

# The Driving Factors of Continuance Online Shopping: Gender Differences in Behaviour - the case of Saudi Arabia

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## Abstract

*This study proposes a revised technology acceptance model that integrates expectation confirmation theory to measure gender differences with regard to continuance online shopping intentions in Saudi Arabia. The 465-respondent sample consists of 68.8% women and 31.4% men. A structural equation model confirms model fit.*

*Perceived usefulness, enjoyment, and subjective norms are determinants of online shopping continuance in Saudi Arabia. Both male and female groups are equivalent. The structural weights are also largely equivalent, but the regression paths from perceived usefulness to subjective norms and to continuous intention are not invariant between men and women.*

*The model was operationally generalized across the whole of Saudi Arabia. This research moves beyond online shopping intentions and includes factors affecting online shopping continuance. The research model explains 65% of the intention to continue shopping online.*

*This research suggests that online strategies cannot ignore either the direct and indirect gender differences on continuance intentions in Saudi Arabia. The model can be generalized across Saudi Arabia.*

*Keywords: Internet shopping, e-shopping, technology acceptance, male and female examination, continuance online shopping, Saudi Arabia.*

## 1 MOTIVATION FOR THE STUDY

Globalization continues to drive the rapid growth of international trade, global corporations, and non-local consumption alternatives (Alden et al. 2006; Holt et al. 2004), and advances of the Internet and e-commerce have diminished trade boundaries. E-commerce and e-shopping create opportunities for businesses to reach to consumers globally and directly, and in turn, business and social science research now focuses specifically on cross-national and cross-cultural Internet marketing (Griffith et al. 2006).

The Internet had changed how businesses and customers customize, distribute, and consume products. Its low cost gives both businesses and consumers a new and powerful channel for information and communication. In 1991, the Internet had less than 3 million users worldwide and no e-commerce applications; by 1999, about 250 million users appeared online, and 63 million of them engaged in online transactions, which produced a total value of \$110 billion (Coppel 2000). Business-to-consumer online sales in the United States grew by 120% between 1998 and 1999 (Shop.org and Boston Consulting Group, 2000). According to a U.K. payment association, the number of consumers who shop online has increased by more than 157%, from 11 million in 2001 to more than 28 million in

2006 (cited in Alsajjan and Dennis, 2009). E-commerce transactions also are growing in the Middle East (19.5 million Internet users) and in the Gulf States. In Saudi Arabia, online transactions have increased by 100%, from \$278 million in 2002 to \$556 million in 2005 (Al Riyadh 2006). In 2007, Internet sales increased to more than \$1.2 billion worldwide and are expected to continue to rise (World Internet Users and Population Stats 2007).

Despite impressive online purchasing growth rates, compelling evidence indicates that many consumers who search different online retail sites abandon their purposes. This trend and the proliferation of business-to-consumer e-shopping activities require that online businesses understand which factors encourage consumers to complete their e-shopping behaviour. Such continuance is critical, because acquiring new customers may cost as much as five times more than retaining existing ones (Bhattacharjee 2001b; Crego and Schiffrin 1995; Petrisans 1999).

Online customer retention is particularly difficult. Modern customers demand that their needs be met immediately, perfectly, and for free, and they are empowered with more information to make decisions (Bhattacharjee 2001b; Crego and Schiffrin 1995). They also have various online and offline options from which to choose, and without a compelling reason to choose one retailer over another, they experiment or rotate purchases among multiple firms (Bhattacharjee 2001b; Crego and Schiffrin 1995).

Theoretical explanations of online shopping intentions consider several factors. Rogers (1995) suggests that consumers re-evaluate acceptance decisions during a final confirmation stage and decide to continue or discontinue. Continuance may be an extension of acceptance behaviour that covaries with acceptance (e.g., Bhattacharjee 2001a; Davis et al. 1989; Karahanna et al. 1999). We adopt the extended expectation confirmation theory (ECT; Bhattacharjee 2001b) and the technology acceptance model (TAM; Davis et al. 1989) as a theoretical basis, integrating ECT from consumer behaviour literature to propose a model of e-shopping continuance intentions, similar to the way in which the TAM adapts the theory of reasoned action (TRA) from social psychology to postulate a model of technology acceptance.

The TAM, as expanded by Davis and colleagues (1992) and Gefen (2003), and the ECT (Bhattacharjee 2001a; Oliver 1980) have been used widely in research in the industrialized world, but they are less commonly applied to developing countries. Moreover, the TAM stops at intention and does not investigate continuance intentions or behaviour.

As another issue in prior research, no widely acceptable definition for e-commerce exists. Coppel (2000) calls it doing business over the Internet, including both business-to-business and business-to-consumer markets. For the purpose of this research, we adopt the following definition: E-shopping, electronic shopping, online shopping, and Internet shopping are the same. All these activities include the activity of searching, buying, and selling products and services through the Internet. In recent years, the Internet has grown to include a wider range of potential commercial activities and information exchanges, such as the transaction and exchange of information between government agencies, governments and businesses, businesses and consumers, and among consumers. We focus mainly on the business-to-consumer (B2C) arena, which has been the source of most online progress and development.

