

# Website Design, Technological Expertise, Demographics, and Consumer's E-purchase Transactions

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## Abstract

This study investigates the association of e-retailer's website design, the consumers' technological expertise, and some demographic characteristics with e-purchase transactions. The study was conducted on a sample of 290 respondents of Saudi consumers who had online purchase. The findings revealed a statistically significant positive relationship between the consumers' technological expertise and their e-purchase transactions. The study also demonstrated no relationship between the e-retailer's website design and the consumers' e-purchase transactions. Regarding demographics and consumers' e-purchase transactions, the study found nonsignificant differences between males and females, as well as among the different levels of education, as opposed to significant differences among the consumer's monthly income levels in favor of higher-income consumers, and among different age levels in favor of the age 35-45 category. To help both marketers and consumers to gain the benefits of e-purchase, the study recommended e-marketers to establish marketing activities that enhance the consumer adoption of e-shopping; giving more concern to order processing as an important strategy for differentiation and positioning. The study also recommended e-retailers to focus on entertaining and luxury products to attract higher-income consumers. Furthermore, the study advised e-retailers to extensively do consumer behavior research as a base to enhance the planning of e-marketing strategies and activities.

**Keywords:** website design, technological expertise, demographics, e-purchase transactions, online shopping

## 1. Introduction

Shopping is no longer going only to traditional markets in search of what consumers need of products and buy them. Shopping kept pace with digital technology and its marketing application known as online shopping. In online shopping, an effective mechanism for companies was found to increase communication with customers and provide them with products and services at low prices; as a result of cost-cutting. Online shopping also saves the customer time; enabling shopping at any time. Additionally, online shopping offers a convenient channel for consumers who find it difficult to go shopping in traditional markets. Last but not least, online shopping enables consumers to search for products in a number of e-retailers.

Despite the usefulness of e-marketing for the consumer, the growth of consumers' e-purchase mainly depends on the marketers. They should exert efforts to know the factors that influence consumers' decisions to buy online. Studying consumer behavior helps marketers build appropriate marketing strategies that satisfy the consumer's needs and wants. Better understanding of the consumer behavior helps marketers to facilitate e-purchase process and to support the consumer experience in this area (Zhang et al., 2011). Despite the importance of this, studies that have investigated the impact of the factors that may affect the consumer's online purchase transactions are still few, especially with regard to e-purchase in the Saudi Arabian market.

Accordingly, the researcher surveyed studies on electronic consumer behavior in the Saudi Arabian market, made sure that few studies are available in this regard. Thus, marketers suffer a lack of useful information on the factors that encourage or deter consumers to do online purchase. Therefore, the research problem is summarized as the e-retailer's lack of knowledge of the Saudi Arabia's online purchasing market and the factors that are expected to influence the consumer's e-purchase transactions in this market. Literature review of this study revealed that the e-retailer's website design, the consumer's last technological expertise, and some other demographic factors such as: gender, age, education, and income are important factors. Specifically, this research

answers a number of questions concerning the relationship between some marketing, technological and demographic factors and the consumer's e-purchase transactions in the Saudi Arabian market.

## 2. Literature Review and Study Hypotheses

In recent years, most of the research and the controversy focused on the identification and analysis of factors that can affect the consumers' e-purchase behavior and decisions. Many of the research efforts have focused on modeling online shopping, as well as the process of making e-purchase decision (Bashir, 2013; Alsuwat, 2013; Al-Mowalad, & Putit, 2012; Salehi, 2012; Javadi et al., 2012; AlGamdi et al., 2011). Furthermore, some other studies investigated the differences in e-purchase decisions according to different factors such as demographic factors (Zheng, 2006; Rodgers & Harris, 2003; Zheng, 2003; Slyke et al., 2002). However, studies on e-purchase of the Saudi market are few, which is still a gap in the empirical research.

### 2.1 E-purchase Transactions

Considering the importance of online shopping to consumers, previous studies indicated three perspectives on online shopping: first, the consumer's completion of online shopping transactions (Degeratu et al., 2002), second, the data collection of goods and services (Yang & Cho, 1999), and third, a combination of these two perspectives (Hill & Beaty, 2011; Pan et al., 2010). In terms of the third perspective, online shopping is defined as efforts made by the consumer via digital technologies-most notably the Internet-in search of information on products and making purchases, as well as the completion of purchase transactions (Alturkestani, 2004). Correspondingly, the current study adopts the definition of consumers' e-purchase decisions as consumers' use digital channels in search of products and to collect information about product features and prices for the purpose of making appropriate purchase decisions transactions.

