Determinants of E-Commerce Websites' User Interface: A Cross-Cultural Investigation Between Saudi Arabia and Philippines

Regina Garcia Almonte[(✉)]

City College of Calamba (CCC), Calamba City, Laguna, Philippines
reginagalmonte@gmail.com

Abstract. It is an argument that the cultural background plays a significant role in the web design of different kinds of websites. Since e-commerce websites are progressing in every country due to the convenience it brings to different web users around the world, it is vital to examine the e-commerce websites as a support to the argument mentioned previously. This paper utilized ISO/IEC 9126-1 quality model criteria to assess and investigates the quality of e-commerce websites and its user interface components of two different cultures: Saudi Arabia and the Philippines. The two countries were chosen since Saudi Arabia has become one the countries where many Filipinos are required for employment due to the latter's professional work ethics and dedication to work that made them recognized as instrumental in the growth of Saudi Arabia. A tested and validated questionnaire was used for the evaluation of the quality of e-commerce websites of the two cultures. It is found out that across the two cultures, there are significant differences in terms of the user interface components in some features of functionality, usability, and reliability but not found in efficiency component. The findings of the study should be taken into consideration for future research and for the web developers to design websites that are culturally appropriate.

Keywords: E-commerce · Cross-cultural · Website · User interface

1 Introduction

For over the years, online commerce has tremendously grown and continues to improve their way of serving to a great extent their target consumers. Electronic commerce (e-commerce) is one of the successful online commerce, which allows exchange information and transactions through the use of electronic communication. The globalization is what makes e-commerce. With globalization, the buyer and seller come together to make transactions using electronic medium, they sign a written agreement in terms of the price and delivery options of a specific goods and services, and complete the transactions through different types of payments and have the goods and services delivered as agreed (Zhang et al. 2006). It is simply defined as selling and buying of goods and services via internet which happens between the transactions of business and consumers, businesses and businesses, consumers and consumers, and intra-companies. The higher competition among business through e-commerce has been very stiff, thus

global firms engage themselves more than just having a website and offered the products and services worldwide, but realizing the fact that the virtual world of commerce must be supported with physical, financial and information processes which local companies cannot offer to consumers with convenience and economy (Totonchi and Manshady 2011; Meyer 2008). There are numerous benefits that e-commerce has to offer to businesses targeting consumers globally. First, transaction costs, which are reduced costs when consumers are dealing with e-commerce, such as: search costs that consumers do not require to go through several stores or intermediaries to search for the supplies, products and compared prices; costs of processing transactions which is an automated transactions with efficient and quicker results, and; the online transactions improves inventory management and logistics. Second, disintermediation benefit wherein suppliers can directly deal with their buyers and do not need the interference of distributors or intermediaries. Lastly, there is an increase in price transparency where buyers are able to compare the prices of one product to another before making a decision in purchasing of goods and services (Khurana et al. 2011). Since the goal of each e-commerce website is to serve the consumers worldwide at their best, it is important to note that these websites should be designed objectively by its designers and not based on their personal perceptions. Worldwide, consumers consist of users with different cultures with different preferences. Thus, it is recommended to conduct a cross cultural analysis on e-commerce websites of different cultures in website development.

Generally, the objective of this paper is to assess the quality of e-commerce websites of Saudi Arabia and the Philippines through the use of the revised ISO/IEC 9126-1 quality criteria. Specifically, (1) to identify the user interface components that exists in e-commerce websites of Saudi Arabia and the Philippines; (2) to evaluate and analyze if the e-commerce websites of Saudi Arabia and the Philippines are designed based on cultures; (3) to determine if there is a significant correlation between the e-commerce websites of two cultures, and (4) to serve as a justification of the findings of number of researches that it is vital for the websites to be culturally appropriate.

This paper is organized as follows: Sect. 2 explains the user interface components of e-commerce websites; Sect. 3 provides the hypotheses that have been tested if a particular component or features have differences between the two cultures; Sect. 4 give the importance of the study; Sect. 5 presented the method of research and the research instrument that have been utilized in the study; Sect. 6 discusses the findings of the study, and; Sect. 7 provides the conclusions based on the evaluation of the results.

