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An Integrated Model For Online shopping, Using Selective Models

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Abstract

As in traditional shopping, customer acquisition and retention are critical issues in the success of an online store. Many factors impact how, and if, customers accept online shopping. Models presented in recent years, only focus on behavioral or technological aspects of online shopping. So far, a comprehensive and integrated model which covers both behavioral and technological aspects of online shopping does not exist. This study aims to present one such model. The main purpose of this study is to present an integrated model of online shopping intentions, such that both aspects of technology and behavior are covered. After an inclusive secondary research, factors which impact online shopping preference were identified, analyzed, and combined. Using the same approach, there relationships between the factors and their interactions were hypothesized. Finally, in order to test the hypotheses, data were collected through a well-structured questionnaire, and analyzed with the help of smart PLS Package. The results indicate that customers' attitudes towards shopping online, product/Service attributes, and online store attributes impact their preference for online shopping.

Keywords: *technological aspects of online shopping, behavioral aspects of online shopping, online shopping, purchase intentions, online customers*

1. Introduction

Compared to traditional methods, online shopping offers several unique advantages including widespread access, convenience, easy access to information, and the ability to quickly compare alternatives. Most importantly, online shopping is a direct interaction channel where time, location, and people are not defined. A myriad of factors influence customers' online behavior. Identifying and understanding these factors can help online store owners attract and retain customers.

In recent years, many studies in the context of online shopping have examined a large number of factors to determine their influence on online shopping behavior. For instance, Kotler believes that factors such as Internet experience as well individual, environmental, demographic, and economic uncontrollable factors influence online shopping behavior [1]. Bonera suggests that individual factors, the environment, market, and technology influence consumers' online buying intentions [2]. Previous experience, attitudes, trust, learning, and mentality are indicated as influencing buying intentions by Dennis [3]. Bing et al. define four dimensions for online shopping: (1) information gathering, (2) valuable factors, (3) services, and (4) price. Previous studies have viewed online shopping either from a behavioral (e.g. demographics including age, gender, education, income, etc.) or a technological perspective (including online store characteristics, purchase media, and merchant's characteristics) [4].

Currently, there is a lack of a comprehensive model which incorporates both technological and behavioral aspects of shopping online. This study aims to present one such model. The process of creating the proposed model is as follows. In the first step, a survey of literature was to conducted, which resulted in the identification of eight influential factors: external factors, characteristics of the consumer, product, buying method, and online store, as well as attitudes toward product, online store, and online shopping characteristics. Furthermore, hypotheses regarding the relationships between the factors and their interactions were formulated according to the conducted survey. The required data for testing the hypotheses were collected using a questionnaire, designed to measure the identified factors. A sample of 380 students was drawn from Qazvin Islamic Azad University. Sample size was determined using Cochran's theorem. Six copies of the questionnaire had to be disregarded. Statistical package for social science was used for data analysis.

2. Literature Review

The rapid growth of online shopping in recent years has forced the Internet industry and academics to analyze the key determinants of purchase and repurchase intentions in this environment. A host of studies have been conducted to examine these influencing factors. Research in recent decades has focused on usefulness and ease of use as key determinants in accepting Information Systems (IS) and Information and Communication Technologies (ICT). Davis presented the Technology Acceptance Model (TAM) to show how IS users come to accept Information Technology (IT). He defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her job performance" and perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort" [5].

In the following, we will consider other models of online purchase intentions. Park and Kim introduced information satisfaction and relational benefit as the potential determinants of consumers' commitment to online shopping and ultimately consumer behavior. Information Satisfaction is defined as the consumers' overall happiness with the provided information services including the quality of information on the products and services, quality of technical features, design, security of payment methods, and privacy. Relational benefit entails the benefit that the customer, regardless of whether purchase is made, gains by maintaining a long-term relationship with the merchant[6]. They emphasized the technological aspects of online shopping.