Regarding the measurement of the consumers' e-purchase, some measures were used in the previous studies. Lian & Lin (2008) measured the extent to which consumers like to buy online, the attractiveness of this kind of purchase to consumers, the consumer's likelihood to return to the store website and purchase within the next three months or during a year, and the consumers' intention to increase their online purchase. The likelihood of ever purchasing from a particular store again was used by Doolin et al. (2005); Li & Zhang (2002); and Jarvenpaa et al. (2000). Similarly, Jahng et al. (2001) measured consumers' acceptance of online shopping and their attitudes towards certain electronic stores. Along the same lines, Domina et al. (2012) measured consumers' online shopping intention and their willingness to recommend others to purchase online. Also, Lee et al. (2001) measured the amount of purchase, repetition of purchase within six months. Some other measures were used, e.g. consumers' satisfaction with online shopping, future purchase intention, frequency of online shopping, number of purchased items, and expenditures on online shopping (Bashir, 2013; Richa, 2012; Gonzalez et al., 2010; Wan, 2009). However, The current study is based on a scale of five items to measure the consumers' e-purchase transactions as a dependent variable: the search for information about the product alternatives, support services of the retailers' websites, achieving purchase transactions, and repetition and expenditure of purchase transactions, that measures the actual action of the consumer, not just the consumer's attitudes towards e-purchase, which numerous prior studies have concentrated upon.

### 2.2 Website Design and E-purchase Transactions

Several studies investigated the relationship between the quality of e-store design and consumer's e-purchase transactions. Alsuwat (2013) found a positive relationship between the e-store design and the Saudi consumer's e-purchase. Another study on Saudi consumers also confirmed the importance of the effectiveness of e-store in terms of ease of use and search, and the ability to display product images, providing the consumers full information about the items. However, bad e-store website design is one of the factors that hinder consumer to demand for electronic shopping (Al-Ghamdi et al., 2011). In the same line, Bashir (2013) found a direct relationship between five factors and consumer behavior of e-purchase, three of them are related to: e-store design, logistics service related to the delivery of goods, and information available on the website. The study also concluded that the most important obstacles that deter consumers from doing e-purchase is the security in electronic payment (Bashir, 2013). In this context, Wan (2009) pointed out the importance of a number of factors relating to e-store design such as: information availability, attractiveness, quality of content, ease of use, spent time, and safety.

In this context, Almwad & Putit (2012) concluded a number of factors relating to the design of e-store: confidence, interest, and ease of use. In the same line, Szymanski & Hise (2000) pointed out that a good website design through which the e-purchase quick and convenient is one of the strongest indicators that affect consumer satisfaction and then the impact on e-purchase decisions. Moreover, Salhi (2012) concluded that the most important elements of the website design are safety and credibility. Gonzalez (2010) assured the importance of

having an interactive information system on the e-store website in order to monitor the consumer satisfaction and perception of the quality of the service provided on the e-store website, hence, helping the store to provide useful information to consumers at the right time to make appropriate purchase decisions.

In line of the importance of quality website design, some research found that a significant proportion of the adult Internet users who have stopped shopping online was because of the negative experience online, since consumers do not prefer complex website designs (Wauters, 2011). In this regard, Chen & Wells (1999) refer to a number of positive aspects to consider in designing e-store websites: entertainment, informativeness, and good organization. Hence, Nielsen NetRatings (2003) assessed the U.S.A. retail companies that deal with their customers electronically. The study results concluded that the website design may affect the e-purchase decisions to 50% of online users. For this reason, Moon & Kim (2001) confirmed the importance that online business organizations give much concern to designing their store websites to be successful.

Inversely, Salhi (2012) has studied the subject of consumer behavior toward the e-purchase in Malaysia. The study is aimed at identifying the factors that affect consumers' e-purchase decisions. It studied the impact of some marketing factors: price discounts, website design attractiveness, credibility, and originality. The study concluded that all these factors do not significantly affect the consumer's intention for online shopping. Accordingly, the first null hypothesis of the current study is developed as follows:

*H1*. There is no relationship between the e-store website design and the consumer's e-purchase transactions.

