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The Impact of E-Service Quality on the Customer Satisfaction of Electronic and Small Appliances Online Shoppers in Saudi Arabia

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THE IMPACT OF E-SERVICE QUALITY ON THE CUSTOMER SATISFACTION OF ELECTRONIC AND SMALL APPLIANCES ONLINE SHOPPERS IN SAUDI ARABIA

by

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Majed Abdullah Almobarak

DEDICATION

I dedicate this accomplishment to my brothers, wife, and children who are helping and supporting me pass critical milestones in my life.

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Majed Abdullah Almobarak

University of the Incarnate Word, 2022

The objective of this quantitative study, which utilized a non-experimental, correlational predictive design, was to evaluate the association between perceptions of e-service quality by Saudi Arabian adult residents and their overall satisfaction with the online retailer from which they buy their electronics and small appliances products. The study also sought to determine to what extent e-service quality factors, as a group and independently, predict the customer satisfaction of the participants of this study. The participants of this study were limited to adults (18 years of age or older), male and female, who live in any region of Saudi Arabia, and have at least completed one transaction over the internet to buy electronics and small electrical appliances products. This study utilized a non-probability convenience sampling method "in which [the] respondents are chosen based on convenience and availability" (Creswell & Creswell, 2018, p. 150). The actual sample was 658 complete responses, which were more than 277 responses required by G*Power analysis. The study adopted Vajrapna's (2019) scale to measure independent variables (overall e-service quality and its components) and dependent variable (e-customer satisfaction). The e-service quality consisted of seven components that include 36 measured attributes. The e-customer satisfaction consisted of five measured perceptions. The participants in the survey were invited to participate via social media applications, and data were collected using the QualtricsXM survey platform. Simple and

multiple regression tests were used to analyze data and reach conclusions. The finding of this study revealed the importance of information quality component in influencing e-customer satisfaction. E-tailers that manage to improve the information presented on their website to match customer preference would gain a competitive edge over those who do not. The research suggested that Saudi e-tailers should activate the role of omni-channel to create a barrier of entry over international rivals with no physical store.

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Chapter 1: Introduction to the Study

Traditional Retail in the E-Commerce Era

The retail sector is considered the pulse of the economy (Hortacsu & Syverson, 2015) and plays a vital role in the growth of a country's gross domestic product (Karnik, 2015). Therefore, the retail sector has evolved to be of importance, as it includes major, national employers through its brick-and-mortar format (Hortacsu & Syverson, 2015; Klazema, 2018). The emergence of the internet as an e-commerce platform over the last two decades has become a threat to traditional retailers who have not effectively utilized this emerging platform. Toys-R-Us, for example, was forced to exit the market because of its inability to compete when Amazon decided not to renew its contract with the company to sell its products online (Schlosser, 2017). Other traditional retailers have made aggressive moves and begun reducing their dependency on traditional store sales by closing many of their brick-and-mortar locations to focus on online revenue. For example, GAP, the fashion retail company, announced the closure of about 350 stores by the year 2023 in order to increase its online sales to 80% by the same year (Taylor, 2020).

The Shift in Customers' Perceptions

The current shift in consumers' behaviors in regard to adopting online shopping over traditional shopping has been attributed to many reasons, including a shift in customers' perceptions regarding the usefulness, ease-of-use, and risks associated with online shopping methods (Alqahtani, 2016). Today, more customers believe that shopping online allows them to compare products better and that completing online transactions is not as difficult and risky as before (Vajrapana, 2019). However, those factors were not enough to ensure impulse purchases over online shopping. Just like the brick-and-mortar format, e-commerce retailers need to

monitor and improve their customer experiences and match customers' expectations in order to grow their businesses and protect themselves from increased competition within the e-commerce format.

The Rise of E-Service Quality

At the beginning of the millennium, the e-commerce retail industry was in a shaky position causing many to close or merge (Jun et al., 2004). Nonetheless, scholars have predicted that e-commerce retail will play a major role in retail competitiveness and reshape the industry. When Amazon was struggling during the early 2000s, Burt and Sparks (2003) predicted that e-commerce retail was, like most innovations, struggling and having financial problems, but would eventually prevail. The authors suggested that, once e-commerce retailers fine-tuned their e-service quality to match customer expectations, the game would have new rules. In addition to customers' acceptance of online shopping, most of the initial struggle was attributed to those who failed to apply competent e-service quality (Zeithaml, 2002). Jeff Bezos, Amazon's founder, attributed the company's success to its customer-centric culture, which helped it to invest in the necessary infrastructure that delivers the best service quality to its customer (Bishop, 2013). Amazon's e-service quality includes factors such as a prompt and problem-free delivery system, smart use of data that aids customers' buying decisions, and empowering customer service representatives to deliver the best service quality (Collomb, 2018).

E-Service Quality Components

Since the introduction of the e-service quality concept, many scales have been developed to study business components relevant to the retail industry (Kumbhar, 2012). However, those components differ from one scale to another. One of the most recent and comprehensive e-service quality scales was developed by Vajrapana (2019) and measures the quality of e-service

as perceived by online shoppers. The Vajrapana e-service quality scale (VESQS) was built through a careful analysis of the existing e-service quality scales, followed by eight qualitative focus groups used to ensure that online shoppers agreed on the emerging components. Then, Vajrapana (2019) carried a quantitative analysis to test the validity and reliability of the emerging components. The author found that good e-service should include information quality, privacy protection, delivery system, return processes, customer service, multi-device compatibility, and omni-channel. In the current research project, the VESQS will be employed to explore the participants' perceptions.

E-Service Quality and E-Customer Satisfaction

The emphasis of the importance of e-service quality was due to its impact on many factors that are linked to a e-tailer's success, such as e-customer satisfaction, which, in turn, have been found to influence customer loyalty and retention (Pratminingsih et al., 2013), market share (Rego et al., 2013), and cost of selling (Frennea et al., 2014; Lim et al., 2020).

Due to its influence on e-tailers' success, scholars, such as Keiningham et al. (2015a), have suggested that e-customer satisfaction should be continuously measured to detect any deviations that might result from not meeting expectations. In their analysis, the authors concluded that e-customer satisfaction could lead to sustainable profitably given that e-tailers understand the "elements of customer experience [that] have measurable, positive downstream consequences" (Keiningham et al., 2015a, p. 279).

Definition of Key Terms

E-Service quality is "the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products" (Parasuraman et al., 2005, p. 8).

E-Customer satisfaction is "the outcome of consumer perceptions of online convenience, trust, security, customization, usability, easiness, price effectiveness, and perceived value" (Kumbhar, 2012, p. 16).

Problem Statement

After years of resistance to online shopping by Saudi Arabian residents (Nacher, 2019; Wazzan, 2017), COVID-19 changed the norms and forced them to use this means of shopping. Recently, e-tailer Amazon.com took advantage of this change and launched a site specifically for the country (i.e., Amazon.com.sa). As a result, traditional Saudi Arabian retailers, including electronics and electrical home appliances, have been placed at a disadvantage due to social distancing and the long experience of global e-tailers, such as Amazon and AliExperss.

Evidence has shown that online shopping differs greatly from brick-and-mortar shopping as it involves factors such as delivery and using higher-risk payment methods (e.g., Grob, 2020). Thus, one of the main challenges facing Saudi Arabian traditional-retail leaders is to learn how to retain their customers and effectively compete with global e-tailers, such as Amazon and AliExpress.

