration (Weinberg, 2000). By providing *waiting time information* (e.g. time bar indicator at the bottom of the Web page), e-tailers might help consumers become more tolerant of the wait and more favorably disposed toward the site.

#### Attitude toward online shopping

*Attitude* is "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken, 1993, p. 1). Attitude has a strong influence on consumers' buying intention (e.g. Ryan, 1982), the immediate precursor of actual behavior (Fishbein and Ajzen, 1975). Previous studies have observed a positive association between attitude and behavioral intention (e.g. Chang *et al.*, 1996; Chiou, 2000; Ryan, 1982; Shimp and Kavas, 1984; Taylor and Todd, 1995), including in an online shopping context (Shim *et al.*, 2001). Applied to the present study, attitude toward online purchasing is considered to be a function of the consumer's beliefs about an e-store's characteristics and the degree of subjective importance a consumer attaches to those attributes (Fishbein and Ajzen, 1975). Based on the foregoing prior work, then, an e-tailer's failure to foster a favorable attitude toward its Web site will likely lead consumers to eschew online purchases with that particular e-tailer.

## Method

#### Sample and data collection

The data were collected in a classroom setting from a convenience sample of students at a large Midwestern university. In a study of consumers' behavioral intentions to use different retail formats (e.g. retail stores, catalog, Internet), Keen (1999) compared results between a student sample and mall shopper sample. The findings showed no difference between the two samples in predicting consumer decision-making on the Internet. Moreover, college students deserve e-retailer attention because of their significant numbers vis-à-vis the Internet. For instance, college students spend more than 20 hours per week on the Internet, and 81 percent of them have made purchases online. Furthermore, college students are considered brand loyal and are early adopters of new products (FuturePages, 2002). Shortly, this group will enter the mainstream of the online consumer group, which is characterized as being between 34 and 45 years old, highly educated, and well paid as compared to the general offline population. Thus, college students should be considered a key target market in the long-term success for many online businesses. For these reasons, the student sample used in the present investigation is seemingly appropriate for querying online consumers.

Among 252 questionnaire completed, approximately 75 percent of the respondents were female. The mean age was 20.9. About 62 percent

of the respondents reported their income level to be less than \$5,999. Approximately 72 percent of the respondents had purchased a product through the Internet.

## Measures

### *E-shopping attributes*

Prior to developing questionnaire items, qualitative research was conducted to generate important e-shopping attributes. In this procedure, 29 students were given open-ended questionnaires. These questions were generated from the work of Mathieson (1991). Specifically, they queried respondents about the advantages and disadvantages of making a purchase on the Internet, and their likes and dislikes about online shopping.

In the qualitative research, interviews with respondents revealed that merchandise variety (Table IV) incorporates brand selection (Table III). Therefore, in this study's final questionnaire, merchandise variety (a physical store feature) was included. Also, "ease of use", which was referred to in our literature review, was combined with "ease of ordering" (Table III), owing to their overlapping nature. A pretest was conducted to check clarity of measurement items in the final study questionnaire. Ambiguous sentences were revised.

Fishbein's expectancy-value measures have been used as a person's "evaluative implications of an underlying cognitive structure" (Fishbein and Middlestadt, 1995, p. 186). An expectancy-value measure is obtained by multiplying a person's behavioral belief that an object possesses a certain attribute ( $b_i$ ) by the degree of subjective importance the person attaches to the object's attribute ( $e_i$ ) (Fishbein and Ajzen, 1975). Applied to this study, the degree to which a respondent believed e-tailer Web sites possess a certain attribute ( $b_i$ ) was multiplied by the degree of subjective importance the respondent attached to

that e-store attribute ( $e_i$ ). Respondents were queried about 16 e-shopping attributes using seven-point scales. The scales of belief strength were anchored from "unlikely" (1) to "likely" (7). The scales of evaluation were anchored from "unimportant" (1) to "important" (7). An example of each is noted below:

- ( $b_i$ ) The e-tailer would provide me with high quality product information (unlikely/likely).
- ( $e_i$ ) For me, high quality product information in online buying is (unimportant/important).