Inspired by TAM, Leelayouthayotin extended the model by adding three constructs: customer experience, products attributes, and perceived risk. Customer experience refers to the interactions between the customer and the product, brand, store, company etc [7]. Conducting an extensive review, Lina et al. gathered and classified factors influencing online purchase intentions. They presented the Online Shopping Acceptance Model (OSAM) based on TAM, which focused on the behavioral aspects of online shopping to predict costumer behavior in online environments. The identified factors were demographics, Internet experience, normative beliefs, shopping orientation, shopping motivation, satisfaction, and perceived outcome (which replaces perceived usefulness and covers potential risks and benefits) [8]. Previous attempts to present inclusive models of online shopping include the study by Christy et al. and the Stimulus-Organism-Response (S-O-R) model. Christy et al. argued that product attributes and consumer characteristics are closely related. Moreover, factors including consumer characteristics, product attributes, media attributes, merchant or mediator characteristics, and environmental effects influence online buying intentions [9]. The S-O-R model by Laroche, which was one featured in the first special edition of Business Research on Consumer Behavior Journal in January 2008, is based on the Stimulus-Organism-Response model. The components of the model include Stimulus (product and store attributes), Organism (consumer characteristics, and perceived product and store attributes), and Response (store support and purchase) [10].

3. Proposed Model

In section 2, factors influencing online shopping as well as online purchase intentions were surveyed. The models focus on the behavioral or technological aspects of online shopping, with some considering both. The purpose of this paper is to present a holistic model of factors entailing both aspects of online shopping. Following an extensive survey of literature, numerous factors were identified. In order to create the proposed model, the influencing factors were analyzed, leading to a final list of factors that impact intentions to shop online. Thus, this section aims to present an integrated model of online shopping intentions, covering the majority of the identified factors i.e. previous models of online shopping. Next, we review previous models By which our model was insoired including the factors and background of each one.

The proposed model is largely based on the work by Christy et al. and the S-O-R model[10,9]. As mentioned earlier, Christy et al. found that product attributes, merchant or mediator characteristics, media characteristics, and environmental effects influence online buying intentions[9]. Numerous studies have demonstrated the effects of these factors, which form the basis for our proposed model. Product, consumer, and store attributes are also considered in the S-O-R model [10]. Furthermore, the model incorporates perceived usefulness and perceived ease of use, thereby encompassing TAM [5]. Leelayouthayotin augmented TAM by introducing perceived risk [7]. Finally, Lina et al. used perceived outcome to describe perceived risk, usefulness, and ease of use[7].

The S-O-R model considers perceived store and product attributes; thus, implying that individual perceptions including those of usefulness, ease of use, and risk are different. Therefore, we used the S-O-R (different perceptions of product and store) and the model by Lina et al, where perceived risk, ease of use, and usefulness are combined into perceived outcome. In addition to online platform, online store, and product attributes, we considered perceived product, store, and media attributes in the proposed model [5,8,10]. Favorable and positive perceptions of the store, product, and media improve the customer's buying intentions. TAM has established the impact of perceptions and attitudes on purchase intentions.

Intentions may lead to acceptance. According to the Theory of Planned Behavior (TPB), an individual's intentions are the most important predictors of his actions [5]. The proposed model for the study is presented in Figure 1.

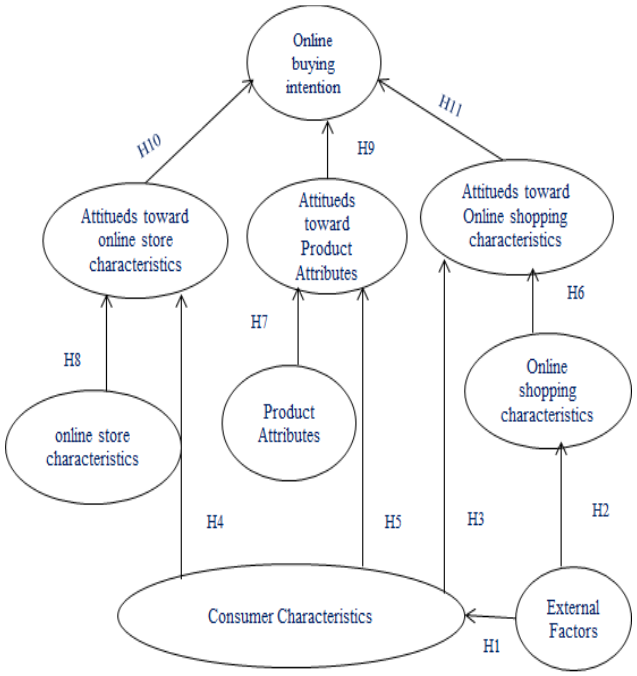

Fig. 1 The proposed model for online buying intentions.