Previous research also finds that gender differences significantly affect new technology decision-making processes (Van Slyke et al. 2002; Venkatesh et al. 2000). Venkatesh and colleagues (2000) report that women tend to accept information technology when others have high opinions of it and are more influenced by ease of use. Men rely more on their evaluations of the usefulness of the technology. However, in many cultures, women represent the primary decision makers in families and households' main shoppers. Greater e-commerce exposure and decision-making power may imply that women can attain greater satisfaction from online shopping (Alreck and Settle 2002).

Finally, no previous research considers Internet shopping in Saudi Arabia or, specifically, continuance intentions for online shopping in Saudi Arabia, nor do studies address differences in gender shopping behaviour online in Saudi Arabia. This research attempts to provide a validated conceptual model that integrates different factors, including gender, and clarifies the theoretical problems of continuance intentions in the unique context of Saudi Arabia.

The remainder of this article proceeds as follows: We offer a review of existing literature, and then detail our proposed model, hypotheses, and methodology. After describing the structural equation model and analysis, we provide our results. We conclude with some limitations and recommendations for further research.

## 2 THEORETICAL BACKGROUND

The TAM (Davis 1989) represents an adaptation of the TRA, tailored to users' acceptance of information systems. It helps explain determinants of computer acceptance and can explicate user behaviours across a broad range of computing technologies and populations; it also is parsimonious and theoretically justified (Davis et al. 1989). The major determinants are perceived usefulness and ease of use. Perceived usefulness significantly influences attitude formation (Agarwal and Prasad 1999; Davis 1989; Dishaw and Strong 1999; Gefen and Keil 1998; Igbaria et al. 1996; Moon and Kim 2001; Taylor and Todd 1995; Venkatesh 2000; Venkatesh and Davis 2000), but evidence regarding perceived ease of use remains inconsistent. Many studies simplify the original TAM by dropping attitude and studying just the effect of perceived usefulness and ease of use on intention to use (Gefen and Straub 2000; Leader et al. 2000; Teo et al. 1999).

Updates to the TAM add antecedents of perceived usefulness and ease of use (Venkatesh and Davis 2000), such as subjective norms, experience, trust, and output quality. Ample evidence confirms that both usefulness (i.e., external motivation) and intrinsic enjoyment (i.e., internal motivation) offer direct determinants of user acceptance online (Davis et al. 1992; Leader et al. 2000; Moon and Kim 2001; Teo et al. 1999; Venkatesh 1999).

Expectation confirmation theory (ECT) in turn helps predict consumer behavior before, during, and after a purchase in various contexts, in terms of both product and service repurchases (Anderson and Sullivan 1993; Dabholkar et al., 2000; Oliver, 1980, 1993; Patterson et al. 1997; Spreng et al. 1996; Swan and Trawick 1981; Tse and Wilton 1988). According to ECT, consumers define their repurchase intentions by determining whether the product or service meets their initial expectations. Their comparison of perceived usefulness versus their original expectation of usefulness influences their continuance intentions (Bhattacharjee 2001a; Oliver 1980). Their repurchase intentions depend on their satisfaction with the product or service (Anderson and Sullivan 1993; Oliver 1980).

However, ECT ignores potential changes in initial expectations following the consumption experience and the effect of these expectation changes on subsequent cognitive processes (Bhattacharjee 2001a). Prepurchase expectations typically are based on others' opinions or information from mass media, whereas postpurchase expectations derive from first-hand experience, which appears more realistic (Fazio and Zanna 1981). After such first-hand experience, expectations may increase if consumers believe the product or service is useful or contains new benefits and features that were not part their initial expectation.

Venkatesh and colleagues (2003) suggest that usage and intentions to continue usage may depend on cognitive beliefs about perceived usefulness. Gefen (2003) also indicates that perceived usefulness reinforces an online shopper's intention to continue using a Web site, such that when a person accepts a new information system, he or she is more willing to alter practices and expend time and effort to use it (Succi and Walter 1999). However, consumers may continue using an e-commerce service if they consider it useful, even if they are dissatisfied with its prior use (Bhattacharjee 2001a).

Site quality and good interface design enhance the formation of consumer trust (McKnight et al. 2002a), and if a consumer perceives a vendor's Web site to be of high quality, he or she should trust that vendor's competence, integrity, and benevolence (McKnight et al. 2002a). Gefen and colleagues (2003) integrate trust into the TAM in a B2C e-shopping context and find trust positively affects consumers' intention to use a Web site. Building trust with consumers is an essential mission for e-retailers, because purchasing decisions represent trust-related behaviours (Jarvenpaa et al. 2000; McKnight et al. 2002b; Urban et al. 2000).

A person's beliefs about what important others think about the behavior also should directly influence subjective norms. Therefore, if e-shopping is a socially desirable behavior, a person is more likely to e-shop (George 2002).

Childers and colleagues (2001) also find that enjoyment can predict attitude towards e-shopping, just as much as usefulness can. However, usefulness was the better predictor for grocery items, whereas enjoyment offered better results for hedonic purchases. With regard to e-shopping, the hedonic enjoyment constructs in the TAM may reflect the pleasure users obtain from shopping online, which reinforces continuance intentions.