### *Attitude toward behavior ( $A_B$ )*

Consistent with the work of Fishbein and Ajzen (1975), attitude toward online purchasing was measured by four different statements using seven-point semantic differential scales. Scales were anchored using four different terms: "dislike/like", "foolish/wise", "bad/good", and "unpleasant/pleasant". For example:

- ( $Y_1$ ) Making a purchase on the Internet is a (bad/good) idea.

## Data analysis

Data were analyzed using both factor analysis and confirmatory factor analysis (CFA). Factor analysis attempts to identify hypothetical variables that explain the pattern of correlations within a set of observed variables. While exploratory factor analysis attempts to identify the minimum number of common factors that represent correlations among the observed variables before developing hypotheses, CFA provides self-validating information for a given hypothesis (Kim and Mueller, 1978). That is, the purpose of conducting CFA is to build a model "assumed to describe, explain, or account for the empirical data in terms of relatively few parameters" (Jöreskog and Sörbom, 1993, p. 22). CFA was employed to confirm the e-store attribute classifications obtained in the factor analysis. In addition to these, multiple regression analysis was conducted to investigate the underlying Web site dimensions obtained in the CFA on consumers' attitude toward online shopping.

## Results

### *Exploratory factor analysis*

The SPSS computer software extracted four factors from 16 observed variables (consumer evaluative perceptions of e-shopping attributes) using principal component analysis and Varimax

IV Beliefs about e-shopping attributes (qualitative research)

Advantages/disadvantages of online shopping	Number mentioning attributes (n = 29)	Percentage
Product variety	19	65.5
Free delivery	19	65.5
Price guarantees	9	31.0
Flexibility of return and exchanges	9	31.0
Availability of a retailer	7	24.1
Product variety	7	24.1
Product information	6	20.7
Speed/process time	5	17.2
Easy use	5	17.2
Good customer service	4	13.8
	3	10.3

rotation. Factor analysis revealed *four* underlying dimensions with eigenvalues greater than 1.0 and a communality of 59.7 percent. The resulting factors generally emerged as expected for e-shopping characteristics, except for the promotion characteristic. Promotion loaded on factor 2 (i.e. interactivity characteristics). Factor loadings ranged from 0.347 to 0.876, which exceed the threshold value of 0.30 (Kim and Mueller, 1978). However, delivery, ease of ordering, and product display on Web pages were excluded in subsequent analyses because of their crossloading on factors 1 and 2. The final results of the exploratory factor analysis are presented in Table V.

### Confirmatory factor analysis

CFA was conducted to confirm the prespecified dimensions obtained in the foregoing exploratory factor analysis. In general, the results supported a measurement model that included *four* overriding characteristics ( $\chi^2_{20} = 21.43$ , RMSEA = 0.018, GFI = 0.980). Price, other customers' postings, promotions, and provision of waiting information were removed from the measurement model owing to reliabilities of less than 0.30 (Bettencourt and Brown, 1997; Table VI – only final results are shown). Other than these attributes, all standardized factor loadings were statistically significant ( $p < 0.001$ ). The validity of the measures was examined by the index of the proportion-of-variance extracted. All proportions in the index were higher than 0.50, which indicates that the overall amount of variance in e-shopping attributes was captured by the corresponding characteristics reported in Table VI (Hair *et al.*, 1998).

In essence, CFA identified four distinct dimensions of e-shopping attributes: merchandise, interactivity, reliability, and navigation characteristics. Merchandise consisted of product information ( $\lambda = 0.707$ ,  $p < 0.001$ ) and variety of merchandise ( $\lambda = 0.757$ ,  $p < 0.001$ ); interactivity, customer support ( $\lambda = 0.653$ ,  $p < 0.001$ ) and personal-choice helper ( $\lambda = 0.610$ ,  $p < 0.001$ ); reliability, an e-tailer's good reputation ( $\lambda = 0.883$ ,  $p < 0.001$ ), security ( $\lambda = 0.633$ ,  $p < 0.001$ ), and privacy ( $\lambda = 0.652$ ,  $p < 0.001$ ); and navigation, time to get to an e-tailer's homepage ( $\lambda = 0.878$ ,  $p < 0.001$ ) and time to download Web pages on the Web site ( $\lambda = 0.687$ ,  $p < 0.001$ ). The e-shopping attributes confirmed in the final analysis were grouped into four different e-shopping characteristics.