Based on the survey, the following are hypothesized:
H1: External factors influence consumer characteristics [8].
H2: External factors influence online shopping attributes [11].
H3: Consumer characteristics influence online shopping characteristics [8,7].
H4: Consumer characteristics influence attitudes toward online store characteristics [10,12].
H5: Consumer characteristics influence attitudes toward product attributes [8,7].
H6: Online shopping characteristics influence attitudes toward online shopping characteristics [7,10].
H7: Product attributes influence attitudes toward product attributes [7,10].
H8: Store characteristics influence attitudes toward store characteristics [7,10].
H9: Attitude toward product attributes influence online buying intentions [7,8,9,10,11,13,14].
H10: Attitudes toward online store characteristics influence online buying intention [7,8,9,10,11,13,14,15].
H11: Attitudes toward online shopping characteristics influence online buying intentions [7,8,9,10,11,13].

The identified factors are composed of various components as follows.

- **Online store characteristics** [1,2,3,4,6,9,10,11, 14,15,16,17,18,19]:
  1- Quality of communication and user interaction[6]:
  1-1- Merchant Services [4]: *Flexible delivery* [4] ; *Flexible payment methods* [14,16] ; *Return policies* [2,4]; *Responsiveness* [4,6]; *Customization* [2,4] ; *Price attractions* [4,14,16,19] ; *Brand and store popularity* [11,14,16,19];
  1-2- User Interface [6]: (a).Technical features[11,17]: *Search* [4,6,11,20]; *Loading pages and images quickly* [6,11,20]; *Exchanging ideas with other users* [6,11,20]; *Navigation* [4,6,11,20]; (b).Appearance[6,17] : *Fonts and Colors* [2,6,19,20,21]; *Layout and background images* [2,6,19,21]; *Product categories* [6,8]
  2- Quality of Information[15]: *Information about products* [6,15,19]; *Information about services* [6,15,19,20]; *Information about the merchant and store* [15,20]
  3- Information security [21,22]: *E-trust badges* [21,22]; *Digital certificates* [2,21,22].
- **Product Attributes**[1,2,4,7,9,10,11,16,18,19] **:** *1-product tangibility and type* [9,12]; *2-guarantees* [23]; *3- brand* [2,23]; *4- price range* [3,12,19]; *5- purchase frequency* [24]
- **Consumer Characteristics** [1,2,3,7,8,9,10,11, 13,14,18, 19]**:**
  1- normative beliefs (influence of friends and family and media);*2- demographics* (age, gender, and education) ;*3- experience (online experience, Internet experience); 4- awareness* (*awareness of online shopping, concern about being hacked), 5-individual differences (personality traits)* [8].
- **Online shopping characteristics** [1,3,9,11,13 ,18,19]**:**
  1- general characteristics including: *disadvantages of online shopping such as delayed delivery, intangibility, etc.* [6,25] and *advantages of online shopping such as* [6,13] 2- specific characteristics including: *Internet speed* [8,11] and government regulations on online shopping [11].
- **External Factors**[1,3,4,8,9,11,13,18]:
  1- Social and cultural factors [12,18] **;** *2-legal and political factors* [1,2,11,18].
- **Attitudes toward Online Shopping Characteristics[:**
  perceived usefulness, ease of use, enjoyableness, associated risk **[5,7,8].**
- **Attitudes toward Online Store Characteristics**[2,5,7,8,10]**:**

Perceived usefulness, ease of use, enjoyableness, associated risk **[2,5,7,8].**

- **Attitudes toward Product Attributes**[10,19,24] :

Chang et al. believe products have varying levels of tangibility and fall on a spectrum of low-cost repeated purchases to rare expensive ones [19]. Peterson et al. classified products according to cost and frequency of purchase[24]. Products such as clothing are physical but they differ in tangibility from other physical products such as laptops and books. Therefore, we extend Peterson's model by adding a new field, namely need for thorough evaluation.