The literature has identified several e-service quality factors and attributes related to customer satisfaction during online shopping (Bauer et al., 2006; Parasurman et al., 2005; Swaid & Wigand, 2009; Vajrapana, 2019). However, these factors have not yet been investigated from the perspective of Saudi Arabian adults or in online shopping related to electronics and small appliances. Alazab et al. (2020) stated that "cultures differ from one another due to different social norms, beliefs and values" (p. 2351). Thus, e-service quality and its components should be examined for conceptual implications in a variety of countries. Since acquiring proficiency in

these factors requires intensive investments in time and money, this examination is important for businesses for practical reasons as well.

Identifying the relationship between e-service quality and its customer satisfaction components will assist Saudi Arabian electronics retailers in determining best practices related to online shopping and allocating the resources and priorities necessary to those factors that are influential to customer satisfaction. Moreover, the knowledge generated from this study is expected to inform training programs developed by retailers interested in improving their customer satisfaction within their online businesses.

Purpose of the Study

The objective of this quantitative study, which utilized a non-experimental, correlational predictive design, was to evaluate the association between perceptions of e-service quality by Saudi Arabian adult residents and their overall satisfaction with the online retailer from which they buy their electronics and small appliances. The study also sought to determine to what extent e-service quality factors, as a group and independently, predict the customer satisfaction of the participants of this study.

Research Questions

RQ1. What, if any, relationship exists between e-service quality measured by VESQS, at the overall and components levels, and e-customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

RQ2. What, if any, predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both

independently and as a group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

Hypotheses

H1a: A statistically significant relationship exists between e-service quality measured by VESQS, at the overall and components levels, and customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping for electronics and small appliances.

H2a: A statistically positive and significant predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both independently and as a group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances.

Significance of the Study

The objective of this study is to investigate the relationship between e-service quality and the customer satisfaction of adults residing in Saudi Arabia. Although the retail industry is an important sector for economic growth (Hortacsu & Syverson, 2015; Karnik, 2015), a lack of research exists in this area for Saudi Arabian retailers that could help them to effectively compete with global online retailers. In addition, the outcome of the proposed study will address the gap that exists in the academic literature and informs executives interested in Saudi Arabian retail operation management.

The current study will employ Vajrapana's (2019) conceptual model, which provides a holistic view of e-service quality provided by online retailers. Following this model, companies working in the Saudi Arabian retail sector will be able to identify the relative importance of each

measured e-service quality factor, which, in turn, will help them acquire the skills needed to ensure that their retail businesses have the necessary attributes for the greatest customer experience possible.

In addition, human resource managers will be able to identify suitable training programs for their staff to develop their skills more effectively. Furthermore, when hiring new staff, human resource departments will be able to identify the prerequisite skills needed to improve their customer satisfaction, which will generate tremendous benefits to the company, such as having impulse purchases and higher customer loyalty.

Philosophical Framework

The philosophical framework for this study, which is consistent with the researcher's perspective, relies on the postpositivism approach because it aligns with the research purpose and methods. According to Leavy (2017), similar to positivism, postpositivism adopts several notions about the essence of knowledge and the nature of reality. Ontologically, postpositivists consider that the objectivity of the researcher is crucial to the true outcome, without influence or bias. However, unlike positivists, postpositivists believe that absolute truth is difficult to acquire and that it is not possible to "conclusively prove" the hypothesis of a study (Leavy, 2017, p. 92). Epistemologically, postpositivism accentuates the value of using a scientific method to acquire true knowledge by using empirical evidence and measurements. The methodology of postpositivism takes on a deductive and highly structured approach by utilizing scientific methods, statistical analyses, and systemic observations to understand reality (Creswell & Creswell, 2018; Leavy, 2017). In the current study, the researcher will use quantitative methods to collect and analyze data obtained from adult participants residing in Saudi Arabia regarding their perceptions of their experiences purchasing electronics and small appliances from an online

retailer and compare them with their customer satisfaction scores obtained via a questionnaire. Simple and multiple regression analyses will be applied to determine the predictive relationship among the research variables.

Concluding Thoughts

In this chapter, the researcher provided a global view of this research project. Based on previous scholarly work, it has been shown that e-service quality influences e-customer satisfaction (Bauer et al., 2006; Keiningham et al., 2015a; Parasurman et al., 2005; Swaid & Wigand, 2009; Vajrapana, 2019). It is important for e-tailers serving the Saudi Arabian electronics and small appliances market to know that this relationship also exists for Saudi Arabian adult residents. In addition, e-tailers need to know which components of their applied e-service quality system have a greater influence on their customers or need more attention to reach customers' expectations (Keiningham et al., 2015a). In this project, the researcher will address the research problem using Vajrapana's (2019) e-service quality scale to investigate the relationship between e-service quality and e-customer satisfaction.

In the following chapter, a review of the literature will be provided to explore the nature of the relationships among the study's variables (i.e., e-service quality represented by its seven components, e-customer satisfaction). The literature will set the foundation for the theoretical framework of this project as well as provide an overview of the Saudi Arabian retail environment.

Chapter 2: Literature Review

Overview of Saudi Arabia

In this study, the researcher is looking at the ability of e-service quality to relatively affect e-customer satisfaction within the Saudi Arabian retail context. The Kingdom of Saudi Arabia (KSA) is located in Southwest Asia, between the Arabian/Persian Gulf to the east, the Red Sea to the West in the geographic area known as the Middle East. KSA has a direct border with Jordan, Iraq, and Kuwait to the north, Bahrain, Qatar, and United Araba of Emirates to the east, and Oman and Yemen to the South. In the Middle East, KSA has the largest land as it occupies a little more than 2 million square kilometers which is about one-fifth of the United States (CIA, 2021).

Figure 1

Saudi Arabia Map including 13 Provinces

Figure 1 Source Central Department of Statistics and Information [CDSI], 2010).

Saudi Arabia is a monarchy headed by a King who also acts as Head of State. It is ruled by the descendants of King Abdulaziz Al-Saud, who unified the country on September 23, 1932. In 2015, King Salman, the current King, succeeded his brother King Abdullah after his death. Assisting King Salman in his duties his son Mohammed Bin Salman, the Crown Prince (CIA, 2021).

As illustrated in Figure 1, the Kingdom is divided into 13 Provinces which further divide into 118 Governorates through which local affairs are administered. Each Province is headed by a governor who is appointed by the King. The governor is assisted by a vice-governor and Governorates' mayors. The Governates are divided based on geographical, tribal, and cultural considerations (CDSI, 2010).

For many decades, the economy of Saudi Arabia depends heavily on oil revenue with the government has full ownership of oil fields and leads major economic activities. Saudi Arabia has about one-sixth of discovered oil in the world and is considered one of the largest world oil exporters, which gives it a leading role in the Organization of the Petroleum Exporting Countries (OPEC). Since the discovery of oil in the country, oil revenue contributed to building sold infrastructure that contributed to the emergence of new industries such as petrochemical, retail, communication, dairy, food, and many essential products that help KSA to reach self-sufficiency and export the surplus to the neighboring countries. The latest budget for the year 2020 revealed that oil represented about 44% of the country's GDP (coming down from about 74% in the 1970s) followed by manufacturing, retail that each represents about 10% of the GDP (CIA, 2021).

In 2020, The Saudi General Authority for Statistics estimates the country's population to be about 35 million, of which 63% are Saudi nationals and has an annual growth of 2.52%.

About 51% of the population is distributed equally between Riyadh province (central of the country) that has the capital city and Makkah province (western of the country) that is considered the religious capital of the Islamic world and has the Holy Mosque (Kabbah). The Eastern province comes third as it has about 15% of the country's population. The remaining 34% population is distributed between the remaining 10 provinces. In terms of gender distribution, the male population is about 57%, while the female is about 43%.