### *2.3 Consumer's Technological Expertise and E-purchase Transactions*

Several studies have concluded the association of the consumer's technological expertise and e-purchase decisions (Karimi, 2013; AlSwuat, 2013; Bellman et al., 2004; Johnson et al., 2004). In the same line, other studies have found that online buyers are more familiar with the technological aspects of their counterparts in traditional buying (Bellman et al., 2004; Swinyard & Smith, 2003). In this regard, Alswuat (2012) recommended the importance of the availability of a number of characteristics in consumers to be able to carry out the e-purchase, including: technological awareness, knowledge of computer use, previous experience with the e-purchase. He mentioned that digital illiteracy is one of the barriers that deter Saudi consumers from doing e-purchase. For measuring consumer's technological expertise, Lorenzo et al. (2009) identified several factors related to: ease of use, trust, and attractiveness.

Studies have shown that the high technological expertise of buyers coincided with the development of electronic fraud processes that lead to the need for consumer's technological expertise (Baraghany, 2008). Studies on the Saudi market concluded that the most important obstacle in the consumer's use of electronic transactions (including e-purchase) is the lack of consumer's technological expertise (Al-Ghamdi et al., 2011; CITC, 2010). For this reason, Bidgoli (2004) confirmed the importance of a consumer to live a lifestyle that adapts e-purchase requirements in terms of acceptance of new technology, and skills and experience to deal with the Internet as a base for doing satisfied e-purchase transactions. However, some argue that previous experience is effective if the purchase was a favorable experience, since the consumer's favorable experience increases future e-purchase intention (Frambach, Roest, & Krishnan, 2007). Accordingly, the second null hypothesis of the current study is developed as follows:

*H2*. There is no relationship between the consumer's technological expertise and the consumer's e-purchase transactions.

### *2.4 Demographics and E-purchase Transactions*

Differences between shoppers are of extreme interest in market targeting and the setting of marketing strategies. Several studies investigated the demographics association with consumers' propensity for online shopping. Those studies have focused on gender, income, age, and education. The following presentation is a review of the most prominent results from those studies.

#### *2.4.1 Gender*

Regarding the association of gender with the propensity for online shopping, results from the previous research are mixed. A number of studies concluded that males out perform females in making online shopping (Nayyar & Gupta, 2010; Stanford et al., 2004; Rodgers & Harris, 2003). This is in line with the findings by Burke (2002) who concluded that males are more interested in and inclined to use electronic technology in making purchase transactions than females. On the other hand, females still prefer using the catalogs for home shopping transactions. Nevertheless, Burke (2002) revealed that females who preferred online shopping have had the largest shopping transactions compared to males. Along the same lines, Doolin et al. (2005) and Susskind (2004) revealed that males purchase more frequently and spend more money on online shopping transactions than

females. The result is assigned to the males' more interest in the world of computers and its uses (Doolin et al., 2005). Besides, Nayyar & Gupta (2010) and Haque & Al Mahmud (2007) ascribed the superiority of males over females in making online shopping to females' willingness to get out of the houses for walks and entertainment with friends. Further studies have ascribed that result from the notion that females are more receptive to some types of the perceived risks associated with online shopping (Garbarino, 2004); privacy and security risks, in particular (Bartel-Sheehan, 1999). As a whole, some studies revealed that females in online shopping have a higher level of apprehensiveness and skepticism than males (Susskind, 2004; Rodgers & Harris, 2003).

In opposition to the above mentioned studies which concluded males superiority over females in making online shopping transactions, Richa (2012) revealed that females were superior to males in making online shopping; since females are more likely to buy impulsively than males. Hence, females are more attracted to promotional schemes that offered online. Besides, the rising of working women gave a boost to this behavior (Richa, 2012). In this regard, Rainne (2002) concluded that females are great buyers online in holiday seasons. Chang & Samuel (2004) found that the proportions of females who engaged in online shopping were greater than males in the case of making purchases more than four times, compared to the higher percentage of males in the case of purchase making for five times or more. In the same line, Bhatnagar et al. (2000) revealed differences between males and females in the categories of goods and services that are bought online.

Conversely, other studies found no differences between males and females with regard to their propensity for online shopping (Hernández et al., 2011; Bae & Lee, 2011; Hui & Wang, 2007; Alsamadi, 2002). Similarly, Bhatnagar et al. (2000) revealed no differences between males and females in their intentions to purchase online, but differences were in the product categories that are bought online. Saleh (2015) has also found no gender differences concerning online shopping preferences, times of online shopping, online shopping intention, and amounts of online shopping. Regarding the perceived risks, Griffin & Viehland (2011) proved insignificant differences between males and females in the perceived risks associated with online shopping in different product categories. Accordingly, the third null hypothesis of the current study is developed as follows:

*H3.* There are no differences between males and females in their e-purchase transactions.

