



Cultural factors influencing e-commerce usability in Saudi Arabia



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ABSTRACT

E-commerce is internet based business activity, such as online retail activity. In Saudi Arabia, e-commerce has not kept pace with the global growth of online shopping. In order to find the reasons for low participation in e-commerce, this study explored the influence of several cultural factors in Saudi Arabia related to age, gender, and computer proficiency. Hypotheses were developed for the demographic and cultural factors influencing the adoption of e-commerce in Saudi Arabia based on the literature review. To test the hypotheses, data were collected by means of an online questionnaire. Data analysis was conducted using descriptive statistics, K-means clustering, and hypothesis testing through Chi-square tests. Three categories of online shoppers were identified during the analysis. The study found that factors related to age, gender, and computer proficiency influenced the adoption and use of online shopping in the kingdom. Three kinds of online retail participants were found: high frequency users, moderate frequency users, and low frequency users. High frequency users were usually young people, with a relatively higher percentage of women showing superior skill in shopping online. Moderate users were mostly male and middle aged, and their ICT knowledge was moderate. Low frequency male and female users were most likely to be between the ages of 18 and 24. This study will potentially assist professionals interested in services supported by ICT, the wider business community, and the government in undertaking comprehensive, effective, and sustainable solutions for the betterment of e-commerce in Saudi Arabia.

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1. Introduction

The arrival of the internet and its rapid development into a globally ubiquitous resource has not only accelerated previously initiated and computer driven change, but in addition, has introduced many more major changes. One of the most relevant to consumers has been the rise of e-commerce, where the internet is used to facilitate, execute, and process business transactions (Delone and Mclean, 2004). E-commerce allows businesses to share information, undertake transactions across networks and computer platforms, and work together over geographic boundaries (Kalakota and Whinston, 1997). It encompasses business-to-consumer, business-to-business, commerce-to-administration customer-to-customer, and consumer-to-business transactions. Online shopping

is a form of business-to-consumer e-commerce (Khoshnampour and Nosrati, 2011). It represents the activity of selling and purchasing goods and services online via an internet portal often referred to as an e-store (Howladar et al., 2012). Online shopping describes a single aspect of e-commerce; whereas e-commerce can represent any and all business activity conducted using an electronic medium (Cao et al., 2010).

In 2014 global e-commerce sales was increasing at a rate greater than 20% per year, influenced by internationalization, the renewed popularity of e-commerce IPOs internationally, the rise of the continuously connected consumer, and consumers' ongoing desire to look, touch, and immerse themselves in brand experiences. Developed countries produced sophisticated online shopping malls and e-stores like Amazon and eBay, while a booming marketplace in China was offering Alibaba and Tencent. E-stores such as these are now at the top of a list of global online sellers who are either already global brands or rapidly evolving in that direction. As part of a very robust global market space, the Middle East is also experiencing rapid

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growth in e-commerce. Online sales in the Middle East hit US\$7 billion in 2014, the largest single share being in the UAE at \$2.3 billion, followed by Saudi Arabia at \$1.5 billion, and Egypt at \$1.4 billion.

Some issues are particular challenges for e-commerce companies in the Middle East, however, such as the fear of users of loss of control; the habit of shoppers wishing to pay cash on delivery (C.O.D.); problems of high returns and negative impacts on cash-flow due to C.O.D.; the unwillingness or inability of women to answer the door to unrelated male delivery men.

Saudi Arabia, one of the three largest oil producers in the world, ranks as one of the richest countries in the world. The rulers of the kingdom are well aware; however, of the dangers to the country's stability of the kingdom's dependence on this single commodity, and since the 1970s have been seeking to diversify the economy (Albassam, 2015). As part of this effort, they have encouraged the introduction and use of ICTs, determined to expand and diversify its commerce in a digital era.

With government support and demand from the indigenous population, millions of foreign workers and further millions of religious pilgrims arriving each year, online interactions have become a growing trend. At the level of retail, however, ICT services provided to consumers are being put in place less quickly than ICT services among large businesses in Saudi Arabia. Thus, to date, e-commerce adoption has been extremely limited in Saudi Arabia (AlGhamdi et al., 2011a).

The slow uptake has deprived many Saudis of the benefits offered by internet-based e-shopping, along with online access to other services. Considering that the primary goal of e-commerce is 'to integrate businesses, government agencies, and contractors into a single community with the ability to communicate with one another across any computer platform' (Edwards et al., 1998), as well as to bring organizations closer to their actual customers, the low rate of e-commerce adoption in Saudi Arabia may become a critical issue over time as Saudi businesses come to suffer from a lack of competitiveness due to poor ICT usage and the failure to adopt e-commerce tools.