### Multiple regression analysis

Table VII summarizes the results of multiple regression analysis. The VIF index showed no significant multicollinearity problem (Neter *et al.*, 1996). The four independent variables (i.e. merchandise, interactivity, reliability, and navigation) revealed in the CFA were regressed across consumers' attitude toward online shopping. The overall model is significant ( $R^2 = 0.17$ ,  $F_{4,247} = 13.01$ ,  $p < 0.001$ ). The results indicate that consumers' attitude toward online purchasing is a function (positively) of merchandise ( $\beta = 0.25$ ,  $p < 0.001$ ) and reliability ( $\beta = 0.19$ ,  $p < 0.01$ ) attributes. Interestingly, though, their attitude is *not significantly related* ( $p > 0.05$ ) to interactivity or navigation Web site dimensions.

### Discussion

The findings of this study present important e-shopping attributes that consumers consider in their e-tailer evaluations. For merchandising characteristics, consumers appear to focus on product information when they evaluate e-tailers. Previous research suggests that online shoppers seek detailed information about products and services rather than sensory attributes, such as visual cues (Degeratu *et al.*, 2000). This may be largely attributed to the nature of Internet shopping in which consumers cannot touch or see a product. Accordingly, consumers tend to rely on product information provided by e-tailer Web pages. This result is consistent with those obtained in previous studies (Lynch and Ariely, 2000; Ward and Lee, 2000). Also, online consumers appear to seek a variety of merchandise through online shopping; this finding is also consistent with consumers' reactions in physical retail stores and

Results of exploratory factor analysis

Shopping attributes	Factor loadings			
	Factor 1	Factor 2	Factor 3	Factor 4
Product information	0.695			
Wide merchandise	0.783			
Relatively low price	0.579			
Customer support		0.539		
Personal-choice helper		0.474		
Other customers' postings		0.815		
Security		0.439		
Navigation			0.667	
			0.868	
			0.876	
Time to home pages				0.724
Time to download Web pages				0.837
Product information				0.657
Cronbach's $\alpha$	0.688	0.617	0.610	0.843

Rotation method: principal component analysis; rotation method: Varimax normalization

Table VI Results of measurement model: confirmatory factor analysis

E-shopping attributes	Factor loadings	t-values	Total-item reliability <sup>a</sup>	Proportion of variance extracted
<i>Merchandise characteristics</i>				
Product information	0.707	10.31	0.71	0.78
Variety of merchandise	0.757	10.97	0.50	
<i>Interactivity characteristics</i>				
Customer-support	0.653	8.71	0.57	0.70
Personal choice-helper	0.610	8.25	0.43	
<i>Reliability characteristics</i>				
Good reputation	0.883	12.65	0.84	0.76
Security	0.633	9.18	0.78	
Privacy	0.652	9.50	0.40	
<i>Navigation characteristics</i>				
Time to get to home pages	0.878	11.24	0.57	0.81
Time to download Web pages	0.687	9.33	0.77	
<i>Indices of goodness-of-fit</i>				
Chi-square (df)	21.43 (20)			
RMSEA	0.018			
GFI	0.980			
AGFI	0.955			
NFI	0.972			

Note: <sup>a</sup>Italicized entries in this column represent overall reliability for each construct

Results of multiple regression analysis

	Attitude			
	Mean	SD	Standardized coefficients	t-value
Merchandise	30.59	9.71	0.254	3.737*
Interactivity	26.19	8.83	0.189	2.789*
Reliability	33.29	9.68	-0.004	-0.060
Navigation	29.69	9.17	0.078	1.112

F(4,247) = 13.01, p < 0.001  
N = 252; \*significant at the 0.01 level

in-home shopping (such as TV and paper catalogs). In addition, the findings of multiple regression analysis imply that the merchandise attribute is positively associated with respondents' attitude toward online purchase.