#### 2.4.2 Age

Numerous studies have shown mixed results on the relationship between age and the online shopping propensity. It was found that young people-especially under 25 years-were more likely to use new technology-as the Internet-to search for new products, to access data on the products, and to evaluate product alternatives than older people (Burke, 2002; Wood, 2002; Ratchford et al., 2001). Correspondingly, some other studies attributed young people's superiority in making online shopping to the perception of the older people who find the benefits of online shopping are less than the cost of learning the skills of the Internet (Ratchford et al., 2001). In the same line, Trocchia & Janda (2000) found that the most important obstacles to e-commerce that reduce consumers' propensity for online shopping are: the lack of information technology experience, resistance to change, and insistence on being experienced with the product before the purchase. That's in addition to the older people's difficulty to adopt the computers and new technologies. Form different perspective, Dholakia & Uusitalo (2002) attributed the young people's superiority in online shopping to the ample time available to older people to visit traditional retail stores; satisfying their social needs when communicating with the salespeople in stores.

Conversely, some studies found that the Internet shoppers have been shown to be older (Donthu & Garcia, 1999; Bhatnagar et al., 2000). Other studies have found no differences between age levels in making online shopping (Saleh, 2015; Richa, 2012; Hernández et al., 2011; Doolin, 2005; Alsamadi, 2002). With regard to the risks perceived by consumers, Liebermann & Stashevsky (2002) revealed that older people were found to perceive some types of risks than younger people. On the contrary, Griffin & Viehland (2011) revealed no differences in perceived risks associated with online shopping between adult and young consumers with an exception of the electronic appliances category; in which, older consumers are often aware of time risks with delivery dates, or the risks of technological defects and how to return the online purchased product or make it repaired. Hernandez et al. (2009) concluded that older people who frequently engage in online shopping may find it a bit complicated in the early stages of learning this technique, but getting used to online shopping transactions after one or more times of purchases, older people's online shopping transactions will not differ from younger people. Accordingly, the fourth null hypothesis of the current study is developed as follows:

*H4.* There are no differences among age levels of consumers in their e-purchase transactions.

#### 2.4.3 Income

Some research studied the income association with the online shopping propensity. A positive relationship was

found between income and consumers' propensity for online shopping. The higher were consumers' incomes; the higher were their propensities for online shopping (Susskind, 2004; Bagchi & Mahmood, 2004; Liebermann et al., 2002; Lohse et al., 2000; Kim et al., 2000; Donthu & Garcia, 1999). This result was attributed to the ability of high-income households to possess PCs, and to widely use the Internet compared to low-income households (Lohse et al., 2000). Similarly, Alsamadi (2002) concluded that higher-income consumers were higher in making online shopping since they could bear its associated perceived risks. Along the same vein, Griffin & Viehland (2011) attributed the superiority of high-income consumers in online shopping to the sensitivity of low-income consumers to online shopping perceived risks.

Regarding the amounts of money spent on online shopping, Doolin et al. (2005) concluded that higher-income consumers spent more money than low-income consumers. Nevertheless, this study found that higher-income consumers were not necessarily the most frequent in making online shopping transactions than low-income shoppers. In opposition to those results, Nayyar & Gupta (2012) found a negative association for consumer's annual income with Internet retailing. Other studies found no differences between high-income earners and low-income earners in making online shopping (Richa, 2012; Hernández et al., 2011). Accordingly, the fifth null hypothesis of the current study is developed as follows:

*H5.* There are no differences among consumers' income levels in their e-purchase transactions

#### 2.4.4 Education

Generally, the willingness to buy new products is related to educational level (Nayyar & Gupta, 2012; Susskind, 2004). In this regard, studies revealed that more educated consumers were more adoptive to the recent innovations and new products (Dholakia & Uusitalo, 2002). In online shopping, studies have found that people who were more educated were more likely to make online shopping transactions (Burke, 2002; Donthu & Garcia 1999). This result has been attributed to the positive relationship between education and propensity of online shopping because of the higher educated consumers' Internet learning ability (Donthu & Garcia, 1999). Besides, high-educated people make good innovators and early adopters of new technology as a whole compared to low-educated people (Dillon & Reif, 2004).