Table 1 : Extend Peterson's classification of products

Product	*High-priced infrequently purchased items*	*Low-priced frequently purchased item*
Observable or physical	Laptop	Book
Hidden or informational	Electronic Software	Electronic Paper
Observable or physical requiring careful examination	Eveining dress	scarf

- **Online Buying Intention**[5,7,8,13,19]**:** This paper aims to identify factors influencing the consumers' online shopping intention, which, as demonstrated by previous studies, is directly influenced by attitudes and perceptions [5,7,8,13,19]

In this section, an online shopping intention model was presented.

The model of online shopping intentions was developed in a theoretical manner, Next we utilize statistical methods to verify the model.

4- Proposed Model Feasibility

In this section ,we employ statistical methods to test the hypotheses we developed in the previous section. In the first step, a survey of literature was to conducted, which resulted in the identification of eight influential factors: external factors, characteristics of the consumer, product, buying method, and online store, as well as attitudes toward product, online store, and online shopping characteristics. Furthermore, hypotheses regarding the relationships between the factors and their interactions were formulated according to the conducted survey. The required data for testing the hypotheses were collected using a questionnaire, designed to measure the identified factors. A sample of 380 students was drawn from Qazvin Islamic Azad University. Sample size was determined using Cochran's theorem. Six copies of the questionnaire had to be disregarded. Statistical package for social science was used for data analysis.

4.1 Data Analysis

More than half (54.5%) of the respondents were males and 45.5% were females. Nearly half of them (47.2%) held bachelor's degrees while 23.2% had associate degrees and 18.6% were high-school graduates or below. Only 11% were Ph.D. Most respondents (45.6%) ranged in age from 21 to 25; almost a quarter (25.2%) were 26 to 30 years old; and 15.1% were between 31 and 40 years of age. Those younger than 20 or older than 40 accounted for 9.4% and 4.7% of the respondents, respectively. A majority of the respondent had less than 6 months of experience shopping online; 28.2% had less than one year; and 15% had less than one year. However, 18.9% reported less than one month of experience with online shopping. Only 6.6% had been shopping online for over two years. Descriptive statistics, for each variable, included the mean and standard deviation. Composite Reliability (CR) for the collected data was determined. Furthermore, Cronbach's alpha (CA) was greater than 0.7, which confirmed the reliability of the questionnaire [26]. The Average Variance Extracted (AVE) statistic was calculated to demonstrate construct validity, yielding a value greater than 0.5, which is acceptable [27]. The questionnaire's content and face validity were verified by experts in the field of electronic commerce. Confirmatory factor analysis also demonstrated this fact. The results can be seen in Table 2 and Table 3.

Table 2 : Indices for the study variables

Indice / *Factor*	*Standard Deviation*	*Average*	*Average factor loadings*
Attitudes toward Online Shopping Characteristics	*0.9679*	*3.6056*	*0.8225*
Attitudes toward Online Store Characteristics	*0.8486*	*3.6544*	*0.7451*
Attitudes toward Product Attributes	*0.9627*	*3.7686*	*0.8072*
Online shopping characteristics	*1.0871*	*3.4680*	*0.8413*
Consumer Characteristics	*0.8851*	*3.8263*	*0.7869*
External Factors	*0.7290*	*3.9537*	*0.7329*
Product Attributes	*0.8304*	*3.9197*	*0.7652*
Online store characteristics	*0.8491*	*2.7550*	*0.7260*
Online Buying Intention	*0.9495*	*3.2789*	*0.7757*

Table 3 : Indices for the study variables

Factor / Indice	AVE	CA	CR
Attitudes toward Online Shopping Characteristics	0.676	0.841	0.893
Attitudes toward Online Store Characteristics	0.505	0.661	0.796
Attitudes toward Product Attributes	0.652	0.893	0.918
Online shopping characteristics	0.709	0.918	0.936
Consumer Characteristics	0.625	0.847	0.892
External Factors	0.516	0.878	0.903
Product Attributes	0.590	0.861	0.895
Online store characteristics	0.584	0.938	0.945
Online Buying Intention	0.605	0.679	0.820

As recommended by Fornell and Lacker, factor loadings for the observed variables must be greater than 0.5. Therefore, the values in Table 3 can be accepted.