2 E-commerce Website's User Interface Components

Web site development is one of the challenging tasks of every website designers most especially in the field of e-commerce were websites will accommodate users around the world. It is important that the websites that the users would like to explore and utilize to develop in a high quality graphical user interfaces are essential factors for website designers because it allows users to carry out their daily tasks by interacting with e-commerce applications via menu-driven user interface components, such as toolbars and dialog windows (Zhang et al. 2006). There is a need to accommodate the increasing requirements of the business, as a result e-commerce applications and

capabilities changes in order to provide the user interfaces that are suited to their needs. On the other hand, the interface design success is beyond the pleasant appearance of the website, it is the most important phase for its success (Bodker 1991). Its role is the key factor in user satisfaction (Burns and Madey 2001). Hence, the knowledge of the users as well as their cognitive skills and their limitations should be taken into consideration in the website design process to ensure its success.

There are a number of research conducted regarding the features that should be included in e-commerce websites. According to Coopee et al. (2000), website designers should consider the inclusions of the essential features into a commercial website that they used to design and created, namely, catalog development, users tracking, payment processing, online fulfillment, web site security, privacy, business-business sales models, and business-customer sales models. In addition, Cell (2000) enumerated some guidelines to be able to create a customer friendly website. The guidelines are for the websites to make company easy to find online, keep site navigation simple and clear, give customers a reason to visit the site, make the site visually appealing, offer a menu of communications options, and answer e-mail promptly and professionally. Indeed, designing the e-commerce websites' interface is a challenging task (Najjar 2001). The overall page format, navigation, catalog, registration, personalization, checkout, and customer service should be the inclusions of the major sections. Format download speed, the use of graphics, scrolling, and highlighted that a web designer should format the page to make it easy for users to interact with the web site by put user interface elements in familiar locations are the considerations under the web page format. In addition, search, contact us, and shopping carts are noted as an important feature of the e-commerce websites. To be able to deliver "breadcrumb" navigation page, website must show the page titles users came through to get the current page. Across cultures, the differences in the preferences and perceptions toward he design of the website really exists (Cyr and Trevor-Smith 2004). The design of the menu layout can consider the access to product info, professional design, logical info presentation, screen design, navigation, sequencing, product attributes, and product availability as an important web site features. Numerous researches revealed that the are variety of characteristics to describe websites (Tarafdar and Zhang 2006). There were five features involved: the content of information on the website, navigation characteristics, usability, personalization characteristics and the capability to cater to customized information requirements of the specific groups of customers, and the technical properties of the websites.

The revised ISO/IEC 9126-1 (2001) quality model made an end with the several arguments pertaining to the components or characteristics of e-commerce website. The model standardized the list of characteristics that must be included in every kind of software. The ISO/IEC 9126-1 model includes website quality characteristics and sub-characteristics and this will serve as a guide for software development which definitely includes e-commerce websites. The following are the characteristics defined by the model:

1. Functionality. It is an arrangement of qualities that bear on the presence of an arrangement of capacities and their predefined properties; the capacities are those that fulfill expressed or suggested needs (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It is the significant component of an e-commerce website because it covers the user interaction with the websites.

2. Reliability. It is an arrangement of characteristics that bear on the capacity of programming to keep up its level of execution under expressed conditions for an expressed timeframe (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It affects customer satisfaction which will lead to customer decision to purchase the goods and services that an e- commerce website has offered.
3. Usability. It is a collection of properties that bear on the effort essential to utilize, and on the individual evaluation of such use, by a stated or implicit set of users. (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It is the ease of use that e-commerce website is provided to users which will make the websites' success.
4. Efficiency. It is a collection of properties that bear on the association between the degree of performance of the software and the amount of resources utilized, under expressed conditions (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It covers the performance of the e-commerce websites and the promptness of the website when the user is trying to access a particular section of the website.
5. Maintainability. It is an arrangement of properties to bear the effort required to build particular modifications (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It is the way of the website in dealing with the errors that users might encounter.
6. Portability. It is a collection of properties that bear on the capability of software to transfer from one environment to another (ISO/IEC 9126-1 2001; Al-Safadi and Garcia 2012). It is the ability of the e-commerce website when the users decided to access in different kinds of browsers, whether it would have a compatibility issue or not.