Investigating the same relationship, other studies have found no differences between education levels and the propensity for making online shopping (Saleh, 2015; Richa, 2012; Griffin & Viehland, 2011; Hui & Wang, 2007; Doolin et al., 2005; Bagchi & Mahmood, 2004; Mahmood et al., 2004). This result was ascribed logically to the current convenience of using computers and the Internet commonly, regardless of the education levels (Zhou et al., 2007; Alsamadi, 2002). Accordingly, the sixth null hypothesis of the current study is developed as follows:

*H6.* There are no differences among the education levels of consumers in their e-purchase transactions.

### 3. Sampling and Data Collections

350 questionnaires were made available in a convenience sample of consumers in Riyadh city (the capital of the Kingdom of Saudi Arabia). A total of 311 filled questionnaires was received, representing a response rate of 83% of the distributed questionnaires. 21 questionnaires were incomplete and excluded from the analysis. Therefore, 290 valid questionnaires were eventually taken into the analysis. Table 1. shows frequencies and percentages of the sample characteristics, categorized by gender, income, age, and education.

Table 1. Characteristics of the study sample

Demographics	Frequencies	%	
<b>Gender</b>	Male	215	74.1
	Female	75	25.9
<b>Household income</b> (Per month)	Less than S.R. 5000	82	28.3
	5000-10000	60	20.7
	10000-20000	107	36.9
	More than 20000 (high)	41	14.1
<b>Age</b>	Less than 25 years	83	28.6
	25-35 years	146	50.3
	35-45 years	40	13.8
	Over 45 years	21	7.2
<b>Education</b>	Diploma or less	55	19.0
	Bachelor	175	60.3
	Master	53	18.3
	Ph.D.	7	2.4

## 4. Scales and Data Analysis

### 4.1 Scales

The study variables were measured by scales designed depending on the review of study theoretical and empirical literature. The survey contained 13 Likert-type items. A five-item scale was used to measure the consumers' technological expertise. A three-item scale was used to measure the website design. And, a five-item scale was used to measure e-purchase transactions. Each item of the scales was measured by a five-point-Likert type ranging from "1= strongly disagree" to "5= strongly agree"

### 4.2 Data Analysis

Data analysis was performed using SPSS. First, KMO and Bartlett tests were done to ensure the sample adequacy. Second, factor analysis was used to test validity, identifying the suitable variables' related items for each variable scale. Third, the internal consistency method (Cronbach's Alpha coefficient) was used to test the scales reliability. Fourth, Multiple Regression has been used to test *H1* and *H2*. Fifth, independent samples t-test was used to test *H3*, while One-Way ANOVA was used to test *H4*, *H5*, and *H6*. Some descriptive statistical methods are also used, such as: percentages, Means, and Standard Deviations.

## 5. Findings

### 5.1 Adequacy of Study Sample

To determine the appropriateness of factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity were used (Hair et al., 1998). KMO compares the size of the observed correlation coefficients with the magnitude of the partial correlation coefficient and is calculated as a value between 0 and 1. A value close to 1 indicates a large number or interrelations among the variables. KMO measure value greater than 0.6 is considered acceptable (Sidique et al., 2009). The Bartlett's test of sphericity was used to test for statistical probability that the correlation matrix has significant correlations among at least some of the variables as it was indicated by a significant level less than 0.05 (Hair et al., 1998). The results of the KMO measure valued 0.766, which is acceptable for further analysis. Bartlett's test revealed a significance at a level of 0.000. These two measures reflect that the study sample is adequate for further analysis, starting with the factor analysis for validity testing.

### 5.2 Validity and Reliability Testing

Using principal extraction and Varimax rotation methods, validity testing findings for the thirteen items of the data collection instrument demonstrated high loading coefficients as shown in Table 2. The loading coefficient for each item exceeded a factor loading accepted threshold of 0.50 (Churchill, 1979). Hence, all the items of the instrument have been included in statistical reliability, descriptive, and inferential statistics of the study hypotheses testing. Reliability testing of the study measuring variables as shown in Table 2. demonstrated acceptable levels of reliability of the study variables. Alpha Cronbach's Coefficients have exceeded the minimum accepted threshold coefficient of 0.60 (Malhotra, 2007).