The pace of e-commerce growth in Saudi Arabia is expected to eventually increase, but only when the right combination of factors is finally in place (Lee and Chen, 2010). Culture in Saudi Arabia is tightly bound by Islamic belief and norms, which is controlled by a religiously-influenced autocratic government. There are strict rules and regulations governing behavior for different groups of people based on age and gender. Therefore, to increase adoption of e-commerce in Saudi Arabia, it is imperative that the cultural reasons for the slow adoption of internet-based technologies be better understood in order that they might be redressed.

Several studies have concluded that factors influencing the adoption of technology vary with the cultural conditions of the nations. In a comparison of the organizational cultures of 40 independent

nations, Lonner et al. (1980) argued that many of the differences in management styles and organizational practices of companies throughout the world could be related to differences in the collective mental programming of people in different national cultures. Dunphy and Herbig (1995) concluded that existing cultural conditions always determine whether, when, how, and in what form, a new innovation will be adopted. Ein-Dor et al. (2004) conducted a four-country study that included Finland, Israel, New Zealand, and Singapore, and concluded that differences in culture, attitudes towards ICT, and socioeconomic status all impact the adoption of e-commerce. Molla and Licker (2005) found that in the late 1990s and in the first decade of the 21st century, the major issues in developing regions at the time were slow internet speeds, the high prices of internet service providers (ISPs), insufficient regulatory environments, and poor infrastructure; whereas, in developed countries, the main issues were privacy and taxes.

Early studies explored the factors that influenced the adoption of e-commerce services in developed countries where e-commerce first became common. The research was mostly conducted in the United States (Grandon and Pearson, 2004), the United Kingdom (Matlay and Addis, 2003), Canada (Sparling et al., 2007) and Italy (Scupola, 2003). More recent studies have focused on developing countries, including Latin America (Davis, 1999), Mongolia (Enns and Huff, 1999), Ukraine (Jennex and Amoroso, 2002), Malaysia (Mukti, 2000), Thailand (Wongpinunwatana and Lertwongsatien, 2003), Taiwan (Thatcher et al., 2006), South Africa (Moodley and Morris, 2004), Iran (Ghobakhloo et al., 2011), Nigeria (Ma'aruf and Abdulkadir, 2012), Sri Lanka (Kapurubandara and Lawson, 2006), and very recently China, where there has been very rapid e-commerce growth. Most of the studies focused on macro level (or global) constraints and explored the barriers and motivators in e-commerce adoption.

Very little research has been conducted investigating the adoption and use of e-commerce in Saudi Arabia from varying points of view. Some studies have considered environmental factors, while others focused on the legislation, logistics, and ICT infrastructure (AlGhamdi et al., 2011a;b; Eid, 2011). Behavioral factors associated with e-commerce adoption have also been studied (Al-Gahtani et al., 2007; Aleid et al., 2010; AlGhamdi et al., 2011a;b; Eid, 2011). Eid (2011) conducted a study of determinants of e-commerce customer satisfaction, trust, and loyalty in Saudi Arabia. Al-Hudhaif and Alkubeyyer (2011) examined both the level of e-commerce adoption in Saudi Arabia and attempted to identify factors that affected the adoption of e-commerce in the kingdom.

None of the studies has focused on identifying and understanding the cultural contextual factors related to e-commerce adoption in the form of shopping online. As the existing body of research is not comprehensive and there are no detailed guidelines for different stakeholders (i.e., online

service providers), issues related to low adoption of e-commerce in Saudi Arabia may be exacerbated. Consequently, an investigation of e-commerce adoption in the cultural context of Saudi Arabia is both relevant and timely. In this background, this study aims to understand the cultural factors responsible for slow e-commerce adoption by online shoppers in Saudi Arabia, such as age, gender, and internet proficiency.

2. Methodology of the study

2.1. Background to hypothesis development

Buyers' demographics are among the most frequently studied factors in business-to-consumer (B2C) e-commerce research, e.g., gender, age, income and education of buyers (Bellman et al., 1999; Li et al., 1999). Different studies concluded that younger individuals demonstrate positive attitudes towards online activity, whereas older individuals perceive online activity as lacking behavioral control (Morris and Venkatesh, 2000). Additionally, some studies showed that women are less likely to purchase online than men (Al-Gahtani et al., 2007; Venkatesh and Morris, 2000; Venkatesh et al., 2003). ICT proficiency or the capacity to use the technology is also cultural issues because the use of ICT tends to be circumscribed by cultural expectations and norms. Lack of online experience reduces proficiency and makes the completion of tasks online, from shopping to checking the weather, more difficult.