### 3 PROPOSED MODEL AND HYPOTHESES

#### 3.1 Site Quality

Initial trust forms quickly on the basis of available information (Meyerson et al. 1996). If consumers perceive a Web site as high quality, they trust it and will depend on that vendor (McKnight et al. 2002a). Site information quality and a good interface design enhance consumer trust (Fung and Lee, 1999). Web site quality helps predict behavior (Business Wire 1999; Carl 1995; Meltzer 1999). Perceptions of Web site quality affect trust and perceptions of usefulness. In addition, e-shoppers should perceive a Web site as more trustworthy if it appears more attractive because of its contents, layout, and colors, which represent site quality. On the basis of previous research, we therefore predict:

H1.a Perceived Site Quality is positively related to Perceived Usefulness.

H1.b Perceived Site Quality is positively related to Customer Trust to use online shopping.

#### 3.2 Trust

Trust refers to an expectation that others will not behave opportunistically (Gefen 2003). Trust therefore implies a belief that the vendor will provide what has been promised (Ganesan 1994). In turn, perceived usefulness should occur only for an e-vendor that can be trusted (Festinger 1975). Thus:

H2.a Perceived Trust is positively related to customer perceived Usefulness.

#### 3.3 Perceived Usefulness

According to Burke (1997), perceived usefulness is the primary prerequisite for mass market technology acceptance, which depends on consumers' expectations about how technology can improve and simplify their lives (Peterson et al. 1997). A Web site is useful if it delivers services to a customer but not if the customers' delivery expectations are not met (Barnes and Vidgen 2000). The usefulness and accuracy of the site also influence customer attitudes. Users may continue using an e-commerce service if they consider it useful, even if they may be dissatisfied with their prior use (Bhattacharjee 2001a). Consumers likely evaluate and consider product-related information prior to purchase, and perceived usefulness thus may be more important than the hedonic aspect of the shopping experience (Babin et al. 1994). In a robust TAM, perceived usefulness predicts IT use and intention to use (e.g., Adams et al. 1992; Agarwal and Prasad, 1999; Gefen and Keil 1998; Gefen and Straub 1997; Hendrickson et al. 1993; Igabria et al. 1995; Subramanian 1994), including e-commerce adoption (Gefen and Straub 2000). Therefore:

H3.a Perceived Usefulness is positively related to increasing customer Subjective Norm.

H3.b Perceived Usefulness is positively related to increasing customer Enjoyment.

H3.c Perceived Usefulness is positively related to increasing customer Continuance Intention.

### 3.4 Subjective Norm

According to Venkatesh and colleagues (2003), social influences result from subject norms, which relate to individual consumers' perceptions of the beliefs of other consumers. Shim and colleagues (2001) consider subjective norms only marginally significant on e-shopping intentions, whereas Foucault and Scheufele (2005) confirm a significant link between talking about e-shopping with friends and intention to e-shop. Enjoyment also is relevant to social norms, because involving Web sites facilitate e-friendship and enforce e-shopping as a subjective norm. Thus,

H4.a. Perceived Subjective Norm is positively related to increasing customer Enjoyment.

H4.b. Perceived Subjective Norm is positively related to increasing customer Continuance Intention.

### 3.5 Enjoyment

Enjoyment in using a Web site significantly affects intentions to use (Davis et al. 1992; Igarria et al. 1995; Teo et al. 1999; Venkatesh et al. 2002). Shopping enjoyment (Koufaris 2002), perceived entertainment value of the Web site (O'Keefe et al. 1998), and perceived visual attractiveness have positive impacts on perceived enjoyment and continuance intentions (van der Heijden 2003). Thus:

H5. Perceived Enjoyment is positively related to increasing customer Continuance Intention.

## 4 METHODOLOGY

To validate the conceptual model and the proposed research hypotheses, we developed an online survey, which is suitable for collecting data from large geographical areas. In addition, compared with traditional surveys, online surveys offer lower costs, faster responses, and less data entry effort.

### 4.1 Measures

The measures of the various constructs come from previous literature, adapted to the context of online shopping if necessary. All online survey items use 1–7 Likert scales, on which 1 indicates strongly disagree and 7 is strongly agree. The site quality and trust items come from McKnight and colleagues (2002a, 2002b). The perceived usefulness items derive from Gefen (2003). Perceived enjoyment is a measure from Childers (2001). Shih and Fang (2004) provide the subjective norm items. The continuance intention items were adapted from Yang (2004).

The pilot study suggested some clarifications to the survey. Both Arabic and English language versions were available. The Arabic questionnaire employed Brislin's (1986) back-translation method to ensure that the questionnaires have the same meaning in both languages.

### 4.2 Data analysis

Survey respondents were people who were actively engaged in Internet and online shopping in Saudi Arabia, including undergraduate and postgraduate students and professionals. As we show in Table 1, the sample consists of 465 participants in Saudi Arabia, 68.6% (319) of whom are women and 31.4% (146) of whom are men. This somewhat surprising gender breakdown illustrates the high rate of Internet use among women in Saudi Arabia, in contrast to popular perceptions. Most respondents are in their late 30s (3.4% younger than 18 years of age, 12.3% between 18 and 25, 43.4% are 26–35, 18.9% are 36–45, and 6.2% are older than 46 years). Similarly, 60% of the Saudi population is younger than 30 years of age. The vast majority (92.3%) of participants came from the three main regions in Saudi Arabia: 25.2% from the east, 26.5% from the central region, and 40.6% from the western region. The education levels indicate 1.9% of respondents earned less than a high school degree, 10.7% attended high school, 12.4% had diplomas, 51.8% had bachelor degrees, and 22.2% were postgraduates. Most respondents thus are well-educated. Moreover, 31.8% of them work in the public sector (government employee), 34.6% in the private sector, 6.5% were businesspeople, and 26% were students.