Culture and Religion Background

Saudi Arabia is the birthplace of the Islamic religion and has the two holiest Islamic sites which are Makkah and Madinah. The government of Saudi Arabia used this religious position to justifies its decision in which Islam is the only religion publicly practiced in the country. When King Abdulaziz unified the country in the 1930s, he agreed with the head of the tribes at the time to establish the Holy Quran and the authentic saying of Prophet Mohammed (Hadith) to be the country's constitution and major sources of all laws. Modern law is welcomed as long as it doesn't contradict both the Quran and Hadith. The Islamic religion formulates most of the people's values that manage their daily life such as financial transactions, family relationships, animal relationships, environmental responsibilities.

Online Shopping Infrastructure in Saudi Arabia

The prosperity of online shopping in a country depends on how well its communication network, security and speed of financial transactions, and logistics system.

Communication Network. Internet is the marketplace in which online shopping exists. Therefore, the success of any online business relies on how well and updated the telecommunication network is, in which buyers and sellers will exchange information. The government of Saudi Arabia, represented by the Communication and Information Technology

Commission (CITC), and the three major private telecommunication companies have developed one of the most advanced telecommunication networks both on mobile and landlines. In 2017, CITC estimated the spending in Information and Communication Technology (ICT) sector to be about $36 billion growing about 4.6% from the preceding year (CITC, 2017). The high spending resulted in an increase of over 500% in the average internet speed in the year 2020 in comparison with the year 2017. The current average mobile speed in Saudi Arabia is about 109.48 Mbit/s, while the world average is about 47.2 Mbit/s. Such ICT infrastructure development led to the spread of the use internet to reach about 97.8% of the population in 2020 (CITC, 2020).

Figure 2

Mobile Internet Speed Growth, KSA Versus Global

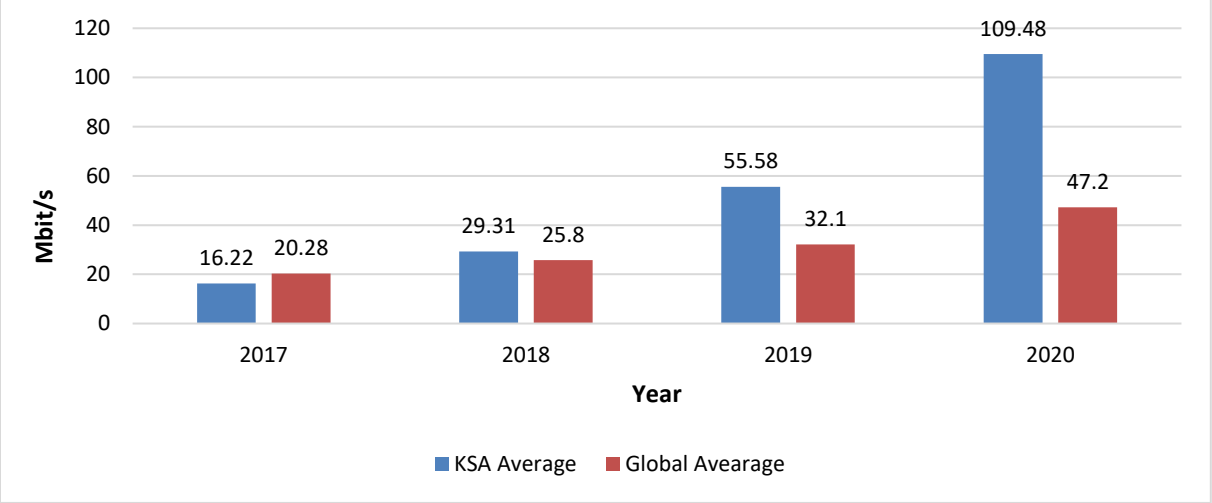


Figure 2 Source: CITC, 2020

Logistics System. Under Vision 2030, developing the logistics sector is a strategic goal towards a non-oil-based economy. Based on Vision 2030, the logistics sector in its broader definition includes importing and exporting broadcasts as well as products' delivery infrastructure for local and international destinations. Vision 2030 stated very clearly that the motive behind this move is the strategic location that the kingdom is the center of the world

connecting the west and the east through land, sea, and air. As result, the government has increased investment to extend its existing roads to reach more rural areas. In 2018, contracts worth 500 million were signed to extend 23 roads. Also, paving the roads to private companies to invest in product shipping resulted in licensing 42 companies to provide delivery to the final customers of which 17 companies have been licensed to deliver to both local and international destinations. Among those major companies are global shipping players such as FedEx, UPS, DHL, and Aramex (National Industrial Development and Logistics Program, 2019).

Financial Transactions. In the last five years, electronic payments went through major development through Sadad payments, Saree, and Mada platforms. Sadad mainly concerns with paying government fees and utilities. Saree is a system that enables instant transfer of money between banks for beneficiaries with maximum possible security. Mada is a system that enables customers to use their bank cards to pay for their needs in both online and local points of sales. In addition to the major international credit cards, electronic payment portals have been established such as Moyasar, Payrfort, Paytabs, and Hyberpay. All these payments portal provides financial facilities for online shopping. In addition to electronic payment portals, Electronic payment applications such as Apple Pay are gaining acceptance momentum. Another application was introduced such as STC Pay, Bayan Pay, and Mada Pay. All provide alternatives for Saudi customers to pay for online shopping.

Customer Satisfaction

In this study, the researcher suggests that improving e-customer satisfaction (the dependent variable of this study) among local retailers operating in the Saudi market would help in improving their overall business and sustain a competitive advantage over global competition. Therefore, this section of the study will shed light on the many advantages that result from

having competent e-customer satisfaction. Perhaps one of the popular definitions of customer satisfaction is the one provided by Oliver (2010)

> the consumer's fulfillment response. It is a judgment that a product/service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under-or over-fulfillment (p. 8).

The above definition indicates that customer satisfaction is a subjective attitude that resulted from a personal judgment that could only be felt after purchasing/consuming a product or service. Therefore, customers must undergo a comparison process between their expectations before purchase and their experience after purchase. Conceptually, customer satisfaction is different than product image or brand commitment. While both product image and brand commitment occur with or without consuming the product/service, customer satisfaction is a result of only the experience that comes after product/service usage (Mittal & Frennea, 2010).

Because of customer satisfaction's influence on a firm's success, scholars such as Keiningham et al. (2015a) suggested that customer satisfaction should be continuously measured to early detect any deviation that might result from not meeting customer expectations in both traditional and online platforms. Mittal and Frennea (2010) could affect business aspects such as higher customer retention and trust. It could isolate customers from competition influence and reduce price elasticity.

Customer Satisfaction and Customer Loyalty

Customer loyalty could be defined as an attitude in which the customer is the willingness to consistently repeat purchases from a particular company despite competitors' efforts to switch or create a marketing influence to attract the same customer (Oliver, 2010). Therefore, having loyal customers is considered invaluable to companies especially in an online format where

almost no personal interaction exists. Customer loyalty is believed to be a major step towards obtaining a competitive advantage (Veloso, 2020).

There are numerous scholarly research that confirm a positive relationship between customer satisfaction and loyalty in both traditional and online platforms. Al-Hawari (2014) surveyed 245 online retail customers in the banking industry and found that customer satisfaction has a significant positive relationship with customer loyalty. The nature of the relationship is that customer satisfaction is an antecedent of customer loyalty and helps in boosting its existence (Al-Adwan et al., 2020; Hidayat et al., 2016).