Culture in Saudi Arabia is tightly bound by Islamic belief and norms, and there are strict rules and regulations governing the behavior of different groups of people, according to age and gender. Sex segregation, for example, is part of the culture, and usually males are viewed as responsible for the welfare and behavior of their female relatives. Several studies have shown that gender influences the acceptance of technology, especially in gender-based societies like that of Saudi Arabia (Hu et al., 2010) where women's activities are monitored by their male relatives. There are strict rules related to the use of the internet. The Saudi government itself monitors, as well as restricts, many websites.

2.2. Hypotheses

Considering these circumstances, this study addressed the potential influences of demographic and cultural factors (e.g., age, gender, and internet proficiency) on the adoption of e-commerce in Saudi Arabia by developing a number of hypotheses. The hypotheses developed in this study were:

H1: There is a significant difference between e-commerce user groups (high, moderate and low usage) in terms of age.

H2: There is a significant difference between online shopping user groups (high, moderate and low usage) in terms of gender (male and female).

H3: There is a significant difference between e-commerce user groups (high, moderate and low usage) in terms of their ability to shop online.

3. Data collection

For hypothesis testing a survey was conducted for data collection.

3.1. Sampling

The target populations consisted of online shoppers in the Kingdom of Saudi Arabia. Studying the entire population of Saudi Arabia was not feasible; therefore a sample of the population was selected to represent the Saudi population as a whole with very high statistical accuracy and significance (Cooper et al., 2006).

A sample size of at least 300 is generally regarded as reliable for factor analysis methods and statistical modeling (Cooper et al., 2006). However, a sample size of 200–500 persons is considered sufficient for data analysis (Hair et al., 2010). For the current research, and using Cochran's formula, for a 95% confidence interval, a total of 384 participants was considered to be adequate (Tabachnick et al., 2001; Hair et al., 2010). In light of both factor and data analysis needs, it was determined that the current study would be based on responses from a minimum of 500 online shoppers, sufficient to ensure the accuracy of the results.

3.1.1. Survey instrument

A questionnaire survey was conducted to collect data from large groups of respondents. The queries to measure each concept were established, improved and accepted from earlier investigations. To reveal the participants' opinions regarding the study variables through the questionnaire, a 7-point rating scale was used ranging from 1 (strongly disagree) to 7 (strongly agree). It was an adaptation of the summated ratings method developed by Likert (1975, 1932). The scale is used when respondents are asked to indicate their strength of feeling on a particular issue, with closed questions facilitating the easy management of responses, along with appropriate analysis of people's attitudes and opinions towards different issues, using different statistical techniques. To validate the prepared questionnaire, ten online shoppers possessing similar characteristics to the population in this study were surveyed face-to-face. Among these ten respondents, three were PhD students (English and Arabic speakers), three were professionals in e-stores and four were regular (long term) online shoppers in Saudi Arabia. Additionally, five experts were consulted for the face validity, a professor, two lecturers and two statisticians. Based on their comments and feedback, some of the terminology and phrasing used for the constructs were modified to improve the clarity of the items, and some

modifications were made to the overall questionnaire, optimizing both its efficiency and validity.

3.1.2. Questionnaire survey

The final questionnaire survey was carried out in July, 2013 and lasted for three months. In this study, the geographical distribution of samples was very large (covering major parts of Saudi Arabia). Therefore, a face-to-face survey or even a telephone survey was neither a time-efficient nor economical process, so the survey was conducted electronically. The questionnaires were distributed by email using the online survey tool, *SurveyMonkey*. The online survey participants were selected randomly from the target group, which consisted of online shoppers.

Online stores in Saudi Arabia mostly record the email ID of their customers and also note their IP addresses. In order to access the desired participant group, therefore, the managers or owners of 15 online stores were contacted with information about the research program, and a request that the store assist in the study by emailing their top 200 customers with an explanation of the study, along with a link *SurveyMonkey*, where materials were provided in both English and Arabic.

From 3000 emails sent, 1256 responses were received. After screening and processing the complete surveys, 904 surveys were found to have complete responses with no missing values or illogical responses. This sample was greater than the desired sample size of 500 respondents, and all complete responses were used in the data analysis.