Question	Count	Percentage
<b>Gender</b>		
Male	146	31.4
Female	319	68.6
<b>Age</b>		
Less than 18	16	3.4
Between 18-25	57	12.3
Between 26-35	55	43.4
Between 36-45	88	18.9
Above 46	29	6.2
<b>Education Level</b>		
Less than high school	9	1.9
High school	99	10.7
Diploma	115	12.4
Bachelor	241	51.8
Post-graduate	103	22.2
<b>Occupation</b>		
Government employee	148	31.8
Private sector	161	34.6
Business people	35	6.5
Student	121	26.0
<b>Income Level</b>		
<SR4,000 (£1,000)	92	19.8
SR4,000-SR6,000 (£1,000-2,000)	69	14.8
SR6,001-SR8,000 (£2,001-4,000)	58	12.5
SR8,001-SR10,000 (£4,001-7,000)	42	9.0
SR10,001-SR15,000 (£7,001-10,000)	69	14.8
>SR15,001 (>£10,000)	70	15.1
Dependent on others	65	14.0
<b>Region</b>		
East region	117	25.2
West region	189	40.6
Central region	123	26.5
North region	21	4.5
South Region	15	3.2

Table 1: Demographic findings

#### 4.3 Analysis

The Cronbach's alphas (Table 2) are all greater than 0.7 (Bagozzi and Yi 1988). The squared multiple correlation cut-off point is 0.7, and the average variance extracted cut off-point is 0.5 or higher (Bagozzi 1994; Byrne 2001; Hair et al. 2006) (Table 3). We thus confirm the convergent reliability and discriminant validity.

Model Constructs	Factor Correlations								
	Mean	Std. Dev.	Cronbach's alpha	SQ	PU	Trust	SN	Enj	CIU
SQ	21.52	5.31	0.926	1.000					
PU	21.89	5.59	0.949	0.740	1.000				

Trust	21.68	5.31	0.949	0.676	0.719	1.000			
SN	18.73	6.19	0.947	0.298	0.316	0.440	1.000		
Enj	20.80	5.07	0.935	0.464	0.494	0.686	0.547	1.000	
CIU	21.30	5.49	0.961	0.440	0.468	0.650	0.565	0.778	1.000

Table 2: Scale Prosperities and Correlations

Constructs/Indicators	S. Factor Loading	S.E	C.R.	AVE	Squared Multiple Correlation
Site Quality (SQ)				0.758	
SQ 1	0.918	0.043	24.143		0.84
SQ 2	0.850	0.042	23.400		0.72
SQ 3	0.841	0.041	22.731		0.71
SQ 4	0.872	—	—		0.76
Perceived usefulness				0.817	
PU 3	0.906	0.031	31.931		0.82
PU 4	0.892	0.030	32.097		0.80
PU 5	0.937	—	—		0.88
PU 6	0.880	0.031	30.848		0.77
Trust				0.814	
Trusting Beliefs Integrity 1	0.903	0.032	31.167		0.82
Trusting Beliefs Integrity 2	0.897	0.025	38.232		0.80
Trusting Beliefs Integrity 3	0.889	0.030	30.023		0.79
Trusting Beliefs Integrity 4	0.919	—	—		0.85
Subjective Norm				0.819	
SN 3	0.757	—	—		0.57
SN 4	0.976	0.057	23.251		0.95
SN 5	0.966	0.057	22.815		0.93
SN 6	0.904	0.059	21.415		0.82
Enjoyment				0.756	
Enj 4	0.704	—	—		0.79
Enj 5	0.931	0.066	19.223		0.87
Enj 6	0.935	0.067	19.479		0.88
Enj 8	0.887	0.066	18.058		0.50
Continuance Intention				0.872	
CIU 1	0.872	0.026	34.199		0.76
CIU 2	0.938	0.020	47.621		0.88
CIU 3	0.975	—	—		0.95
CIU 4	0.946	0.020	50.386		0.90

Table 3: Measurement Model

## 5 STRUCTURAL EQUATION MODEL

As the first step in testing the proposed model, which operationalizes the hypotheses and the factors involved in continuance e-shopping intentions in Saudi Arabia, we estimate the goodness-of-fit indices (Figure 1). Bentler and Bonnett (1980) suggest the Chi-square/Degrees-of-freedom (CMIN/DF) ratio as an appropriate measure of model fit, which should not exceed 5 (Bentler 1989).