In Saudi Arabia, Eid (2011) investigated whether an increase in customer satisfaction would be predictable of an increase in customer loyalty within the online platform. The researcher used convenience sampling methods to seek to answer this question among students in one of the universities located in the east part of Saudi Arabia who has engaged in online purchasing frequently. About 235 of the 500 distributed questionnaires were received and analyzed to address the research question. The result indicates that e-customer satisfaction is significantly influencing e-customer loyalty and that 53% of the variance of loyalty is explained by satisfaction.

Customer Satisfaction and Customer Repurchase

Scholarly works have looked at the relationship between customer satisfaction and repurchase intentions. Ha (2012) conducted a longitudinal study with the temporal effect of data collected from 219 online customers within the Korean retail travel industry. The customer lists were provided by commercial firms and each respondent was contacted twice. There was about a 10-12 months' time gap between the first and the second contact attempts. The results of the two contact attempts indicate that satisfaction has a significant impact on repurchase intentions. They

have also found that customers reported a higher repurchase intentions rate the second time, which indicates that the satisfaction effect changes over time. The relationship between customer satisfaction and repurchase intentions has been confirmed to date as a recent study conducted by Rahmatulloh and Melinda (2021) on 70 customers from party rental equipment in Indonesia. The authors concluded that customer satisfaction has a significant positive effect on both repurchase intention and word of mouth.

Customer Satisfaction and Profitability

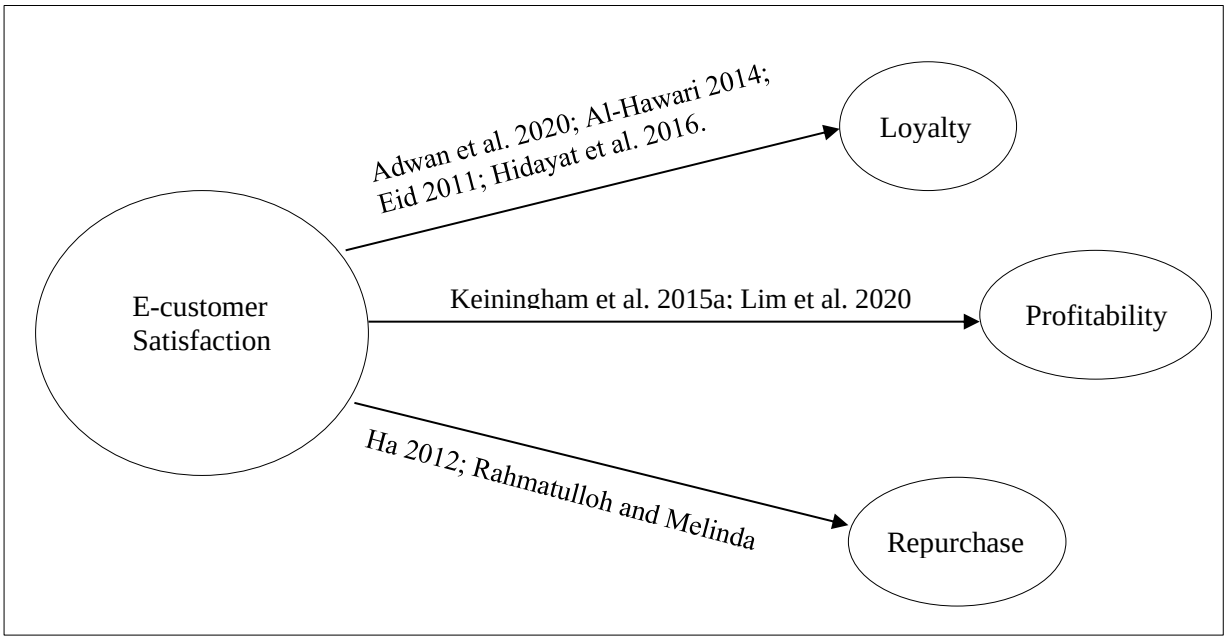
The ultimate goal of a profitable organization is to gain sustainable growing income that leads to sustainable growing profit. Keiningham et al. (2015a) argue that satisfied customers would ultimately lead to a profitable organization. The authors justify their claim using the theory of planned behavior in which satisfaction would lead to a share in customer wallet which will lead to higher revenue and, hence, higher profit. In their analysis, the authors concluded that customer satisfaction could lead to sustainable profitably given that e-tailers understand the "elements of customer experience [that] have measurable, positive downstream consequences" (Keiningham et al., 2015a, p. 279).

One way to improve profitability is by cost reduction. Lim et al. (2020) analyzed data from 128 companies for the last 20 years. Data were collected from public platforms such as the American Customer Satisfaction Index and Standard to obtain customer satisfaction scores & Poor's COMPUSTAT database to obtain accounting data. The authors concluded customer satisfaction has a statistically negative effect on the cost of selling. This means an increase in customer satisfaction is associate with a decrease in the cost of selling and, hence, an increased likelihood of higher profit. The authors noted that this effect becomes weaker in companies that

have larger capital and higher finical leverage. On the other hand, the effect becomes stronger for companies that operate in higher-growth industries and have higher labor dependency.

Figure 3

Scholarly Work Linking Customer Satisfaction to Loyalty, Profitability, and Repurchase.



E-Service Quality

In this study, the researcher suggested that retailers should maintain a consistent and tailor-made e-service quality (independent variable of this study) to ensure competent customer satisfaction within their online business. In general, service quality can be defined as customers' perceptions involving judgment about the firm's overall superiority and related to customer satisfaction, which is a result of comparing customer's expectations and the firm's performance (Parasuraman et al., 1988). In the traditional format, service quality dimensions include responsibility, reliability, tangibles, empathy, and assurance (Parasuraman et al., 1988). These dimensions have been used by scholars to measure service quality within the traditional format. However, the emergence of online shopping in the last two decades stimulated many academics

and professionals to review these dimensions and their validity to fit online customers or as some refer to them e-customers.

Dimensions of E-Service Quality

When online shopping begins in the late 1990s, it was evident that this platform will require different criteria to penetrate more markets and attract more customers. As result, Zeithaml et al. (2002) conducted multiple focus groups to determine service quality dimensions that work better with an online business. The author concluded that those dimensions are access, ease of navigation, flexibility, efficiency, reliability, responsiveness, personalization, security/privacy, assurance/trust, site aesthetics, and price knowledge. A year later, Yoo and Donthu (2001), introduced an instrument to measure service quality within the online platform that contains four dimensions: ease of use, aesthetic design, processing speed, and security. Within the same direction, Wolfinbarger and Gilly (2003), conducted an online survey and reported four dimensions for online shopping: site design, reliability, privacy/security, and customer service. As the online retailing business was shaking, Jun et al. (2004) carried a survey that covered about 260 online customers and concluded that service quality with the retail business could be viewed through six dimensions: reliable/prompt responses, access, ease of use, attentiveness, security, and credibility.

Later, Parasuraman et al. (2005) developed the Electronic Service Quality (E-S-QUAL) scale to measure the service quality within an online platform. The process of developing the E-S-QUAL was academically solid which led to the massive use of this scale within the academic literature. The survey was built and tested on four main constructs: efficiency, system availability, fulfillment, and privacy. The scale has been used and tested in different industries and countries and proven to be valid in those settings. However, even though the scale is

effective in capturing the core e-service quality, the scale appeared unstable when applied in industries that do not include some of the items within the scale's constructs (Yaya et al., 2012). Other researchers claim that E-S-QUAL is not capturing the entire online purchase experience as it focuses solely on the interaction with the website through its interface (Taherdoost & Hassan, 2020).