3 Hypotheses of the Study

The following are the hypotheses of the study:

- H_1: There is a variance in e-commerce website features concerning its functionality component between Saudi Arabia and the Philippines.
- H_2: There is a variance in e-commerce website features concerning its usability component between Saudi Arabia and the Philippines.
- H_3: There is a variance in e-commerce website features concerning its reliability component between Saudi Arabia and the Philippines.
- H_4: There is a variance in e-commerce website features concerning its efficiency component between Saudi Arabia and the Philippines.
- H_5: There is a variance in e-commerce website features concerning its maintainability component between Saudi Arabia and the Philippines.
- H_6: There is a variance in e-commerce website features concerning its portability component between Saudi Arabia and the Philippines.

4 Significance of the Study

The study is beneficial to the following:

- Web site designers to be able to develop a quality e-commerce websites across cultures. To develop a website that is not based on personal preferences of web

designers is a significant factor of website development. This study will assist the designers to develop and design a website which will be effective for all kinds of people from all walks of life.

- Government sectors and private companies or institutions to be able to provide their target users worldwide, an e-commerce website that is culturally appropriate.
- Future researchers to be able to have a foundation or initial investigation in more in-depth analysis of e-commerce website development.

5   Research Methodology

Saudi Arabia and the Philippines were selected because the two countries possess distinctly different cultural features which were clearly revealed in Hofstede's (2005) cultural dimensions: power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation. Ever since e-commerce has been introduced worldwide, the users from Saudi Arabia and the Philippines have seen the values and conveniences that e-commerce has provided for them. The adoption of e-commerce is progressing for the two countries. Aside from these facts, the two countries were chosen because they have bilateral relations of which clearly seen in Saudi Arabia allows millions of Filipinos are able to work in different companies in Saudi Arabia.

As shown in Table 1, twenty e-commerce websites which include the top and most commonly used e-commerce websites in the two countries and they were selected for evaluation of the components of a standard quality model. There are three procedures involved in this study. First is to identify the characteristics of each component of the websites which is based on the revised ISO/IEC 9126-1 model. Second is to evaluate each websites characteristics or features through the use of tested and validated questionnaire (Al-Safadi and Garcia 2012). Last procedure was the invitation of the two design experts on e-commerce websites from Saudi Arabia and Philippines who evaluated each feature of the websites. In their evaluation using the tested questionnaire, the evaluator indicated 0 if the feature is not present in the e-commerce website and 1 if it is present in the website.

After gathering the information needed for the study, analysis of the results has been taking place. In the study descriptive method of research was utilized to identify the features of the e-commerce websites involved in the study. And to test the significant differences between the two cultures, an inferential statistic was employed through the use of chi-square (x2) test. The following formulas were used:

1.

$$x^2 = \sum (\text{Actual Count} - \text{Expected Count})^2 / \text{Expected Count}$$

2.

$$\text{degrees of freedom(df)} = (\#\_\text{of\_rows} - 1)(\#\_\text{of\_columns} - 1)$$

Table 1. Online shopping websites in Saudi Arabia and the Philippines

Saudi Arabia		Philippines	
Company	Website/URL	Company	Website/URL
Awal-net	http://portal.awalnet.com	Metrobank	http://metrobank.com.ph
Nashirnet	http://www.nashirnet.net/	Dynaquest PC	http://dynaquestpc.com/
Dell	http://www.dell.com	Sulit	http://www.sulit.com.ph/
Samba	http://www.samba.com	Metrodeal	http://www.metrodeal.com/
Naseej	http://www.naseej.com/	Shopinas	http://www.shopinas.com/
Nesma	http://nesma.com/	PhilRegalo	http://philregalo.com/
Alahli	https://www.alahlionline.com	Filters Exchange	http://filters-exchange.net/
Saudi Arabian Airlines	http://www.saudiairlines.com/	Philippine Airlines	http://www1.philippineairlines.com/
ABB	http://www.abb.com/	Flowers Express	http://www.flowersexpress.com.ph
Souq	http://saudi.souq.com/	Chicify	http://chicify.com/
Danube	http://danubeco.com/	Remal Sale	http://www.remalsales.com/
Carrefour	http://www.carrefourksa.com	Beeconomic	http://www.beeconomic.com.ph/
Lulu Hypermarket	http://saudi.luluhypermarket.com/	BDO	https://www.bdo.com.ph/
Panda	http://www.panda.com.sa/	Dealgrocer	https://dealgrocer.com/
Cobone	http://www.cobone.com/	CashCashPinoy	http://www.cashcashpinoy.com/
Namshi	http://en-sa.namshi.com/	Ensogo	http://www.ensogo.com.ph/
Sukar	http://www.sukar.com/	Zalora	http://www.zalora.com.ph/
MarkaVIP	http://markavip.com/	Island Rose	http://www.islandrose.net/
iZone	http://www.izone-stores.com/	Taste Central	https://tastecentral.com/
3laModak	http://www.3lamodak.com/	Dealgrocer	https://dealgrocer.com