A structural equation model (SEM) with AMOS 5.0 software determines additional goodness-of-fit indices, including Critical Ratio (CR), Chi-square (CMIN), Degrees-of-Freedom (df), Chi-square/Degrees-of-freedom (CMIN/DF), Root mean square residual (RMR), Root mean square error of approximate (RMSEA), Goodness-of-fit (GFI), Comparative fit index (CFI), Normal fit index (NFI), Incremental fit index (IFI), Relative fit index (RFI). In general, GFI, NFI, RFI, IFI, and CFI greater than 0.90 indicate good model fit (Bentler 1989). As illustrated in Table 4, all paths are statistically significant, with critical ratios ranging from 17.261 to 4.594, which are greater than 1.96 and thus indicate acceptable results (Hair et al. 2006; Holmes-Smith 2000). As illustrated in Table 5, the goodness-of-fit indices of the proposed model of continuance intentions fit the data reasonably well, as confirmed by the chi-square CMIN=764.381, df=236, CMIN/DF=3.239, RMR=0.248, GFI=0.886, CFI=0.960, RMSEA=0.069, NFI=0.943, IFI=0.960, and RFI=0.933.

Paths			Standardized Regression Weights (B)	Standard Error S.E.	Critical Ratio C.R.	P Value
Trust	<---	SQ	.740	.044	17.261	***
PU	<---	SQ	.318	.059	5.796	***
PU	<---	Trust	.484	.058	8.673	***
SN	<---	PU	.440	.042	9.184	***
Enj	<---	PU	.553	.035	11.549	***
Enj	<---	SN	.303	.036	7.076	***
CIU	<---	SN	.182	.041	4.974	***
CIU	<---	Enj	.543	.072	10.244	***
CIU	<---	PU	.198	.043	4.594	***

Table 4: Regression Weights (463 participants)

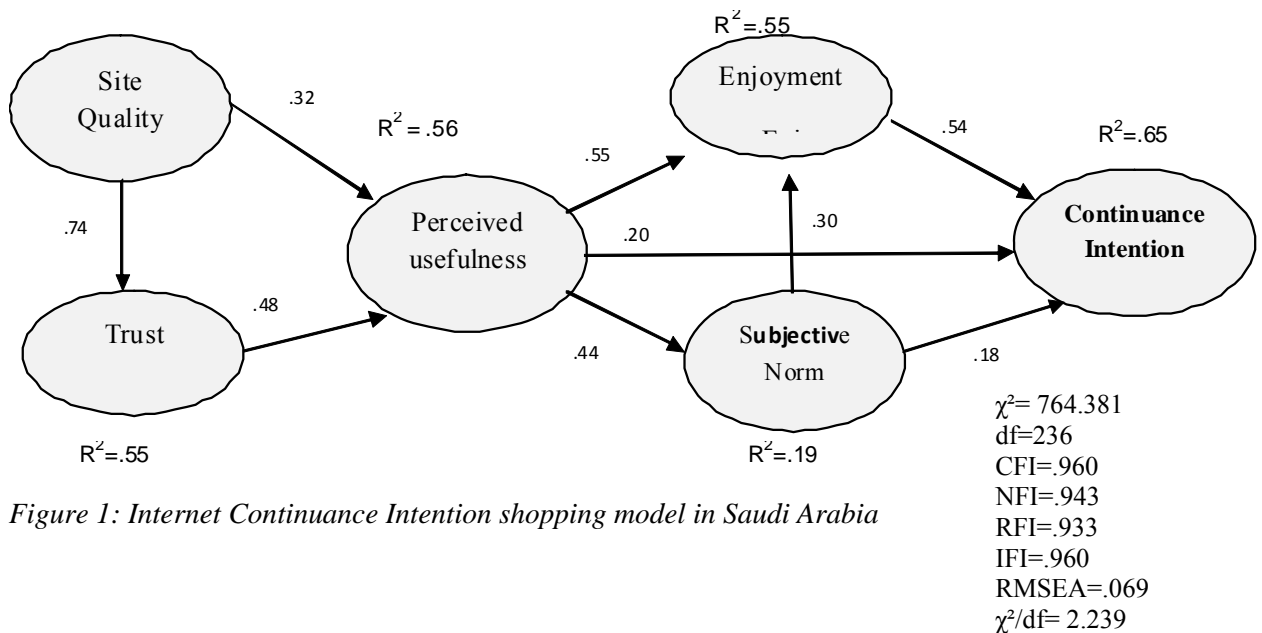
Confirmatory Factor Analysis CFA (Goodness-of-fit measure)	Acceptable Values	Value
Chi-Square CMIN	NA	764.381
Degree of freedom	NA	236
CMIN/DF	Chi square/ df $\leq$ 5 (Bentler and Bonnett, 1989)	3.239
P value	$p \leq 0.05$ (Hair et al., 2006)	0.000
Root mean square residual (RMR)	No established thresholds (the smaller the better) (Hair et al., 2006)	0.248
Goodness-of-fit (GFI)	$\geq 0.90$ (the higher the better) (Hair et al., 2006)	0.886
Comparative fit index (CFI)	$\geq 0.90$ (Hair et al., 2006)	0.960
Root mean square error of approximate	$< 0.08$ (Hair et al., 2006)	0.069



Confirmatory Factor Analysis CFA (Goodness-of-fit measure)	Acceptable Values	Value
(RMSEA)		
Normal fit index (NFI)	$\geq 0.90$ (Hair et al., 2006)	0.943
Incremental fit index (IFI)	$\geq 0.90$ (Hair et al., 2006)	0.960
Relative fit index (RFI)	$\geq 0.90$ (Hair et al., 2006)	0.933

Table 5: Goodness-of-fit indices (463 participants)

Next, we examine the regression weights (path significance) of each relationship in our research model and the variance explained ( $R^2$  value) by each path. The AMOS software reports the standardized regression weights, standard error, and critical ratio for each path. Table 5 illustrates the standardized regression weights, standard errors, and critical ratios. The hypothesized associations are strongly significant at  $p = 0.000$ . Perceived enjoyment is the strongest predictor of continuance intention ( $B = 0.543$ ), followed by perceived usefulness ( $B = 0.198$ ), and then subjective norms ( $B = 0.182$ ). The model explains 65% of the variance in continuance intentions (Figure 1).