Table 1

Dimensions of the Major E-Service Quality Scales in Major Studies

Researchers	Scale Title	Methods	Dimensions
Yoo and Donthu (2001)	SITEQUAL	Open-ended questions + Sample 69 students	Ease of use, aesthetic design, processing speed, and security
Zeithaml et al. (2002)		Mixed Methods – Focus group	Access, ease of navigation, flexibility, efficiency, reliability, responsiveness, personalization, security/privacy, assurance/trust, site aesthetics, and price knowledge.
Wolfinbarger and Gilly (2003)	ETaliQ	Online and offline focus groups	Site design, reliability, privacy/security, and customer service.
Jun et al. (2004)		Survey – Sample 228 participants	Reliable/prompt responses, access, ease of use, attentiveness, security, and credibility.
Parasuraman et al. (2005)	E-S-QUAL	Online Survey – Sample 549 participants	Efficiency, system availability, fulfillment, and privacy
Kassim and Abdullah (2010)		Survey – Sample 357 participants	Ease of use, website design, responsiveness, Customization, assurance.
Al-Dweeri et al. (2017)		Sample: 302 students from the University of Jordan	Efficiency, privacy, customer service
Vajrapana (2019)	VESQS	Mixed – 8 Focus Groups 2 Pilot Tests Sample 627 Respondents	Information Quality, Customer Service, Delivery System, Privacy Protection (Security), Multidevice Compatibility, Omni-channel, and Return Process

One of the most recent and comprehensive e-service quality scales is the one developed by Vajrapana (2019), which measures the quality of e-service as perceived by online shoppers. Vajrapana e-service quality scale (VESQS) was built through careful analysis of the existing e-service quality scale followed by eight qualitative focus groups to ensure that online shoppers agree on the emerging components. Then, Vajrapana (2019) carried quantitative analysis to test for the validity and reliability of the emerging components. The author found that a good e-service quality should include information quality, privacy protection, delivery system, return process, customer service, multi-device compatibility, and omni-channel. In the current research project, the Vajrapana (2019) e-service quality scale will be employed to explore participants' perceptions.

The Relationship between VESQS Components and Customer Satisfaction

Information Quality and Customer Satisfaction

Online Shopping is a form of e-commerce in which customer lacks physical interaction with the product and take buying decision through information obtained from the product/service webpage. Therefore, the role of information quality provided by sellers is essential in reducing ambiguity and assisting customers to finalize their buying decision. Information Quality is expected to help customers minimize product selection errors and help sellers reduce processing costs (Maditions & Theodoridis, 2010). This is consistent with the theory of reasoned action in which intent and rational decisions are based on the information available to them at that time, and intent is the best predictor of humans' behaviors (Ajzen & Fishbein, 1980).

Earlier in this chapter, I adopted the definition of customer satisfaction as when expectation matches or exceeds actual experience from the customer perspective. The information provided by sellers within the online platform plays a major role in shaping those

expectations. Since the rise of online shopping, scholars warrens that information quality is one of the most significant factors in determining customer satisfaction status. Park and Kim (2003) surveyed 602 participants who shop from an online bookstore in Korea to test several hypotheses including the relative effect of information quality as well as user interface and security perception on customer satisfaction. The researchers found that 39% of the variance in customer satisfaction is explained the three aforementioned factors ($R^2 = .39$, F-value = 95.23, $p < .001$). However, the relative effect of information quality differs when it is for products from service. The product information quality effect on satisfaction was more ($\beta = .30$, $p < .001$) than service information quality ($\beta = .11$, $p < .001$). therefore, the author concluded that "in searching and purchasing, product information quality is a critical feature that affects the consumer" (Park & Kim, 2003, p. 25).

Moreover, Vajrapana (2019) stressed that information quality is one of the most important dimensions of e-service quality as it occurs before the purchase process when customers have not decided to close the purchase yet with the current seller. However, when the researcher surveyed 627 online shoppers in the united stated concluded that information quality was not significantly related to customer satisfaction. The author attributed this result to the possibility that information quality by itself is not enough to influence customer satisfaction. This explanation is consistent with Bauer et al. (2006) that information quality should not be viewed in isolation, but rather should be viewed as part of the whole website functionality and design.

On the other hand, Eid (2011) surveyed about 235 participants in Saudi Arabia, the research site of this study, to explore the effect that information quality has on customer satisfaction. The result indicates that e-customer satisfaction is significantly influenced by

information quality ($\beta = .30$, $p < .005$). The author stated that about 62% of the variance in customer satisfaction is explained by both information quality and user interface quality.

Customer Service and Customer Satisfaction.

Customer service is all activities that aim at supporting customers to address their inquiries and resolve their issues (Khrais & Alghamdi, 2021). When customer service is proactive, it could have tremendous benefits, such as increasing employee productivity and reducing customer wait time (Delana et al., 2021). Over the past three decades, the introduction of the internet has led to changes in tools with which customers could interact with the retailer for customer service issues. Those new tools include emails, social media platforms, mobile device applications, and webchat. Of all of those tools, webchat is the customer service tool that is gaining popularity and is favored by online retailers because of the economical benefits of virtual webchat (Lockwood, 2017). However, researchers warrant that webchat might increase customer frustration and should be used with caution (Xu & Lockwood, 2021).

The linkage between customer service and customer satisfaction within the online platform was addressed in some studies. McLean and Ose-Frimpong (2017) collected 302 usable surveys from mobile phone customers to investigate the role of customer service provided by live chat on customer satisfaction. The authors concluded that there is an influence possessed by customer service on customer satisfaction, but that depends on many moderating factors such as the purpose of the call, the presence of a customer service representative picture, and the presence of time estimates to connect with a service representative.

Moreover, Vajrapana (2019) stated that customer service in the online platform mandate that service representatives should be well trained to address problems that arise promptly. Based on multiple focus groups, the author found that customer service should be a standalone

construct within optimal e-service quality. In a sample of about 627, the author found that customer service has a significant positive effect on customer satisfaction and that 23.5% of the variance on customer satisfaction is explained by customer service. The author concluded that "the better customer service a site provides, the less likely customers will switch to other sites" (Vajrapana, 2019, p. 57).

Delivery System and Customer Satisfaction.

The delivery system is a crucial part of online shopping as it could jeopardize all the efforts and value created by E-tailers. Thus, reliable delivery increases customer satisfaction and helps in customer repurchase intentions (Lin et al., 2010). This dimension is classified within the post-purchase phase of the online shopping process. The problem within this dimension is not only limited to late product delivery, but it includes sending the wrong item or damaged products (Wolfinbarger & Gilly, 2003). Nowadays, customers are experiencing the shortest delivery time ever as it reached as low as same-day delivery for certain retail industries. The delivery system is much more complex than what it might indicate as it might include many aspects such as service variety, product availability at the time of order, response time from placing the order to the shipping of the product, and component tracking system (Chopra, 2004).

The relationship between the delivery system and customer satisfaction has been given great consideration by researchers due to its importance to the overall online shopping experience. Wahab and Khong (2019) examined this relationship among 384 online shoppers living in Kuala Lumpur, Malaysia. The researchers found that system delivery has an effect on customer satisfaction from its response time aspects quality ($\beta = .10$, $p < .001$). However, the aspects of service variety, product availability, and tracking capabilities were found to be not statistically significant within this sample.

Privacy Protection (Security) and Customer Satisfaction.