It was expected that the two cultures will reveal that there is significant differences with e-commerce website quality characteristics between two cultures.

6   Results and Discussion

The results of the e-commerce website quality characteristics are shown in Tables 2, 3, 4, 5, 6, 7, 8, 9 and 10.

Table 2. Functionality

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Searching and Retrieving						
Quick search	12	13	12.5	0.040	1	0.841
Advanced search	6	4	5.0	0.400	1	0.527
Average level of retrieving customization	20	20	20.0	0.000	1	1.000
Navigation and Browsing						
Orientation	20	20	20.0	0.000	1	1.000
Average links per page	19	20	19.5	0.026	1	0.873
Presentation permanence	20	20	20.0	0.000	1	1.000
Stability of sub-sites controls	20	20	20.0	0.000	1	1.000
Vertical level of scrolling	20	20	20.0	0.000	1	1.000
Horizontal level of scrolling	0	1	0.5	0.000	1	1.000
Links title with explanatory help	0	0	0.0	0.000	1	1.000

* Sig. Level <0.05, there is significant difference

In terms of functionality component of e-commerce website and in support for H1, there were six significant differences under this component among the two cultures. These findings indicate a support for H1. There are 73% of Saudi Arabia's e-commerce websites have searching and retrieving category while 71% in the Philippines. Under navigation and browsing category, 67% of the Saudi Arabia's e-commerce website has this, while 68% in the Philippines. There is only one e-commerce website that uses "horizontal level of scrolling" feature, but none of the e-commerce websites of Saudi Arabia. With regards to "link title with explanatory help" and "links comment or descriptions" are not utilized by most of the e-commerce websites of both cultures. Under products category, 26% of the Saudi Arabia's e-commerce website contains this while 35% in the Philippines. The "product rating" category is not being utilized by the e-commerce websites of Saudi Arabia and only 5 e-commerce websites have this feature in the Philippines. In purchase category, 37% of the e-commerce websites in Saudi Arabia includes this while a higher percentage of 71% in the Philippines. The

Table 3. Functionality

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Navigation and Browsing						
Links comment or description	0	0	0.0	0.000	1	1.000
Quick browse	19	19	19.0	0.000	1	1.000
Products						
Textual description	20	20	20.0	0.000	1	1.000
Contents and structure	20	19	19.5	0.026	1	0.873
Image	20	0	10.0	20.000	1	0.000*
Evaluation and comparison	2	1	1.5	0.000	1	1.000
Rating	0	5	2.5	3.200	1	0.074
Related product recommendation	8	1	4.5	4.000	1	0.046
Catalog download facility	4	2	3.0	0.167	1	0.683
Product personalization	0	20	10.0	20.000	1	0.000*
Top products	2	7	4.5	4.000	1	0.046*
Best seller products	2	8	5.0	3.600	1	0.058
Purchase						
Shopping basket	10	14	12.0	0.667	1	0.414
Continues buying feedback	0	0	0.0	0.000	1	1.000
Edit/recalculate feature	10	12	11.0	0.182	1	0.670
Full integration of payment provider	10	16	13.0	1.385	1	0.239
Forms of payment via credit card	10	16	13.0	1.385	1	0.239
Forms of payment via bank transfer	10	17	13.5	1.815	1	0.178
Forms of payment via PayPal	6	13	9.5	2.579	1	0.108
Forms of payment via Google checkout	0	3	1.5	0.000	1	1.000
Other forms of payment	9	16	12.5	1.960	1	0.162