Table 2. Factor loading and descriptive analysis

Constructs	Measurement Items	Factor loading			Cronbach alpha	Mean	S.D.
<b>Consumer's technological expertise</b>	Easily, I can use the e-stores on the Internet	0.553	-	-	0.764	4.0	0.9
	I feel confident when doing e-purchase transactions	0.626	-	-		3.0	1.0
	I prefer traditional shopping to electronic shopping (R)	0.679	-	-		2.7	1.0
	My familiarity with the development of new technology is high	0.695	-	-		3.9	1.0
	I know the security aspects when doing e-purchase on the Internet	0.732	-	-		3.2	1.2
<b>Website design</b>	Website design attracts me to do e-purchase transactions	-	0.611	-	0.610	3.7	0.9
	I do purchase from e-stores that have good physical evidence	-	0.675	-		2.9	1.0
	I do purchase from e-stores when finding enough information	-	0.633	-		4.4	0.8
<b>e-purchase transactions</b>	I use the Internet to search for the product I want	-	-	0.545	0.602	0.9	0.9
	Websites support systems help me to make my purchase decisions	-	-	0.717		1.0	1.0
	I do not have any problem in achieving the e-purchase	-	-	0.562		1.0	1.0
	I repeat the purchase form the websites	-	-	0.623		1.0	1.0
	I expend too much on purchases on the Internet	-	-	0.545		1.2	1.2

Note. (R): Reversed value for the item.

### 5.3 Testing of Hypotheses

#### 5.3.1 Testing $H1$ and $H2$

Table 3. does not demonstrate a support of the proposed relationship in  $H1$ . It specifies a significant positive association between consumers' technological expertise and their e-purchase transactions ( $P$ -value=0.000). Thus, the null hypothesis  $H1$  is rejected. However, there is a nonsignificant association between website design and e-purchase transactions ( $P$ -value=0.833). The null hypothesis  $H2$  is upheld. Hence,  $R^2=0.217$  emerges that the consumer technological expertise may explain about 22% of the variance in consumer's e-purchase transactions, and  $R=0.466$  reveals that the customer technological expertise has a positive association with their e-purchase transactions, validating the finding by Karimi (2013); AlSwuat (2013); Bellman et al. (2004); and Johnson et al. (2003).

Table 3.  $H1$  and  $H2$  testing (multiple regression)

Regression	R	R <sup>2</sup>	F	B	P-value
Technological experience	0.466	0.217	35.875	0.537	0.000**
Website design				-0.010	0.883

Note. Dependent variable: e-purchase transactions; \*\* Marginally significant at the  $p \leq 0.05$  levels.

#### 5.3.2 Testing of $H3$

Table 4 states a nonsignificant statistical difference in consumers' e-purchase transactions due to gender, as  $t$ -value=1.639 ( $p=0.560$ ). The Mean of females (2.150) is not significantly different from the Mean of males (2.336), indicating that gender difference is not associated with the consumer's e-purchase transactions. Thus, the null hypotheses  $H3$  is upheld, validating the finding of Saleh (2015); Hernández et al. (2011); Bae & Lee (2011); Hui & Wang (2007); and Alsamadi (2002).

Table 4.  $H3$ .testing (independent samples t-test)

Gender	Mean	S.D.	df	t-value	p-value
Male	2.336	0.851	288	1.639	0.560
Female	2.150	0.832			

Note. Dependent variable measure: consumer's e-purchase decisions; \*\* Marginally significant at the  $p \leq 0.05$  levels.

#### 5.3.3 Testing of $H4$

Table 5 states statistical differences in customer' e-purchase transactions due to age, as  $F(3) = 4.923$  ( $p=0.002$ ). This suggests that age is likely to have an association with the consumer's e-purchase transactions. Age groups appeared to differ in terms of their e-purchase transactions. Thus, the null hypothesis  $H4$  is rejected, validating the findings of Burke (2002); Wood (2002); Ratchford et al. (2001); Donthu & Garcia (1999); and Bhatanger et al. (2000).

Table 5.  $H4$  testing (one-way ANOVA)

Age levels	Mean	S.D.	df	F-value	p-value
25-	2.0120	.75598	3,286	4.923	0.002**
25-35	2.3767	.78359			
35-45	2.5500	1.05034			
45+	2.2619	.97940			

Note. Dependent variable measure: Consumer's e-purchase transactions; \*\* Marginally significant at the  $p \leq 0.05$  levels.

To identify the age group that is significantly different, the researcher has conducted the Scheffe post hoc comparisons as shown in table 6. The table states that the differences between the Means are for the age level between 35 and 45. This level is higher in making e-purchase transactions, with a Mean=2.55, compared to the levels of 25-, 25-35, and 45+ with a Mean equals 2.012, 2.38, and 2.26 respectively.