Privacy protection is defined as buyers' perceptions of how well their personal, private, and financial information is protected from reaching unauthorized people (Parasuraman et al., 2005). When conducting online transactions, customers must share their payment method information, address, and sometimes date of birth to finalize the online transaction. In many studies, privacy protection was found to a major component of e-service quality (Parasuraman et al., 2005; Vajrapana, 2019; Wolfinbarger & Gilly, 2003; Zeithaml et al., 2002). When customers trust the e-tailer they are using for online shopping is taking adequate measures to protect their information, they most often will continue to use the same website.

Multidevice Compatibility and Customer Satisfaction.

For a long time, the only way to engage in online shopping was through a personal computer. In recent years, mobile devices such as smartphones and tablets sparked the evolution of the mobile shopping era. It is estimated that in the year 2020, 45% of U.S. commerce was made using a mobile device (Meola, 2020). Grob (2020) defines mobile shopping as "the practice of browsing for goods or services using mobile devices connected to both retailers and marketers by mobile (wireless) network technologies" (p. 51). Using a mobile device for online shopping is not limited to finalizing transactions, but many use mobile devices before and after purchasing (Singha & Swait, 2017). Therefore, e-tailers should ensure that their sites are flexible enough to accommodate different connectivity to enhance customer experience (Bilgihan et al., 2016).

Vajrapana (2019) conducted multiple focus groups seeking themes for building the VESQS. Multidevice connectives had the least attention from participants. However, the author anticipated that this device would begin to attract more attention in the future and would be a

major determinant of e-service quality. Therefore, the author included this dimension in the VESQS. Later, Vajrapana (2019) surveyed 627 online shoppers in the U. S. to explore the relationship between multidevice compatibility and customer satisfaction and found that there is a significant positive relationship between the two variables ($p < .001$). Based on the EFA analysis conducted by the researcher, multidevice compatibility had the highest eigenvalue (11.08) and accounted for 30.79% of the variance.

Omni-Channel and Customer Satisfaction.

Leavy et al. (2013) define omni-channel as "a coordinated multichannel offering that provides a seamless experience when using all of the retailer's shopping channels" (p. 67). Through the adoption of an omni-channel approach, customers could order anytime from anywhere, choosing a physical store or online shopping, using a desktop or mobile device, and the product could be delivered to the customer's address or picked up from the physical store. The definition pertains that omni-channel is actually multiple retail channels that act and are perceived as one from the customer perspective. Such unity mandates that information provided through multiple channels should be the same across all channels, leading to customer satisfaction through improved customer experience (Shankar et al., 2011).

There is limited research linking omni-channel to customer satisfaction. Vajrapana (2019) looked at this relation in mixed-method research. Participants in the focus groups method point out that omni-channel should be the main construct in developing an e-service quality scale. This was confirmed by surveying 627 online shoppers and carrying EFA analysis in which omni-channel has the second-highest score with an eigenvalue of 3.9, and it accounted for 10.84% (Cronbach's alpha =.93). However, the researcher found no significant relationship

between omni-channel and customer satisfaction. Instead, omni-channel was found to have a significant positive relationship with customer loyalty ($p < .001$).

E-Service Quality and Customer Satisfaction in Saudi Arabia

This study proposes to explore the ability of e-service quality to relatively influence customer satisfaction within the Saudi electronic and small appliances market. The researcher argued that if Saudi traditional retailers manage to improve their e-service quality, it will enable them to improve customer satisfaction, which will help them create a barrier to entry and compete effectively against any new rivals (Malibari, 2020). Baabdullah and Ansari (2020) surveyed 212 Saudi citizens engaging in online shopping and concluded that customer satisfaction is a major determinant of online shopping continuity.

In Saudi Arabia, there are very few studies conducted to investigate the relationship between the above variables within online shopping with no emphasis on any product categories. Shared (2018) surveyed 250 online shoppers residing in Riyadh, Saudi Arabia, to investigate the effect of e-service quality on customer satisfaction. This study identified service quality through four broad categories: website content, ease of use, security, and efficiency. The study found that there were significant relationships between all of the e-service quality dimensions and customer satisfaction ($p < .001$). The study also found that customer satisfaction plays a mediating role in increase purchase intentions ($r = .57$, $p < .001$).

Another study is conducted by Eid (2011) investigated the mediating role played by customer satisfaction when e-service quality is relatively influencing customer loyalty within online shopping platforms. The e-service quality used in Eid's study includes: perceived user interface quality, perceived information quality, perceived privacy, and perceived security. The researcher used convenience sampling methods to address the research hypotheses from students

in one of the universities located in the east part of Saudi Arabia who has engaged in online purchasing frequently. About 235 of the 500 distributed questionnaires were received and analyzed to address the research questions. The result indicates that e-customer satisfaction is significantly affected by perceived user interface quality ($\beta = .18$, $t = 2.55$, $p < .01$) perceived information quality ($\beta = .30$, $t = 3.3$, $p < .005$). As for perceived privacy and perceived security, the study found that both had no significant relationship with customer satisfaction.

Chapter Summary

In this chapter, the researcher provided a review of the literature that is relevant to the research project's variables and setting. Based on previous scholarly work, e-service quality has some sort of influence on e-customer satisfaction (Bauer et al., 2006; Keiningham et al., 2015a; Parasurman et al., 2005; Swaid & Wigand, 2009; Vajrapana, 2019). However, it is important for e-tailers serving the Saudi electronics and small appliances market to know that this relationship also exists among Saudi adult residents. The researcher found no prior research conducted in the Saudi electronics and small appliances market. Eid (2001) and Shared (2018) were the only two studies investigating the perceptions of Saudi residents, but they were not industry-specific and covered online shopping in general.

In addition, e-tailers need to know which components of their applied e-service quality system have relatively a greater influence and need more attention (Keiningham et al., 2015a). Both Eid (2001) and Shared (2018) used an e-service quality scale that covers part of the major determines of e-service quality. This research project will be utilizing VESQS developed by Vajrapana (2019), which covered far more constructs and used mixed methods to reach those constructs that address online shoppers' concerns and needs.

In the following chapter, the researcher will illustrate the methodology implemented in this study. The research methods, population, sampling, data collections, and instrumentation will be covered in detail.

Chapter 3: Research Methodology

The purpose of this quantitative study, which utilized a non-experimental, correlational predictive design, was to evaluate the association between the components of e-service quality measured by the VESQS as they are perceived by Saudi Arabian adults as well as the levels of satisfaction experienced by these adults in relation to the online retailer from which they purchased their electronics and small appliances. The study also sought to determine to what extent VESQS e-service quality components, as a group and independently, predict e-customers' satisfaction. The purpose of this chapter is to describe the methodology used in this research project.