In the online shopping literature, the term "interactivity" has been used to refer to different e-store characteristics:

- (1) speed of interactivity between a person and related devices (i.e. computers, modems) (e.g. Alba *et al.*, 1997; Novak *et al.*, 2000); and
- (2) interactivity between a customer and e-tailers (e.g. Ghose and Dou, 1998).

In our study, interactivity was observed to be a service that customers can receive from the Internet, just as they can from a salesperson in a bricks and mortar store. Through online shopping, customers and retailers use different forms of communication. While the physical store provides customers with personal interaction via face-to-

face communication with sales associates, e-tailers provide a similar service through either personal interactivity (i.e. call center) or machine interactivity, such as customer support (i.e. downloading software, e-form inquiry, order tracking) and choice helpers. The findings of our study confirm that customer support and choice helpers are key interactivity dimensions of e-stores.

Reliability has emerged as a critical influence on consumers' purchase decisions in home-based shopping (McDonald, 1993). In online transactions, consumers are likely to release personal information as well as credit card information. Accordingly, they tend to be more careful than in traditional store shopping by examining e-tailer credibility prior to making a purchase. In determining an e-retailer's reliability, consumers appear to evaluate e-tailers' reputation, as well as security and privacy policies. Also, the result of multiple regression analysis reveals that reliability is a significant predictor of respondents' attitude toward online purchase.

In online shopping, customers tend to be sensitive to waiting time (Dellaert and Kahn, 1999). Despite its importance in predicting consumer behavior on the Internet, many researchers have not delineated navigation characteristics clearly. Instead, they have tended to employ a single term – "ease of browsing" – and included it under "convenience" dimensions (e.g. Shim *et al.*, 2001; Szymansky and Hise, 2000). The results of our factor analysis, however, reveal

that navigation dimensions constitute an independent construct, which is characterized by:

- time required to get to the e-tailer's homepage; and
- time required to download an e-tailer's Web page.

The findings obtained demonstrate that consumers' attitude toward online shopping is positively related to their perceptions of Web site merchandise and reliability attributes, but surprisingly unrelated to interactivity or navigation characteristics. Specifically, consumers develop a positive affect toward online shopping to the extent that they perceive a Web site to provide detailed product information and merchandise variety, as well as mechanisms that enhance feelings of trust in the e-tailer. Interestingly, though, consumers' affect is seemingly unrelated to a their perceptions of an e-tailer's offering customer support and personal-choice helpers or Web site navigation speed. The latter two findings may be a function of the state of current Web sites. Adequate customer support and navigation speed are a necessary, but insufficient, condition for e-tailer success. Because of early Internet shoppers' complaints about poor Web site design, interactivity quality, and navigation speed (Dellaert and Kahn, 1999), perhaps e-tailers have made steadfast efforts to enhance these qualities. If so, online shoppers may have reduced their former concerns about these two attributes, thus vitiating the impact of these two attributes on online shopping attitudes.

### Managerial implications

Through Internet commercial sites, online marketers can collect a plethora of consumer information, such as age, gender, and zip code. Also, they can track consumers' interests and preferences. To parlay this data rich advantage of electronic commerce, online marketers should understand consumers' online shopping behavior so that they can develop effective marketing programs.

The current study explored consumers' evaluative criteria of an online retail outlet. The findings of this study are helpful for e-tailers as a general guideline for Web site design. In terms of merchandising and its positive relationship with consumers' attitude toward online purchasing, e-tailers should pay acute attention to the contents of their Web pages through which consumers reach purchase decisions without physically touching or seeing a product. In particular, online consumers appear to place emphasis on quality product information. Moreover, effective descriptions of the products on an e-tailer's Web site have been found to mitigate online customers' price sensitivity (Shankar *et al.*, 1999). The findings of

the present work also highlight the importance online shoppers place on the variety of merchandise in an online outlet. By utilizing consumer profiles and sales tracks, e-tailers should be able to provide the variety of merchandise that meets their customers' needs and preferences.