### 5.1 Invariance analysis

When comparing cultures or groups, research participants may not recognize the same meaning and understanding of survey items. Scholars thus have emphasized the importance of minimizing possible research biases in cross-national and cross-cultural research derived from the data collection (Yi et al. 2008). To minimize the bias, we applied back-translation (Brislin 1986). In addition, we assess the measurement invariance (equivalence) across the groups to consider the constructs' factorial invariance (Cheung et al. 1999).

The invariance analysis indicates whether any differences occur between genders. The factorial analysis reveals if men and women conceptualize the model constructs the same way. If we find a gender effect on the measurement invariance of the construct and the score of the group analysis is significant, the construct measurement differs for the two groups, and they cannot be compared directly.

To compare the male and female samples, we use factorial invariance (metric equivalence) to assess the extent to which measures from both groups have the same meaning (Hair et al. 2006). The CMIN=1104.946, df=454, CMIN/DF=2.434, RMR=0.291, GFI=0.839, CFI=0.947, RMSEA=0.056, NFI=0.916, IFI=0.949, and RFI=0.907, indicate outstanding goodness-of-fit indices across the groups (Table 6).

Confirmatory Factor Analysis CFA (Goodness-of-fit measure)	Acceptable Values	Value
Chi-Square CMIN	NA	1104.946
Degree of freedom	NA	454
CMIN/DF	Chi square/ df $\leq 5$ (Bentler and Bonnett, 1989)	2.434
P value	$p \leq 0.05$ (Hair et al., 2006)	0.000
Root mean square residual (RMR)	No established thresholds (the smaller the better) (Hair et al., 2006)	0.291
Goodness-of-fit (GFI)	$> 0.90$ (the higher the better) (Hair et al., 2006)	0.839
Comparative fit index (CFI)	$> 0.90$ (Hair et al., 2006)	0.947
Root mean square error of approximate (RMSEA)	$< 0.08$ (Hair et al., 2006)	0.056
Normal fit index (NFI)	$\geq 0.90$ (Hair et al., 2006)	0.916
Incremental fit index (IFI)	$\geq 0.90$ (Hair et al., 2006)	0.949
Relative fit index (RFI)	$\geq 0.90$ (Hair et al., 2006)	0.907

Table 6: Goodness-of-fit indices (male – female)

Assuming the unconstrained model is correct, compared with constraining all factorial paths, the result across groups indicates changes in df ( $\Delta df$ )= 18, chi-square ( $\Delta \chi^2$ )=31.677, and  $p = 0.024$ , below Byrne's (2001) 0.05 cut-off. Tests of measurement invariance in which we freely estimate the other loadings appear in Table 6. According to the results in Table 7, changes in the chi-square and df are significant ( $p = 0.024$ ). Therefore, the test of invariance for the two gender groups must be rejected.

Model	$\Delta df$	$\Delta \chi^2$	p
Measurement weights	18	31.677	.024
Structural weights	9	13.244	.152

Table 7: Invariance analysis (male and female)

That is, the construct measurement differs for the two groups, and they cannot be compared directly. To find the non-invariant item, we conducted several tests of a partially constrained model. If at least two items per factor can be constrained to be equal without significantly worsening the fit, partial metric invariance is supported (Hair et al. 2006), which would allow for a valid comparison of the relationships between constructs. We therefore compared the partially constrained model with the fully constrained model (Lai and Li 2005). According to the test of each measurement invariance, as reported in Table 8, subjective norms are the source of non-invariance between the two gender groups.

Model	DF	CMIN	P
PU	3	1.832	.608

Trust	3	1.321	.724
Enjoyment	3	7.168	.067
Site Quality	3	.777	.855
Subjective Norm	3	14.417	.002
Subjective Norm – sn4	1	8.989	.003
Subjective Norm – sn5	1	3.012	.083
Subjective Norm – sn6	1	3.327	.068
Subjective Norm – without sn4	2	1.791	.408
Continuance Intention	3	6.252	.100

Table 8: Test of each measurement invariance freely estimated. Assuming model Default model to be correct

As suggested by Hair and colleagues (2006), we also conducted partial metric analysis for the model without subjective norms. The result, as we show in Table 9, reveals changes across groups in df ( $\Delta df$ )= 17, chi-square ( $\Delta\chi^2$ )=18.849, and  $p = 0.337$ . According to the results in Table 8, the changes in chi-square and df are not significant ( $p = 0.337$ ), and the goodness-of-fit indices are comparable, justifying the invariance of the unconstrained and constrained models. Thus, we establish metric equivalence and proceed to regression paths.