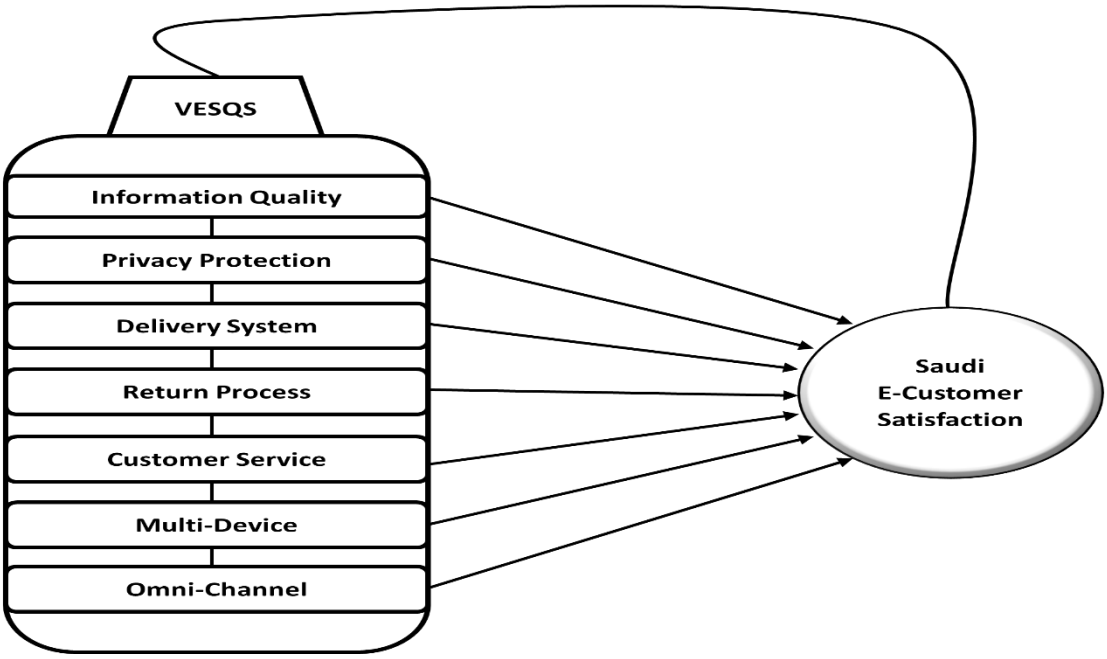
Research Design and Rationale

As illustrated in Chapter One, this study aims to address a problem facing local traditional retailers operating from Saudi Arabia in which online platforms are increasingly becoming widespread and require a better understanding of the behaviors guiding customers' buying decisions. This study adopted the VESQS conceptual framework developed by Vajrapana (2019) that suggests that e-tailers who maintain higher e-service quality are able to influence e-customer satisfaction, which helps in better addressing the increasing competition in online shopping. The VESQS model consists of seven components (variables): information quality, privacy protection, delivery system, return process, customer service, multi-device compatibility, and omni-channel. Therefore, this study's objective is to explore the relative predictive relationship between the VESQS e-service quality components (independent variables) and the satisfaction of online shoppers purchasing electronics and small appliances (dependent variable) located in a particular setting (i.e., Saudi Arabia) as well as the linear correlation between these variables, as measured by VESQS. As the research variables were previously identified and the

researcher was not looking for additional exploration of other variables, the researcher selected a quantitative design to collect the necessary data for this study. Unlike a qualitative design, the quantitative design is suggested to be used with conceptual frameworks that have predefined variables and when seeking to reach broader inferences using statistical analysis (Creswell & Creswell, 2018; Leavy, 2017).

Figure 4

The Study Tested Predictive Relationships.



Based on the framework presented in Figure 4, the researcher formed the following questions to address the research problem.

RQ1. What, if any, relationship exists between e-service quality measured by VESQS, at the overall and components levels, and e-customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

RQ2. What, if any, predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer

service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both independently and as a group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

Subsequently, the following hypotheses were created:

H1a: A statistically significant relationship exists between e-service quality measured by VESQS, at the overall and components levels and customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping for electronics and small appliances.

H2a: A statistically positive and significant predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both independently and as a group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances.

In addressing the research questions, it was necessary to evaluate the extent of the relationships between the relative strength of each measured e-service quality component individuality (seven independent variables), overall e-service quality, and overall customer satisfaction of the online shoppers (i.e., dependent variable) located in Saudi Arabia. In addition, an attempt was made to assess which of the measured e-service quality components better predicted the overall customer satisfaction of the Saudi Arabian online shoppers.

Within the quantitative design, a non-experimental, correlational, predictive research model was selected because it is capable of "measuring variables and testing relationships between variables in order to reveal patterns [and] correlations" (Leavy, 2017, p. 9). The non-experimental aspect of this research indicates that the relationship investigated is not cause-and-

effect but the relative degree and direction between a set of measured variables within a social context. The strength of the relationship will be assessed through the use of a correlation analysis, while regression will be used to assess the prediction capabilities of the independent variables (Howell, 2017).

The quantitative research design for this study involved using a survey questionnaire. The use of a survey helps to collect data and generates statistics from large samples to "describe and measure the degree or association (or relationship) between two or more variables or set of scores" (Creswell & Creswell, 2018, p. 12). The information from the participants was obtained once and within a limited established timeframe, as will be described later in this chapter.

Research Paradigm

The philosophical framework for this study, which is consistent with the researcher's perspective, relies on the postpositivism approach because it aligns with the research purpose and methods. According to Leavy (2017), similar to positivism, postpositivism adopts several notions about the essence of knowledge and the nature of reality. Ontologically, postpositivists consider that the researcher's objectivity is crucial to the true outcome, without influence or bias. However, unlike positivists, postpositivists believe that absolute truth is difficult to acquire and that it is not possible to "conclusively prove" the hypothesis of a study (Leavy, 2017, p. 92). Epistemologically, postpositivism accentuates the value of using a scientific method to acquire true knowledge using empirical evidence and measurements. The methodology of postpositivism takes on a deductive and highly structured approach by utilizing scientific methods, statistical analyses, and systemic observations to understand reality (Creswell & Creswell, 2018; Leavy, 2017). In the current study, the researcher will use quantitative methods to collect and analyze data obtained from adult participants residing in Saudi Arabia regarding their perceptions of their

experiences purchasing electronics and small appliances from an online retailer and compare them with their customer satisfaction scores obtained via a questionnaire. Simple and multiple regression analyses will be applied to determine the predictive relationship among the research variables.

Research Setting (Saudi Arabia)

The study was conducted within Saudi Arabia, which is also known as the Kingdom of Saudi Arabia (KSA). The KSA is an Arabian country located in Southwest Asia and is part of the Middle East region. The Kingdom is divided into 13 provinces, which are further divided into 118 governorates through which local affairs are administered (CDSI, 2010). For many decades, the economy of Saudi Arabia has depended heavily on oil revenue as the government has full ownership of the country's oil fields, and oil revenue leads to major economic activities. The country's 2020 budget revealed that oil represented about 44% of the country's GDP (down from about 74% in the 1970s), followed by manufacturing and retail, which each represent about 10% of the GDP (CIA, 2021).

In 2020, the Saudi General Authority for Statistics estimated the country's population to be about 35 million, of which 63% were Saudi Arabian nationals and has an annual growth of 2.52%. About 51% of the population was distributed equally between the Riyadh province, which contains the capital city, and Makkah province, which is considered the religious capital of the Islamic world and contains the Holy Mosque (Kabbah). The Eastern province contains about 15% of the country's population. The remaining 34% of the population is distributed between the remaining 10 provinces. In terms of gender distribution, the male population equals about 58% of the country's total population, while the female population makes up the other 42% (Saudi General Authority for Statistics [SGAS], 2021).

Study Population and Sampling

The participants of this study were limited to adults (18 years of age or older), male and female, who live in any region of Saudi Arabia, and have, at least, completed one transaction over the internet to buy electronics and small electrical appliances products.

In 2020, the above population was estimated at about 25.2 million individuals, or 72% of the country's population (GAS, 2020). Of this figure, it has been estimated that about 16 million people engaged in online shopping in 2020 (Statista, 2021). However, this figure represents all types of online shopping, including product categories that are not included in this study. Due to a lack of reliable statistics, it is not possible, and perhaps not necessary, to report the exact number of online shoppers who have purchased products from the categories covered in this study. The researcher considered that the invitation letter/message and demographic questions were sufficient to filter out those respondents not within the aim of this study's scope. According to the Rasoft® sample size calculator, the sample size would not change much for a population larger than 20,000 people, as will be explained in the next paragraph.