4.2 Hypotheses Testing

In order to determine the support for the postulated hypotheses, we use structural equations models in both standardized coefficient estimation and absolute significance modes. Table 4 shows the obtained results for both models by SmartPLS. Interpreting the effect size and t value determines whether each hypothesis is supported or refuted. A discussion of the results will be presented in the following section.

Table 4 : Hypothesis test results

Hypotheses	Effect size	Estimation error	t-value	Sig	Result
H1	0.54	0.05	10.13	P<0.01	supported
H2	0.05	0.04	1.54	P<0.01	unsupported
H3	0.36	0.06	6.58	P<0.01	supported
H4	0.47	0.04	10.37	P<0.01	supported
H5	0.18	0.06	3.27	P<0.01	supported
H6	0.13	0.05	2.65	P<0.05	supported
H7	0.42	0.05	7.49	P<0.01	supported
H8	0.17	0.03	4.48	P<0.01	supported
H9	0.18	0.08	2.28	P<0.05	supported
H10	0.23	0.06	3.40	P<0.01	supported
H11	0.24	0.06	3.68	P<0.01	supported

As evident from Table 4, 10 of the 11 hypotheses are supported. Only H2, i.e. external factors influencing online shopping characteristics, is not supported.
Therefore, this paper found 7 factors: Attitudes toward Online Shopping Characteristics, Attitudes toward Online Store Characteristics, Attitudes toward Product Attributes, Online shopping characteristics, Consumer Characteristics, External Factors, Product Attributes, Online store characteristics, to influence online shopping intentions. After testing the hypotheses, it was determined that factors: Attitudes toward Online Shopping Characteristics, Attitudes toward Online Store Characteristics, Attitudes toward Product Attributes directly influence online purchase. In other words, together, these factors lead to an intention to shop online. People's attitudes toward any of these factors are affected by the factor's attributes (product, store, online shopping). Put differently, individuals have varying attitudes toward the same factor and each individual's attitudes toward each product are different. Furthermore, this model demonstrates that external factors influence individual's normative beliefs. The following table compares the proposed model to three previous models, focusing on both aspects.

Table 5 : Comparing the proposed model with three previous models

Refrence / Factor	[9]	[19]	[10]	proposed model
Attitudes toward Online Shopping Characteristics		✓		✓
Attitudes toward Online Store Characteristics			✓	✓
Attitudes toward Product Attributes			✓	✓
Online shopping characteristics	✓			✓
Consumer Characteristics	✓	✓	✓	✓
External Factors	✓			✓
Product Attributes	✓	✓	✓	✓
Online store characteristics	✓	✓	✓	✓

As shown above, the proposed model encompasses all the factors identified in the considered models. Therefore, in this study as more comprehensive model was presented.

5. Conclusions

Conducting a review of literature, this paper aimed to identify the factors that influence online buying intentions. The identified factors were analyzed and combined. Moreover, based on extant literature, hypotheses regarding the relationships between the factors were postulated. Using the identified factors, a model, which incorporated both behavioral and technological aspects of online shopping, was proposed. In order to test the proposed model, a questionnaire was distributed among students at the Azad Islamic University of Qazvin. The collected data were analyzed using statistical software. The results indicated that, excluding H2, all hypotheses were supported. The proposed model identifies the factors which can influence persuasion in online shopping. Being aware of such factors can help online store owners. Furthermore, governments can benefit from such knowledge to promote electronic commerce. Suggestions for future studies include examining factors that lead to different sales for one product in different online stores and comparing how different products (e.g. software and digital devices) sell in the same online store.

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