* Sig. Level <0.05, there is a significant difference

form of payment through Google checkout is not being used by e-commerce websites in Saudi Arabia, but 3 e-commerce websites have this in e-commerce websites in the Philippines. There is no e-commerce websites in Saudi Arabia have used "recent purchase (gift service)" feature, but 9 e-commerce websites in the Philippines. And the

Table 4. Functionality

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Printable check-out form for offline transaction	13	10	11.5	0.391	1	0.532
Fax/Telephone/Email purchase	8	9	8.5	0.059	1	0.808
Quick purchase	10	13	11.5	0.391	1	0.532
Checkout security	9	14	11.5	0.391	1	0.532
Cancelling feedback	9	14	11.5	0.391	1	0.532
Purchase cancellation policy	7	14	10.5	2.333	1	0.127
Return policy	7	15	11.0	2.909	1	0.088
Shipping and handling policies	7	17	12.0	4.167	1	0.041*
Payment policy	7	16	11.5	0.391	1	0.532
Recent purchase (gift service)	0	9	4.5	4.000	1	0.046*
Multiple delivery options	1	17	9.0	14.222	1	0.000*
Customer						
e-subscriptions	7	7	7.0	0.000	1	1.000
Account availability	14	20	17.0	1.059	1	0.303
Account security	14	20	17.0	1.059	1	0.303
Account settings	14	20	17.0	1.059	1	0.303
Wish list	4	3	3.5	0.000	1	1.000
Promotion						
With-sale	11	6	8.5	1.471	1	0.225
Appetizer promotions (e.g. contests, miles, etc.)	14	9	11.5	0.391	1	0.532

* Sig. Level <0.05, there is a significant difference

"multiple delivery options" is being used by only one e-commerce websites in Saudi Arabia, but there are quite higher score of 17 e-commerce websites have utilized this in the Philippines. The form of payment that is widely used in Saudi Arabia is through SADAD payment system. In customer category, 42% in Saudi Arabia's e-commerce website and half of the number of websites in the Philippines that are evaluated in this study have this feature. Inclusion of "wish list" feature is not commonly used in e-commerce website of two cultures having 4 websites in Saudi Arabia and 3 websites in the Philippines. In promotion category, 63% of the Saudi Arabia's e-commerce websites includes this, but only 38% of the websites in the Philippines. In order management category, 80% of the e-commerce websites in the Philippines contains this, but only 35% in Saudi Arabia. There is only 1 e-commerce website in Saudi Arabia uses "order tracking" feature while a quite higher score of 16 e-commerce

Table 5. Functionality

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Order Management						
Order history	13	16	14.5	0.310	1	0.577
Order tracking	1	16	8.5	1.471	1	0.225
Services						
Discussion forums	2	11	6.5	6.231	1	0.013
Surveys/Polls	1	0	0.5	0.000	1	1.000
Newsletter	5	11	8.0	2.250	1	0.134

* Sig. Level <0.05, there is a significant difference

websites in the Philippines. And in services category, both e-commerce website of the two cultures have quite lower percentage: 13% of Saudi Arabia's and 37% in the Philippines. The use of "survey/polls" feature is not popular in both cultures.

In terms of usability component of e-commerce website and in support for H2, there is one significant difference under this component among the two cultures. This finding indicates a support for H2. The global site understandability category is moderately used in e-commerce websites of Saudi Arabia and the Philippines. The use "table of contents" feature is not popular in e-commerce websites both cultures. The utilization of "alphabetical/subject index" feature is not widely used in e-commerce websites of both cultures having only 1 website in Saudi Arabia and 3 websites in the Philippines. The inclusions of "guided tour for first time visitor" can be found in just 2 e-commerce websites in Saudi Arabia and 2 websites in the Philippines. In help category, 82% of the e-commerce websites in Saudi Arabia includes this feature and a higher percentage of 91% in the Philippines. In interface and aesthetic category that covers presentation permanence and stability of controls, 82% of the e-commerce websites in Saudi Arabia has this feature and 71% in the Philippines. The miscellaneous category includes "foreign language support" and "What's new", 75% of Saudi Arabia's e-commerce websites has this feature but a lower percentage of 385 in the Philippines. The "foreign language support" is widely used in e-commerce websites in Saudi Arabia, but contrary with websites in the Philippines.