Table 6. Pair's comparisons of consumer's e-purchase Mean scores of age groups using Scheffe Post Hoc comparisons

Age	Age levels	Mean differences	p-value
25-	25-35	-0.365	0.019**
	35-45	-0.538	0.011**
	45+	-0.250	0.680
25-35	25-	0.365	0.019**
	35-45	-0.173	0.715
	45+	0.115	0.950
35-45	25-	0.538	0.011**
	25-35	0.173	0.715
	45+	0.288	0.649
45+	25-	0.250	0.680
	25-35	-0.115	0.950
	35-45	-0.288	0.649

Note. \*\* Marginally significant at the  $p \leq 0.05$  levels.

### 5.3.4 Testing of $H_5$

Table 7 states significant statistical differences in customer's e-purchase transactions due to income, as  $F=7.876$  ( $p=0.000$ ). This suggests that income is likely to have an association with the consumer's e-purchase transactions. Income groups appeared to differ in terms of their e-purchase transactions. Thus, the null hypothesis  $H_5$  is rejected.

Table 7.  $H_5$  testing (one-way ANOVA)

Income levels	Mean	S.D.	df	F-value	p-value
5000-	1.9817	.74409	3,286	7.876	0.000**
5000-10000	2.3083	.64006			
10000-20000	2.3435	.86910			
20000+	2.7256	1.04104			

Note. Dependent variable measure: Consumer's e-purchase transactions; \*\* Marginally significant at the  $p \leq 0.05$  levels.

To identify the income group that is significantly different, the researcher has conducted the Scheffe post hoc comparisons as shown in Table. 8. The table states that the differences between the Means are for the income level 20000+. This level is the highest in making e-purchase decision, with a Mean=2.725.55, compared to the levels of 5000-, 5000-10000, and 10000-20000 with a Mean equals 1.98, 2.31, and 2.36 respectively. Differences due to higher-level incomes are validated by Susskind (2004); Bagchi & Mahmood (2004); Liebermann et al. (2002); Lohse et al. (2000); Kim et al. (2000); and Donthu & Garcia (1999).

Table 8. Pair's comparisons of consumer's e-purchase Mean scores of income groups using Scheffe Post Hoc comparisons

Income	Income levels	Mean differences	p-value
5000-	5000-10000	-0.327	0.142
	10000-20000	-0.362	0.031**
	20000+	-0.744	0.000**
5000-10000	5000-	0.327	0.142
	10000-20000	-0.035	0.995
	20000+	-0.417	0.100
10000-20000	5000-	0.362	0.031**
	5000-10000	0.035	0.995
	20000+	0.382	0.095
20000+	5000-	0.744	0.000**
	5000-10000	0.417	0.100
	10000-20000	0.382	0.095

Note. \*\* Marginally significant at the  $p \leq 0.05$  levels.

### 5.3.5 Testing of $H_6$

Table 9. states non significant statistical differences in e-purchase transactions due to education, as  $F$ -value=0.994 ( $p>0.05$ ). This suggests that education is not likely to be associated with e-purchase transactions. Education categories appeared to be similar in terms of their e-purchase transactions. Thus, the null hypothesis  $H_6$  is upheld, validating the findings of Richa (2012); Griffin & Viehland (2011); Hui & Wang (2007); Doolin et al. (2005); Bagchi & Mahmood (2004); Mahmood et al. (2004); and Alsamadi (2002).

Table 9.  $H_6$  testing (One-way ANOVA)

Education	Mean	S.D.	df	F-value	p-value
Diploma or less	2.1500	.79291	3,286	0.944	0.420
Bachelor	2.2886	.84776			
Master	2.4245	.88196			
Ph.D.	2.3214	1.06765			

Note. Dependent variable measure: e-purchase transactions; \*\* Marginally significant at the  $p \leq 0.05$  levels.

## 6. Discussion and Recommendations

The study found a significant positive association between consumers' technological expertise and their e-purchase transactions, validating the study findings by Karimi (2013); AlSwuat (2013); Bellman et al. (2004); and Johnson et al. (2003). This may be attributed to the role of technological expertise in understanding and taking the safety precautions related to making e-purchase transactions. This type of expertise motivates consumers to adopt online shopping and making e-purchase transactions. Therefore, e-retailers could establish marketing activities that enhance the consumer familiarity and adoption of e-shopping. In this regard, future research may focus on the promotional activities that are needed to increase consumers' awareness of e-purchase process and procedures, especially in e-purchase benefits and security aspects of e-purchase payment.