4. Data analysis

4.1. Preparation for analysis

To prepare the raw data for final analysis, firstly the raw data obtained from the survey was visually checked before the completeness of the datasets was verified and legitimate responses identified. Responses without any variation were considered ineligible. The selected data were entered into IBM-*SPSS* software (version 20) for further analysis.

4.2. Descriptive statistics

The questionnaire variables were analyzed in *SPSS* for descriptive statistics related to age, gender, and the internet proficiency of the participants using simple indicators, such as frequency and cross-tabulation.

4.2.1. Categorization of e-commerce users in Saudi Arabia

Based on the time and money spent on online shopping, the frequency of online shopping, the ability to use a computer and the internet, and the preference for e-commerce, the e-commerce

adopters in Saudi Arabia were classified into three categories using cluster analysis. *SPSS* was set up to analyze K-means clustering based on the fact that data generated during the study would naturally divide into observations that could be assigned to one of k clusters, where K is chosen before the algorithm starts partitioning the information.

The purpose of cluster analysis is to place objects into groups, or clusters, suggested by the data, and to summarize data rather than to find 'natural' or 'real' clusters. Clustering different types of online shoppers (i.e., high frequency shoppers, moderately frequent shoppers and low frequency shoppers) was done in order to categorize shoppers in the sample data. The three categories were selected based on a variety of research literature ([Al-Ghaith et al., 2010](#); [Al-Shafi and Weerakkody, 2010](#)) in which high, moderate and low were the most frequent user types for different online services.

The goal for the current study was to describe K-centroids, one for each collection. These centroids had to be positioned in a smooth progression because different positions would alter the outcome. The best statistical approach was to place them as distant from one another as feasible. A further step involved taking each point associated with a specified record set and linking it to the nearby centroid. When points were no longer available, the primary step was finished and an initial grouping completed.

At this stage, the K value is re-calculated and new centroids identified as the barycentre of the collections found during the primary step. For the new K centroids, an up-to-date association must be created using the same statistics set topics and the close new centroid at the next stage. A circle is thereby produced. As a consequence of this approach, it may be observed that the new K centroids alter their position stage by stage till no more variations are observed. In other words, the centroids do not travel any more.

The process of K-mean clustering can be explained via the following steps: firstly, place the K sockets into the space characterized by the substances that are being collected, which also characterize the early set of centroids; secondly, allocate each object to a group that has the nearest centroid; thirdly, re-calculate the locations of the K centroids when all substances have been allocated. The second and third steps are repeated until the centroids do not move further. This creates a separation of the substances into different collections from which the metric to be lessened can be considered ([Kanungo et al., 2002](#)).

The justification for using the selection approach is that it is a widely accepted and used method. K-means clustering is efficient in that it allows the researcher a means of controlling the randomness of the data, while providing the opportunity to have the cluster as it is in reality by considering several variables responsible for the same attribute. The method had previously been used for clustering e-store users into categories in several previous

studies related to online shopping and e-commerce (Jain, 2010; Ganesh et al., 2010; Mathwick, 2002).

4.2.2. Profiling of e-commerce users in Saudi Arabia

Based on the classification and their characteristics, some general profiles of the users were assumed, where the general characteristics were defined based on the analysis from descriptive statistics, clustering of demographic and cultural factors (e.g., age, gender, and internet proficiency) of online shoppers in Saudi Arabia. These general profiles were the researcher's interpretations and observations, and were checked as part of the dataset.

4.3. Hypotheses testing

In order to explore the influence of age, gender and internet shopping propensity on different groups of users, Chi-square testing was used. The cross-tabulation Chi square test in SPSS was selected because it provides the capacity to analyze the effects and relationship between different groups based on different categories of attributes. If the Chi-square test's p value (significance value) was less than 0.05, the hypothesis was accepted. A significant difference between e-commerce user groups (high, moderate, and low frequency) in terms of the influence of personal factors (age, gender and internet shopping propensity) was found.

5. Results

5.1. General description of the online shoppers in Saudi Arabia

5.1.1. Gender

Out of a total of 904 online survey respondents, the majority (75%) were male (N=678), while 25% of the respondents (N=226) were female. The disproportionate gender numbers suggest that males are more frequent users than females when it comes to the internet in the Saudi Arabia. However, the gender difference might have resulted from the fact that more males received or responded to the survey than females. The fact that men responded more frequently than women could be due to cultural influences within Saudi Arabia. Women in the kingdom often lead a conservative lifestyle, which curtails their uptake of innovations. These observations support a higher response rate for the males, but do not ensure that males are the major users of the internet in Saudi Arabia.