Reliability of e-tailers was found to be a significant factor when customers evaluate a commercial site, as well as influencing consumers' online purchase attitude. Indeed, one consumer survey showed that about 88 percent of online consumers make a purchase through the Internet using credit cards. It also reported that about 60 percent of Internet users are concerned about their credit card number being stolen when using a commercial Web site (eMarketer, 2001e). Furthermore, privacy has emerged as a critical concern among online consumers. Although customers' personal information is a crucial asset for retailers, online shoppers appear to have fears about revealing their personal information on the Internet. To convince online customers that their personal information will not be violated, e-tailers should provide consumers with their privacy policies, as well as a guarantee that the information will not be misused (eMarketer, 2001a).

Although interactivity of e-tailers was found to be a significant factor when customers evaluate a commercial site, it was not discerned to influence consumers' online purchase attitude. This finding, however, does not imply that e-tailers should ignore interactivity issues. CFA results suggest that online customers desire the equivalent quality of service that might be provided in a physical store, such as two-way communication between shoppers and salespeople. As such, online shoppers apparently expect to experience a high degree of customer service from e-tailers in the forms of software downloading, e-form inquiry, order status tracking, customer comments, and feedback: so, such tools should be provided by e-stores.

Online customers appear to be sensitive to the waiting time required to download Web pages (Dellaert and Kahn, 1999; Weinberg, 2000), although it is not associated with their attitude toward online purchasing. Notwithstanding this result, CFA findings suggest that e-tailers still need to be circumspect about Web site waiting time given that it is an evaluative criteria of online shoppers. Waiting time on the Internet may vary because of several factors: the extent of sophistication of a Web page, the number of graphics on a Web page, and the number of people who log on to the Internet. Although e-tailers cannot control every factor that affects downloading time, they can design their Web pages to be time-efficient. This does not mean Web

designers should forego cutting-edge graphic technology. Rather, they should avoid extensive utilization of graphics and animations, as well as consider downloading time when they design e-tailer sites (Dellaert and Kahn, 1999).

Consequently, e-tailers should consider how to provide customers with detailed product information and increased interactivity without annoying them with excessive downloading time.

### Limitations and future research

This study employed a student group to measure their attitudinal beliefs about online retail outlets. Although college students account for a major portion of online consumer groups, the sample may be biased toward those who are younger and more educated compared to the general consumer population. Also, 75 percent of the sample consisted of females and 19 percent had not made an online purchase: this situation may decrease representativeness. Accordingly, the results of the current work might not generalize to the general consumer population. Also, the study is geographically limited, because data were collected from a Midwestern university. Therefore, utilizing a random sampling of general consumers nationwide should help overcome these shortcomings.

In characterizing e-store image, previous researchers have not been lucid about which dimensions characterize interactivity. Novak *et al.* (2000) identify interactivity solely in terms of speed. They found that Web site design affects speed of interactivity between online consumers and the medium (i.e. computer, related device) in measuring customer experience on the Internet. However, in terms of the scales that measure interactivity – which is equivalent to *navigation characteristics* in our study – Novak *et al.*'s study had almost identical items as ours:

- (1) waiting time between a person's actions and the computer's response; and
- (2) Web page downloading time.

Thus, the term *interactivity* needs further research in order to clearly define this characteristic.

This study examined consumers' evaluative criteria for an e-tailer without specifying a product category. However, store characteristics that affect store image may differ across product types and store types (Klein, 1998; Tigert, 1983). For instance, Yoo and Donthu (2001) found different effects of each site quality (i.e. ease of use, aesthetic design, processing speed, security) on consumers' decision-making across different product categories (e.g. apparel, electronics, food and drink, music, etc.) Therefore, future research should seek to develop different sets of e-shopping attributes within a specific context. The resulting

characteristics of an online store as a predictor of online shopping behavior may vary depending on the product category – and even, perhaps, owing to the brand being sold (e.g. manufacturer/service principal's brand versus an e-tailer's own brand). Also, there might be other factors that influence shoppers' evaluations of an e-tailer, such as the level of their expertise or experience in online shopping: so, such variables should be examined in subsequent work.

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