In terms of maintainability component of e-commerce website, there is no variance between the two cultures. On the other hand, there is one significant difference under reliability component between the two cultures. This finding indicates a support for H3. A very remarkable higher percentage was gained by the response of the e-commerce websites of Saudi Arabia and the Philippines when it comes to link errors, miscellaneous errors and drawbacks features. Most of the e-commerce websites of the two cultures handles such errors in a controlled manner providing display messages to users. While in accuracy and relevance of information, a lower percentage was given to the e-commerce websites of both cultures having a percentage of 38% in Saudi Arabia and 40% in the Philippines. The utilization of "references or links" feature is not popular in most of e-commerce websites of both cultures.

Table 6. Usability

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Global Site Understandability						
Table of contents	0	0	0.0	0.000	1	1.000
Sitemap	5	1	3.0	1.500	1	0.221
Alphabetical/subject index	1	3	2.0	0.250	1	0.617
Text labels	20	19	19.5	0.026	1	0.873
Picture labels	20	20	20.0	0.000	1	1.000
Images	20	19	19.5	0.026	1	0.873
Guide tour for first time visitors	2	2	2.0	0.250	1	0.617
Help Features						
Global help	20	20	20.0	0.000	1	1.000
Search help	19	20	19.5	0.026	1	0.873
Purchase help	7	16	11.5	0.391	1	0.532
Checkout help	7	14	10.5	2.333	1	0.127
Email directory	20	20	20.0	0.000	1	1.000
Telephone/Fax directory	20	20	20.0	0.000	1	1.000
Post Mail list	20	20	20.0	0.000	1	1.000
FAQ feature	9	14	11.5	0.391	1	0.532
Real-time customer service	18	19	18.5	0.027	1	0.869
Comments/suggestions	20	20	20.0	0.000	1	1.000
Interface and Aesthetic Features (include presentation permanence and stability of controls)						
Main control	20	20	20.0	0.000	1	1.000
Search control	20	20	20.0	0.000	1	1.000
Browse control	20	20	20.0	0.000	1	1.000
Account control	14	20	17.0	1.059	1	0.303
Shopping basket control	12	15	13.5	0.333	1	0.564
Indirect controls	6	8	7.0	0.000	1	1.000
Control's stability	20	19	19.5	0.026	1	0.873
Link color style consistency	20	20	20.0	0.000	1	1.000

* Sig. Level <0.05, there is a significant difference

There is no significant difference between the two cultures in terms of efficiency and portability components of an e-commerce website. However, the results shown in Table 10 revealed that under performance feature, Saudi Arabia's e-commerce websites gained 70% and 83% in the Philippines. The accessibility feature has been

Table 7. Usability

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Aesthetic designs	20	19	19.5	0.026	1	0.873
Miscellaneous						
Foreign language support	20	1	10.5	17.190	1	0.000*
What's new feature	10	14	12.0	0.667	1	0.414

* Sig. Level <0.05, there is a significant difference

Table 8. Maintainability

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Maintainability						
Link errors						
Broken links	20	20	20.0	0.000	1	1.000
Invalid links	20	20	20.0	0.000	1	1.000
Unimplemented links	20	20	20.0	0.000	1	1.000

* Sig. Level <0.05, there is a significant difference

Table 9. Maintainability and Reliability

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Maintainability						
Miscellaneous errors and drawbacks						
Different browsers	20	20	20.0	0.000	1	1.000
Browser independent	20	20	20.0	0.000	1	1.000
Dead-end web nodes	20	20	20.0	0.000	1	1.000
Destination nodes under construction	20	20	20.0	0.000	1	1.000
Reliability						
Accuracy and relevance of information						
Testimonials display	3	6	4.5	4.000	1	0.046*
References or links pro-vision	1	0	0.5	0.000	1	1.000
List of physical address of the office	9	16	12.5	1.960	1	0.162

* Sig. Level <0.05, there is a significant difference

Table 10. Efficiency

Variables	Actual count		Expected count	X^2	df	Sig. Level
	Saudi Arabia	Philippines				
Efficiency						
Quick pages	20	19	19.5	0.026	1	0.873
Quick checkout and payment	8	14	11.0	2.909	1	0.088
Portability						
Support for text-only version	0	0	0.0	0.000	1	1.000
Image title	20	20	20.0	0.000	1	1.000
Global readability	20	20	20.0	0.000	1	1.000
Browsers' version who do not support frames	0	2	1.0	0.500	1	0.480
Mobile device accessibility	20	20	20.0	0.000	1	1.000

* Sig. Level <0.05, there is a significant difference

moderately used by the e-commerce websites of both cultures having 50% in Saudi Arabia and 53% in the Philippines. No e-commerce website in both cultures utilized the "support for text-only" version.