5.1.2. Age

Fig. 1 reflects the fact that the majority of the respondents in the sample survey (56.85%) were males between the ages of 25-34. For females, the

largest groups of respondents were individuals between 18-24 years (43.9%) and between 25-34 years (42.5%). For both males and females, individuals aged more than 45 years represented a small number of participants. This indicates that, for both males and females, people aged from 18 to 34 years were most likely to use e-commerce for their shopping. This is a clear indication that young people are more likely to shop online than older individuals.

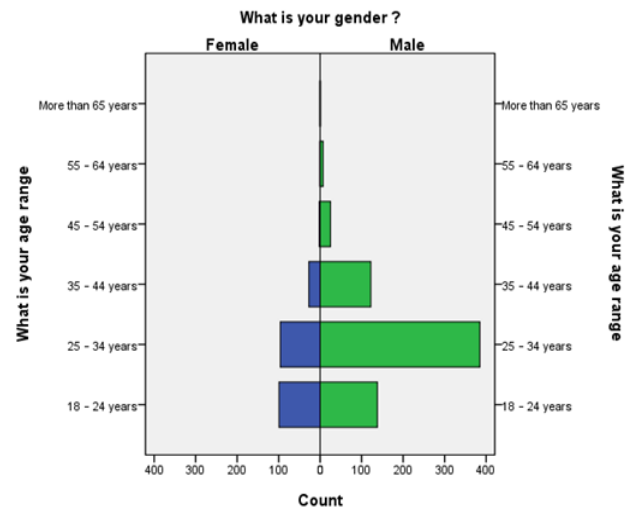


Fig. 1: Age distribution by gender

5.1.3. Computer proficiency

Among the respondents, the majority used smartphones, with more than 90% using them to browse the internet. Laptop computers were used by more than 50% of respondents for word processing and internet-related work. Tablet devices were used more frequently by respondents than PC-desktops. The majority of e-commerce users (66.7%) had used the internet (i.e., web-surfing, search engines, and social media) for more than seven years. Additionally, 18.25% of the respondents had used the internet for approximately one year; 11.28% had used it for four to five years; and only 3.76% of the respondents had used the internet for two to three years. Most participants, therefore, had the capacity to participate in e-commerce in the form of online shopping.

Approximately 90% of participants indicated that they were extremely proficient at browsing the internet. In addition to internet browsing, 66% of the respondents considered themselves to be extremely proficient when checking emails, and 51% were extremely proficient when preparing documents using a computer. Participants' attitudes toward these three skills demonstrated that they felt quite competent to handle basic computer tasks and the internet. E-commerce in the form of online shopping was also explored as part of the questions related to computer efficiency. Of all the participants, 17% felt they could shop online with extreme efficiency, 21% indicated they could do so very proficiently. Cumulatively, therefore, around 40% of the participants considered themselves to be highly

proficient online shoppers. The majority of the respondents had no experience with computer programming or database creation. They were mostly general users of computers without the complex skills needed to use higher-level computer

functions. A small segment of the respondents had experience with presentations, spreadsheet management, and video chatting. The breakdown of computer competency among the participants is highlighted in [Table 1](#).

Table 1: Computer efficiency and ability of participant

	Never used	Not efficient	Mod-erately efficient	Very efficient	Ex-tremely efficient
Prepare documents	3%	11%	16%	19%	51%
Check e-mails	2%	7%	11%	14%	66%
Browse the internet	0%	1%	3%	7%	89%
Do online shopping	5%	27%	30%	21%	17%
Text and audio/video chat	25%	35%	21%	8%	10%
Prepare presentations	20%	24%	20%	17%	19%
Prepare spreadsheets	25%	29%	15%	15%	15%
Create databases	42%	26%	14%	9%	9%
Do programming	60%	20%	11%	4%	6%

5.1.4. Online shopping characteristics

The majority of the respondents (more than 60%) spend approximately one hour per week for online shopping. Only 12.1% spend more than three hours per week for the purpose. Thus, most respondents did not spend large amounts of time shopping online, which indicates that e-commerce users use online shopping systems for short periods and tend to make purchases quickly with little time spent making the decision to purchase. However, it is possible that users who spend more time per week shopping online may be searching for the best products or comparing prices among different online stores. The majority of survey participants (61.6%) used online shopping facilities once a month. Another 30.3% went online to shop two to five times per month. Additionally, 7.1% of respondents reported a high online shopping frequency at six to 20 times per month, while a very high usage of online shopping was observed for only 1% of the respondents, who shopped online more than 20 times a month over the previous year. The results indicate that while the respondents mostly tended to

do more 'real world' shopping than virtual shopping via the internet, the latter method is becoming more popular day by day and is on the increase in Saudi Arabia. The average online shopping expenditure per month among the participants ranged between SAR \$11 and SAR \$1000.