Model	$\Delta df$	$\Delta\chi^2$	P
Measurement weights	17	18.849	.337
Structural weights	9	13.683	.134

Table 9: Invariance analysis (male and female) after the correction

The coefficient (regression paths) invariance analysis determines if male and female respondents have the same relationships with same variables in the research model. The findings in Table 9 suggest coefficient invariance between men and women across the research model with all regression paths constrained ( $\Delta\chi^2 = 13.683$ ,  $\Delta df = 9$ ,  $p = 0.134$ ). Despite the lack of real coefficient invariance, we consider the relationships between model constructs for any non-invariance. The findings in Table 10 indicate that men and women are non-invariant in certain relational paths. Differences in their behavior in the context of online shopping continuance in Saudi Arabia result from different coefficients of perceived usefulness  $\rightarrow$  subjective norms (change in chi-square = 7.233,  $p = 0.007$ ). For the men, this influence is greater than that for women. The difference in the coefficients of perceived  $\rightarrow$  continuance intentions (change in chi-square = 4.976,  $p = 0.026$ ) again indicates the influence is greater for the male sample than for the female sample.

Paths			Male Sample			Female Sample			Invariance		
			SRW	C.R.	P value	SRW	C.R.	P Value	$\Delta DF$	$\Delta CMIN$	P Value
Trust	<---	SQ	.793	10.421	***	.732	13.583	***	1	.430	.512
PU	<---	SQ	.375	4.378	***	.323	4.173	***	1	.200	.655
PU	<---	Trust	.479	6.127	***	.518	6.475	***	1	.124	.725
SN	<---	PU	.596	7.235	***	.319	6.571	***	1	7.233	.007
Enj	<---	PU	.454	6.387	***	.392	9.474	***	1	.536	.464

Paths			Male Sample			Female Sample			Invariance		
Enj	<---	SN	.161	2.715	.007	.297	5.817	***	1	2.069	.150
CIU	<---	SN	.194	3.546	***	.192	3.628	***	1	.017	.895
CIU	<---	Enj	.594	5.641	***	.783	8.596	***	1	1.788	.181
CIU	<---	PU	.348	4.701	***	.150	2.899	.004	1	4.976	.026

Table 10: Structural Factorial of theoretical construct (structure Invariant – Regression) for the Gender sample (Male – Female)

The results of the latent mean regional analysis appear in Table 11. The group analysis of gender between male and female samples exhibits latent mean invariance for the research constructs.

	Latent mean	S.E.	C.R.	P Value
PU	-.080	.140	-.569	.569
Trust	-.127	.146	-.869	.385
Enj	.015	.136	.113	.910
CIU	.036	.144	.254	.800
SQ	-.068	.139	-.491	.623
SN	.180	.139	1.294	.196

Table 11: Means: (Male - Default model) - for the Gender sample (Male – Female)

## 5.2 Direct and Indirect Effect Analysis

The direct and indirect effects in Table 12 reveal that the greatest total influences of direct and indirect (mediated) effects on continuance intentions come from perceived usefulness for both the male (0.782) and female (0.601) samples. The next greatest influences derive from site quality (0.588) for men and enjoyment (.577) for women. Additionally, trust has more influences for male (.406) on continuance intention than female (.279). Therefore, site quality, trust, perceived usefulness, and subjective norm all play significant roles for continuance intentions regarding online shopping in Saudi Arabia for both men and women.

Construct	CIU (Male)			CIU (Female)		
	Direct	Indirect	Total	Direct	Indirect	Total
SQ	-----	.588	.588	-----	.382	.382
TRUST	-----	.406	.406	-----	.279	.279
PU	.344	.438	.782	.152	.449	.601
SN	.201	.099	.300	.160	.194	.354
ENJ	.447	-----	.447	.577	-----	.577
R2 = 0.65						

Table 12: Direct and Indirect influences on CIU

## 6 DISCUSSION

This research attempts to provide a validated conceptual model that integrates different factors and clarifies the theoretical problems of continuance e-shopping intentions and behavioural gender differences in Saudi Arabia. The online field survey validates the hypothesized model, and the model findings confirm that perceived enjoyment, perceived usefulness, and subjective norms are the main determinants of continuance intentions in Saudi Arabia, explaining 65% of continuance e-shopping intentions. However, enjoyment is more influential (see Table 5;  $srw = 0.543$ ,  $cr = 10.244$ ), followed by perceived usefulness ( $srw = 0.198$ ,  $cr = 4.594$ ), and then subjective norms ( $srw = 0.182$ ,  $cr = 4.974$ ). These findings are consistent with previous research (e.g., Bhattacharjee 2001a; Childers 2001; Davis et al. 1989; George 2002; Shih and Fang 2004; Taylor and Todd 1995; Teo et al. 1999; Venkatesh et al. 2003). Enjoyment, perceived usefulness, and subjective norms have positive influences (direct and indirect) on consumers' continuance e-shopping intentions.