On the other hand, the study found a nonsignificant association between the retailer's website design and e-purchase transactions, validating the findings by Salhi (2012). This result may be attributed to the similarity among e-retailers in websites design, products and services display, payment methods, and product delivery. Accordingly, website positioning is not an appropriate competitive strategy in terms of the Saudi market. Future research may seek positioning strategies apart from website design. In this case, order processing could be an important strategy for e-retailers' differentiation and positioning.

With respect to demographics, the study found no difference between male and female in making e-purchase transactions, validating the findings by Hernández et al. (2011); Bae & Lee (2011); Hui & Wang (2007); and Alsamadi (2002). However, the average of making e-purchase transactions for both is low; which implies that Saudi consumers, male and female, are still in the first stage of e-purchase adoption process. They may find entertainment in traditional shopping, accompanying family or friends in a delightful social environment, and physically checking of the displayed products. Hence, marketers of e-stores may consider the Saudi market as undifferentiated market in respect of gender's adoption of e-purchase. Segmentation, targeting and marketing strategies may be on other bases, especially the psychological and psychographic bases. They may be important topics in e-marketing and consumer behavior future research.

As for age, the study revealed statistical significant differences in customer' e-purchase transactions due to age, validating the findings of Burke (2002); Wood (2002); Ratchford et al. (2001); and Bhatanger et al. (2000); Donthu & Garcia (1999). Consumers in the 35-45 age category is the highest in making e-purchase transactions. This result may be because consumers of this category have enough income and boldness to make this type of purchase transactions. Besides, these consumers are educated and trained enough to use technological devices. They are also more involved in their jobs and home requirements. Therefore, they are more intended to make their lives easier, and adopt the Internet for purchase transactions. Hence, e-marketers should give too much concern targeting this category with marketing programs that are built on their decision making process and the factors that affect their e-purchase decisions. Consumer behavior studies of the other age categories are needed, targeting those market segments with customized marketing programs.

The study also demonstrated statistical significant differences in customer's e-purchase transactions due to income; the higher the income, the higher the e-purchase transactions. This is validated by the findings of Susskind (2004); Bagchi & Mahmood (2004); Liebermann et al. (2002); Lohse et al. (2000); and Kim et al. (2000). Differences due to higher-level incomes may be because the high-income consumers are more targeted

by banks, providing them with high-limit credit cards appealed by other services as much as the amounts of purchase by the card. Those types of credit cards motivate consumers to use them on e-purchase transactions, taking into account that consumers are less sensitive to prices when using credit cards (Roberts & Jones, 2001; Tokunaga, 1992). High-income category of consumers in the Saudi market is an attractive segment to be driven by e-retailers. Their expenditure style needs additional research in order to identify how they distribute their income on products and services. Higher-income consumers normally direct a considerable part of their budget for entertainment and luxury products and services that satisfy their social, egoistic, and self-actualization needs. This is of great importance for some of e-retailers in many business fields such as: air travel, tourism, and overseas post-graduate studies.

Finally, the study found nonsignificant differences in e-purchase transactions due to education. Education categories appear to be similar in terms of their e-purchase transactions in the Saudi market, validating the findings of Richa (2012); Griffin & Viehland (2011); Hui & Wang (2007); Doolin et al. (2005); Bagchi & Mahmood (2004); and Mahmood et al. (2004). Indifferences in e-purchase transactions with education may be attributed to the ease of use of the Internet and e-retailers websites in making online purchases, in addition to the widespread of PCs, laptops, and smart phones among Saudi consumers who can easily click them to make e-purchase transactions. Thus, education is not a barrier of e-purchase transactions in the Saudi market. Regarding education, marketers can deal with the Saudi market as a mass market in respect of consumer adoption of e-purchase transactions. Future studies on how the product categories differ with different education categories are needed, taking into account the psychographic differences of different education categories with regard to interests, values, and lifestyles.

## 7. Limitations and Future Research

The study is only limited to customers in Riyadh, which limits the possibility of generalizing the findings to customers in other regions in Saudi Arabia, who are in different economic, social and cultural conditions. The study also relied on a convenience sample of customers, because of the difficulty of obtaining a probability sample. Finally, the study measured the association of website design, customer technological expertise, and some demographics with the customers' e-purchase transactions. Hence, it did not include any other variables that could influence the e-purchase transactions. So, future studies may investigate other variables that might be associated with the e-purchase transactions and other demographic or psychographic variables that may enable e-stores to be more insightful of online customers and their purchase and consumption behaviors. Consumer's lifestyle, values, and privacy concerns are important variables to be studied in the Saudi market.

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