5.2. Categories of e-commerce users in Saudi Arabia

Based on the time and money spent on online shopping, the frequency of online shopping, the ability to use a computer and the internet, and the preference for e-commerce, the e-commerce adopters among the respondents were classified into three categories using cluster analysis. The three clusters included high frequency users, who are the most frequent and dedicated users of e-commerce, moderate users, who use e-commerce more than low frequency users, and never equal the frequency of use of the high frequency users. [Table 2](#) shows different kinds of e-commerce adopters in the study sample.

Table 2: E-commerce user types according to cluster analysis

		Frequency	Percent	Valid Percent
user types	high frequency user	223	24.7	24.7
	moderate user	413	45.7	45.7
	low frequency user	268	29.6	29.6
	Total	904	100.0	100.0

5.3. Hypothesis testing

5.3.1. Age and e-commerce users

The cross-tabulation for age and e-commerce user types is presented in [Table 3](#), which shows the expected and observed count for each cross-tab category and provides categories that are different.

For low frequency users, the majority of respondents were within the 18-24 age range, and the observed count was higher than the expected count. The reason for the 18-24 year group being low frequency users could be that many of these people have very low purchasing power due to low level of income. However, while comparing different age groups, it is clear that high frequency users are

mostly from age group 25-34, while moderate users are within 34-45 years old and low frequency users are between 18-24 years. The Chi-square value for this hypothesis is very large (2.426E2) and the significance (p value) is less than 0.05. So, there was a significant difference between e-commerce user groups (high frequency, moderate, and low frequency) in terms of age (Chi-square, X² (10, N=904) = 2.426E2, p < 0.05).

5.3.2. Gender and e-commerce users

For high frequency users, the observed number of females exceeded the expected count; while in contrast, the observed number of males was below the expected count. For moderate users, the

observed count for males exceeded the expected count, and the opposite was seen for females. For low frequency users, the observed count for females

exceeded the expected count, and for males the observed count was below the expected count.

Table 3: Cross tabulation for age and e-commerce user types

user type by frequency		age range						total
frequency	count	18-24	25-34	35-44	45-54	55-64	More than 65	
high	actual	78	118	18	7	1	1	223
	expect	58.5	118.7	36.8	6.7	2.0	.5	223.0
moder-ate	actual	16	263	109	20	5	0	413
	expect	108.3	219.7	68.1	12.3	3.7	.9	413.0
low	actual	143	100	22	0	2	1	268
	expect	70.3	142.6	44.2	8.0	2.4	.6	268.0
tot	count	237	481	149	27	8	2	904

Table 3 indicates that there is a variance between males and females for high, moderate and low frequency users. The p value is less than 0.05 (alpha), so the data demonstrate that there is a significant difference based on gender among high frequency, moderate, and low frequency e-commerce users (Chi-square = 46.235, df = 2, p < 0.05). Table 4 shows the cross-tabulation for gender and e-commerce user types.

Table 4: Cross tabulation for gender and e-commerce user types

user type by frequency		What is your gender?		Total
		female	male	
high	actual	63	160	223
	expect	55.8	167.2	223.0
moderate	actual	62	351	413
	expect	103.2	309.8	413.0
low	actual	101	167	268
	expect	67.0	201.0	268.0
Total	count	count	678	904

5.3.3. Ability to shop online and e-commerce users

Table 5 shows the cross-tabulation for ability to shop online and e-commerce user types. More than 48% of high frequency users were either very

proficient (26%) or extremely proficient (22.4%) when shopping online, and these figures exceed the expected count. In contrast, the majority of moderate end users were moderately proficient (30%) and somewhat proficient (28.1%) when shopping online. The scenario for low frequency users was also similar to moderate frequency users. In the case of low frequency users, more than 60% were moderately proficient (33.2%) and somewhat proficient (31%).