In general, the results of the study indicate that in terms of functionality, usability, and reliability component of e-commerce website variance in some of its features exist between the two cultures. The two countries have common characteristics pertaining to high-context cultures (Hall and Hall 1990) which support the claim of Hofstede's (2005) cultural dimensions that the two cultures both have higher power distance, collectivist and masculine society. People from high-context cultures emphasize interpersonal relationships and they are relational, collectivist, intuitive, and contemplative type of people (Hall and Hall 1990).

7   Conclusion

The study supports the argument that there is a significant difference exists on e-commerce websites of different cultures. With the findings of the study, it is important for the web developers to consider the features that have significant differences when improving an existing website or designing a new one. It is essential for the websites to be culturally appropriate most especially that the e-commerce websites' target users are users across different cultures.

This study has limitations that should be taken into consideration for future research related to cross-analysis of e-commerce websites. First, the study covers only twenty e-commerce websites of Saudi Arabia and of the Philippines; a higher number of websites that will be included in the study will further justify that there are differences in web design of e-commerce websites of different cultures. And second, both of the

countries included in the study are both from Asia; if the two countries are from different continents then it could possibly provide major differences in the design of e-commerce websites.

References

Al-Safadi, L.A., Garcia, R.A.: ISO9126 based quality model for evaluating B2C e-Commerce applications – Saudi market perspective. IJCIT **3**(2), 8–15 (2012)

Bodker, S.: Through the Interface: A Human Activity Approach to User Interface Design. Lawrence Erlbaum, Hillsdale (1991)

Burns, J., Madey, G.R.: A framework for effective user interface design for web-based electronic commerce applications. Informing Sci. **4**(2), 67–75 (2001). (Special Issue: Expanding the Focus)

Cell, B.: Web site design: what do i need to know? Pennsylvania CPA J. **71**(1),15 –19 (2000)

Coopee, T., Mitchell, L., MacDonald, T., Steinacher, S.: Catching net customers. Info World **22** (14), 54–55 (2000)

Cyr, D., Trevor-Smith, H.: Localization of web design: an empirical comparison of German, Japanese, and US web site characteristics. J. Am. Soc. Inf. Sci. Technol. **55**(13), 1199–1208 (2004)

Hall, E., Hall, M.: Understanding Cultural Differences. Intercultural Press, London (1990)

Hofstede, G.: Cultures and Organizations: Software of the Mind. McGraw-Hill, London (2005)

ISO/IEC 9126-1: Software engineering – Product Quality – Part 1: Quality Model, 1st ed. (2001)

Khurana, H., Goel, M.K., Singh, H., Bhutani, L.: E-Commerce: role of E-Commerce in today's business. VSRD Int. J. Bus. Manag. Res. **1**(7) (2011)

Meyer, N.: E-Commerce Interface Design Parameters and their Relation to Website Popularity (2008). Accessed 28 Jan 2014

Najjar, L.J.: E-commerce user interface design for the Web (2001). http://www.lawrence-ajjar. com/papers/Ecommerce_user_interface_designfor_the_Web.html. Accessed 8 May 2008

Tarafdar, M., Zhang, J.: Analysis of critical website characteristics: a cross category study of successful websites. J. Comput. Inf. Syst. **46**(2), 14–24 (2006)

Totonchi, J., Manshady, K.: Relationship between globalization and e-Commerce. Int. J. e-Education, e-Business, e-Management e-Learning **2**(1), 83–87 (2011)

Zhang, Q., Chen, R., Zoe, Y.: reengineering user interfaces of E-Commerce applications using business processes. In: Proceedings of the 22nd IEEE International Conference on Software Maintenance (ICSM 2006) (2006)