The measurement weights of the male and female groups, based on partial metric invariance, are invariant. Testing for factorial regression paths invariance, we find that relationship paths between site quality  $\rightarrow$  trust; site quality  $\rightarrow$  perceived usefulness; trust  $\rightarrow$  perceived usefulness; perceived usefulness  $\rightarrow$  enjoyment; subjective norms  $\rightarrow$  enjoyment; subjective norms  $\rightarrow$  continuance intentions; and enjoyment  $\rightarrow$  continuance intentions are similar for both genders in Saudi Arabia. However, the perceived usefulness  $\rightarrow$  subjective norms and perceived usefulness  $\rightarrow$  continuance intentions relationship paths are non-invariant. That is, men are more influenced by evaluations of the utilitarian usefulness of technology, whereas women tend to accept technology based on their hedonic experiences and the opinions of others (Teo et al. 1999; Venkatesh et al. 2000). Women are more affected by hedonic enjoyment and the opinions of others than are men (enjoyment  $\rightarrow$  continuance intentions male  $srw = 0.594$ , female  $srw = 0.783$ ; subjective norms  $\rightarrow$  enjoyment male  $srw = 0.161$ , female  $srw = 0.297$ ).

The model factorial paths of site quality and trust are strong antecedents of perceived usefulness on the regression weights (site quality  $srw = 0.318$ ,  $cr = 5.796$ ; trust  $srw = 0.484$ ,  $cr = 8.673$ ). Both site quality (0.588) and trust (0.406) have large indirect effects on continuance intentions (see Table 12). These findings match the collectivist culture of Saudi Arabia, where people tend to trust only those within their in-group (Yamagishi and Yamagishi 1994).

Trust and site quality do not have direct effects on continuance intentions toward the online retailer. Rather, significant indirect effects from trust and site quality move through perceived usefulness, subjective norms, and enjoyment. This model pertains to post-purchase behaviour after a first-hand experience. It appears consumer initial trust and usefulness expectations can be confirmed, leading to increased usefulness that puts more pressure on social contacts to use and enjoy the site.

## 7 CONCLUSION AND CONTRIBUTION

From a theoretical standpoint, these results contribute to existing literature in several ways. First, we enhance e-shopping literature by providing insights into the factors that seem to affect online shopping continuance intentions in Saudi Arabia. We also posit that enjoyment, subjective norms, and perceived usefulness have direct and indirect effects on continuance intention. The greater positive indirect effects of site quality on perceived usefulness, subjective norms, and enjoyment and that of trust on enjoyment and subjective norms suggest that online retailers should increase the positive perceptions of trust and site quality to make their e-shopping environment more useful and enjoyable. To have a significant effect on e-shopping continuance intentions, any e-shopping environment should encourage a shopping experience that is useful and enjoyable.

Second, the results support previous research that shows perceived usefulness reflects the utilitarian aspects of online shopping, and perceived enjoyment reflects its hedonic aspects. In our study, enjoyment has the strongest effect on e-shopping continuance intentions, which confirms that

enjoyment in an online shopping environment is important and had a direct effect. Moreover, this result demonstrates that perceived usefulness had a stronger direct and indirect effect on e-shopping continuance intentions, in support of previous research that shows usefulness has strong links to intentions. Usefulness is an important criterion for consumers when they select online stores and can increase their satisfaction. Consumers may continue using an e-commerce service they consider useful, even if they are dissatisfied with it (Bhattacharjee 2001a).

Third, few prior studies use SEM as their methodological approach, and even fewer apply invariance analysis to verify behavioral gender differences with a sample obtained from Saudi Arabia. This study addresses this knowledge gap.

## **8 RESEARCH LIMITATION AND FUTURE RESEARCH**

Typical of most field surveys, this study suffers some limitations. First, the novelty associated with using an online survey in the Saudi Arabian market indicates the empirical data may be biased by a novelty effect. Second, the online survey was posted with permission on Saudi universities' online forums. The survey may suffer a non-response bias, but there is no systematic way to test for the response rate.

More research should address the online context in Saudi Arabia, including ways to appeal to both hedonic and utilitarian shoppers, especially its youth population. This research shows that the well-established TAM can be integrated with ECT, which should prompt additional research related to continuance intentions, such as comparisons of new e-shoppers with continuing users, who have Internet knowledge and experience.

The continuance intention antecedents reveal the direct and indirect effects, as well as gender differences. The impact of additional factors, such as satisfaction, loyalty, and interactivity, and the moderating effect of different demographic factors, such as income, age, and regional location, should be considered in future research investigations.

## **9 MANAGERIAL IMPLICATIONS**

This study provides managers with useful and important information about planning their Web sites and marketing strategies. Managers and site developers should focus on the quality and informative content, which reflect usefulness and enjoyment. Managers should work to minimize churn, because customers who never return reduce the firm's customer base and revenues and require substantial expenditures to lure them back from competitors. To build sustainable, continued e-shopping relationships, managers cannot ignore either direct (perceived usefulness, enjoyment, subjective norms) or indirect (site quality, trust, perceived usefulness, subjective norms) influences on continuance intentions. Moreover, they should build positive word of mouth to enhance the perceptions of friends and family members of current customers about the Web site's usefulness, site quality, interactivity, and enjoyment, which can increase perceptions of the firm's trustworthiness.

This study draws attention to the direct and indirect gender differences in Saudi Arabia, which should be taken into consideration when developing any Web site and marketing strategy. Finally, understanding the differences between male and female consumers can help managers shift consumers from single visits to ongoing, trusted, useful, and enjoyable relationships, which should produce more stable, long-run business for online firms in Saudi Arabia.

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