This reveals that high frequency users have higher levels of proficiency than moderate and low frequency e-commerce users. Thus, it was confirmed that there was a significant difference in online shopping proficiency among different kinds of e-commerce users (Chi-square = 36.622, df = 8, p < 0.05).

5.4. Profiles of e-commerce users in Saudi Arabia

Based on the data analysis, prototype profiles have been compiled outlining the characteristics of high frequency, medium frequency and low frequency e-commerce users. They are described in continue.

Table 5: Cross tabulation for ability to shop online and types of e-commerce users

proficiency			I can do online shopping					Total
			not	some-what	moderate	very	extreme	
user types	high frequency user	count	9	44	62	58	50	223
		expected count	11.1	59.9	67.8	45.6	38.5	223.0
		% within user types	4.0%	19.7%	27.8%	26.0%	22.4%	100.0%
	moderate user	count	12	116	124	83	78	413
		expected count	20.6	111.0	125.6	84.5	71.3	413.0
		% within user types	2.9%	28.1%	30.0%	20.1%	18.9%	100.0%
	low frequency user	count	24	83	89	44	28	268
		expected count	13.3	72.0	81.5	54.8	46.2	268.0
		% within user types	9.0%	31.0%	33.2%	16.4%	10.4%	100.0%
	Total	count	45	243	275	185	156	904

5.4.1. High frequency user

Many high profile male users worked in offices or were administrators. These users typically earned between SAR \$10000 to SAR \$20000 per month. While not all high frequency users fit this profile, high frequency male users were more likely to be young adults, have jobs, and have completed their college education. A high frequency female e-commerce user was likely to be between the ages of 18 and 24. In terms of occupation, female high

frequency users were likely to be students or housewives. While these females might have low personal incomes ranging between SAR \$100 and SAR \$1000 per month, the likelihood that they receive money from their fathers or husbands to spend as they wish should not be discounted. While not all high frequency female users fit this profile, high frequency female users were more likely to be younger students or housewives with less personal income who got money from others to do their shopping.

5.4.2. Medium frequency users

In the case of males who were medium frequency users, individuals were likely to be between the ages of 35 and 44 with a high school education. Medium frequency male users were likely to be occupied as teachers or members of the military. These users typically earned between SAR \$5000 and SAR \$10000 per month. This profile suggests that a male, medium frequency, e-commerce user is most likely to be a middle aged or even older person with a moderate level of education and a stable job. A medium frequency female e-commerce user was most likely to be between the ages of 25 and 34, occupied as a teacher or housewife. This type of user typically earned between SAR \$1000 and SAR \$5000 per month. While not all medium frequency female users fit this profile, female, medium frequency, e-commerce users were most likely to be mid-range adults (25-34 years old) with moderate to low level incomes.

5.4.3. Low frequency users

Low frequency male users were most likely to be between the ages of 18 and 24, and possess either a high school or college education. These users were most likely to be unemployed or identify as students. Low frequency male e-commerce users tended to have very low incomes (SAR \$100 – 1000 per month), and most probably received support from the family head in the form of a monthly expense allocation. The lack of disposable income could be a possible factor in the low frequency of e-commerce among these users. Low frequency female users tended to be between 18 and 24, with either a high school or college education. These users most often chose student as their profession. They also typically had a low income between SAR \$100 and SAR \$1000 per month, much of which might have been provided by male family members. The overall profiles of low frequency male and female users were similar.

6. Discussion

From this study it can be concluded that demographic and cultural factors significantly affect e-commerce use in Saudi Arabia. The results demonstrate that the young adults are more familiar with new technologies, such as the internet, smartphone, e-commerce, email and online stores, because they are graduates or moving into new types of jobs or have a good personal income or are regularly exposed to new technology which they enjoy and use, including buying products online. In contrast, the moderate users are mostly young adults and middle aged people, who also have familiarity with the internet, and a steady income which enables them to buy products of their choice. The main issue for this group is the attraction level, which may be relatively low compared to the high frequency users. As a person ages, they tend to look

less for adventure and take fewer risks in doing deals. They can afford to buy, but their age might be working as a factor of hindrance.

Finally, the low frequency users are again mostly young adults. They may be attracted by online shopping, and be interested in new technology. But, other factors, such as income or environment might cause their lower adoption of e-commerce in Saudi Arabia. These observations indicate that age is an important demographic variable which influences the adoption of e-commerce. Similar conclusions were drawn by [Alkhunaizan and Love \(2012\)](#) and [Eid \(2011\)](#).

The results of the analysis demonstrated that there were significant differences between e-commerce user groups in terms of gender. Detailed investigations found that the number of females was greater than expected among high and low frequency users, compared to the expected number of males in these groups. Females appear to be more attracted to shopping online, because in Saudi, females are less exposed to the open market, and are more restricted in terms of when and where they can shop. E-commerce provides an easy option for purchasing without going outside the home, which is a major cultural issue in Saudi Arabia. These findings are consistent with those of [\(Al-Ghaith et al., 2010\)](#).

The knowledge and capacity to engage in online activities varied among the user groups, and the high frequency users were more technologically skilled and confident than the moderate and low frequency users in Saudi Arabia. The results reflect the fact that greater experience and knowledge encourage individuals to make greater use of the internet. Moderate or low frequency users lacked expertise, which showed up in the usage figures. Furthermore, the data from the interviews suggested that for online shopping a basic knowledge of computers and the internet is essential. Thus, it is clear that familiarity with and experience of using technology does have an effect on the adoption of e-commerce for users in Saudi Arabia. The result is consistent with [Fuller et al. \(2006\)](#).

7. Conclusion

This study revealed a very low pace of adoption of online shopping and lack of acceptance of e-commerce business in Saudi Arabia. In order to find the reasons for such slow growth and lack of acceptance, the research explored several cultural factors related to users' age, gender, and computer proficiency, and investigated their influences on major types of online shopping users in Saudi Arabia. Hypotheses were developed for the demographic and cultural factors influencing the adoption of e-commerce in Saudi Arabia based on the literature review. To test the hypotheses, data were collected through an online survey prepared and validated by consulting with experts. The questionnaires were distributed to 3000 online shoppers in Saudi Arabia by email, with the goal of achieving 500 valid responses. Among the responses, 904 surveys were

found to be complete and were considered for data analysis, which was done through descriptive statistics, K-means clustering, and hypothesis testing using the Chi-square test. Finally, the profiling of three categories of online shoppers was conducted based on the analysis.

The study found that cultural factors related to age, gender, and computer proficiency exert a critical influence on the major types of online shopping users ($p < 0.05$). Age and gender are attributed to the cultural context (i.e., the Islamic religious and cultural system) of Saudi Arabia, while ICT knowledge is a function of the changing trend in education and social structure of society (i.e., increase of ICT usages, education for women, and involvement of women in ICT) in Saudi Arabia. Using K-mean clustering methods, among 904 survey respondents, the study found three kinds of e-commerce adopters in Saudi Arabia: high frequency users (223), moderate frequency users (413) and low frequency users (268). These categories explain what types of users are shopping online in Saudi Arabia, and their characteristics were examined using descriptive statistics. The data revealed that age, gender and computer proficiency varied significantly among the categories, and high frequency users were usually young people, with a relatively higher percentage of women who showed superior skill in shopping online. Females being high frequency users reflect the culture in Saudi Arabia, where female activities are more circumscribed than in Western countries for historical cultural reasons. This shows that e-commerce/online shopping is potentially a way to get what is required by them without going outside. Moderate users were mostly male and middle aged, and their ICT knowledge was moderate. Low frequency male and female users were most likely to be between the ages of 18 and 24.

This study categorized e-commerce adopters, which is new in the context of Saudi Arabia. Identifying high frequency users, moderate users and low frequency users of online commerce sites, demonstrated that there are different categories of users and that their preferences for going online vary according to different socio-economic and demographic variables. The categorization of e-commerce adopters provides a new dimension by which to analyze customers and potential customers in order to best modify the online environment to encourage their participation in e-commerce.

This study will potentially assist professionals interested in services supported by ICT, the wider business community, and the government to undertake comprehensive, effective, and sustainable solutions for the betterment of e-commerce in Saudi Arabia. Discovering the demographic and cultural reasons for the slow uptake of e-commerce in Saudi Arabia will add to knowledge, not just of Saudi Arabia, but of developing countries in the Muslim and Arab world, as they seek to enter the era of modern commercial interactions.

This study has only focused on current online shopping adopters. Data provided by non-adopters could have added greater depth to the understanding of why they are not using e-commerce facilities at all. Moreover, this research included only the variables related to demographic and cultural factors. Therefore, future studies should consider non-adopters for identifying factors influencing the adoption of e-commerce in Saudi Arabia. Their feedback would provide an extra dimension to our understanding of online shopping and retail e-commerce in Saudi Arabia.

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