This study utilized a non-probability, convenience sampling method "in which [the] respondents are chosen based on convenience and availability" (Creswell & Creswell, 2018, p. 150). Using the Rasoft® sample size calculator, a sample size of 383 participants had a 5% margin of error and 95% confidence level for a population of 100,000 people and a 50% response distribution.

In order to calculate the minimum number of participants needed for correlation and multiple regression analyses, the researcher conducted a G*Power analysis using multiple predictors: calculated H1 p^2 .092, an alpha level of .05, and a minimum power of .95 (Cohen, 1988). The results indicated that 277 participants were needed to run the multiple regression test.

The survey was launched on October 1, 2021, and remained open for four weeks. The actual sample size was 658 usable responses, which represented a 99% confidence level.

Table 2

Research Setting Summary (Saudia Arabia)

Item	Description
Location	Southwest Asia, the Middle East, the Arab region
Divisions	13 provinces, 118 governorates
Country population	35+ million, 63% nationals, 57% male, 43% female, 72% 18 years old
Population language	Mainly Arabic; English is widely spoken in major cities
Population study criteria	Adult (18+), male and female, Saudi residents (local and foreign), have engaged in at least one online shopping experience from their residence in Saudi Arabia to buy electronics or small appliances
Study population	100,000 adults
Minimum sample size	277 participants (Based on G*Power)
Maximum sample size	660 participants (Based on 99% confidence level)
Target sample size	383 participants (Based on 95% confidence level)
Actual sample size	658 participants

Instruments and Measures

When selecting the research instruments for a study, the researcher must ensure that they are able to address the research questions (Kim, 2009) as well as comply with the theoretical framework (Hagan, 2014). The current study intended to explore the predictive ability of e-service quality (independent variable) on customer satisfaction (dependent variable). As illustrated in Chapter Two, several researchers have developed scales to measure e-service quality and customer satisfaction. For example, Vajrapana (2019) developed one of the most recent and

comprehensive e-service quality scales (VESQS). To develop this scale, the researcher, first, reviewed previous literature and created the first version of the VESQS. Second, multiple focus groups were used to review the factors included in the scale, which resulted in a second version of the VESQS. Third, the scale was validated using a pilot survey and another survey was carried out to ensure that the scale was reliable and measured its constructs consistently. Due to its holistic design and rigorous development, the current study utilized the VESQS to measure the e-service quality (independent variable) and customer satisfaction (dependent variable) within the Saudi electronics and small appliances sector.

In addition to the VESQS, a small general questionnaire was used to obtain the demographic data of the study's participants, including gender, level of education, age group, regional location, and major e-tailer. The respondents who evaluated retailers from sectors other than the Saudi Arabian electronics and small appliances sector were removed from the final study population.

Vajrapana Scale

The full version of Vajrapna scale contains 76 items grouped into four main parts, which measure e-service quality (VESQS), e-customer satisfaction (VCSS), e-perceived value (VEPS), and e-loyalty (VELS). In this study, the researcher argues that maintaining competent e-customer satisfaction would be a great contributor to improving Saudi Arabian retailers' competence within the country's electronics and small appliances sector. As discussed in Chapter Two, one way to relatively influence e-customer satisfaction is to improve e-service quality. Therefore, only the first two parts of Vajrapna scale were employed (i.e., e-service quality, e-customer satisfaction). The total number of items for those two parts was 43: 38 items for e-service quality and five items for e-customer satisfaction. The 38 items within the e-service quality section were

used to measure seven factors: information quality (IQ), customer service (CS), delivery system (DS), privacy protection (PP), multidevice compatibility (MD), omni-channel (OC), and the return process (RP).

The VESQS uses a 5-point Likert scale in which the participants could choose from full disagreement all the way to full agreement to respond to an item (phrase) based on their most recent online purchase experiences. The sum of the numerical values relevant to each of the 38 items in the VESQS were used to determine the overall e-service quality score as perceived by the participants. To control for acquiescence bias, items 11 and 38 required the respondents to choose "disagree" as an answer. The respondents who did not choose "disagree" were removed. Items 39 to 43 measured how satisfied the respondents were with the evaluated e-tailers (i.e., 5 - full satisfaction, 1 – full dissatisfaction).

According to Vajrapana (2019), the VESQS was tested on 627 respondents and demonstrated to have acceptable internal consistency and validity. The internal consistency of the survey's subscales was also determined to be between .866 and .942 Cronbach's alpha for all of the seven e-service quality tested factors (Vajrapana, 2019). As for the e-customer satisfaction section, the Cronbach's alpha was reported at .916 (Vajrapana, 2019).

In addition to the English version, the current study employed an Arabic version of the VESQS that was translated and culturally adapted under the supervision of the researcher. The translation process was conducted following the guidelines presented by Beaton et al. (2000) using the back-translation technique. The main goal of this method was to achieve both content and semantic equivalence between the Arabic and English language versions of the scale. The forward translation was performed by two bilingual experts, and the backward translation was

performed by one professional translator and one graduate student, both of whom are fluent in Arabic and English. The translation process was conducted in the following order:

1. Two bilingual experts translated the items from English to Arabic. The first translator was a Saudi Arabian dentist, while the second translator was a Saudi Arabian university lecturer and online business owner. They translated the VESQS without communicating with each other.
2. Next, one graduate student and another professional translator who did not have any no previous knowledge of the VESQS were asked to do the backward translation from Arabic to English.
3. The two English versions were reviewed by a Saudi Arabian bilingual expert for a comparison and equivalency check, which then informed the development of the last draft. Minor changes were made to the Arabic version based on consensus during an organized zoom meeting between the Arabic translators and Saudi Arabian bilingual experts.

Data Collection

Prior to the data collection phase, the researcher secured a confirmation to use the VESQS survey in the current research project (Appendix A). In addition, permission was obtained from the institutional review board (IRB) at the University of the Incarnate Word to conduct the survey (Appendix B).

The participants for the survey were invited to participate via social media applications. The invitation included the study's objectives, assertions of confidentiality, instructions regarding the completion of the survey, consent form, and online link to the Qualtrics^{XM} survey platform (Appendices C & D). The survey page contained the researcher's contact information

for the participants to use if they had questions about the survey's instruments or the study. Prior to completing the survey, the participants were asked to sign an electronic consent form. Thereafter, they were able to access the questionnaire for up to four weeks (i.e., the study period). The participants were able to save their responses and resume the survey at a later time.

Social Media as a Recruiting Tool

As indicated above, social media platforms were chosen to invite participants to fill the survey and began collecting the data needed for this study. This choice was consistent with the participants' criteria illustrated in Table 2. The aim of this study involves exploring the perspectives of the participants regarding some of their online activities (i.e., online shopping). Therefore, it was expected that the availability of the target participants would be high on social media platforms, especially as social media is becoming the new advertisement tool for retailers (Balakrishnan et al., 2014; Voorveld et al., 2018). The main two social media platforms used were WhatsApp and Twitter. The researcher selected these two platforms due to their high usage rates in Saudi Arabia: 28+ million WhatsApp and 25+ million Twitter users of all age groups in Saudi Arabia (Global Media Insight [GMI], 2021). These figures make Saudi Arabia the largest social media community in the Middle East (GMI, 2021). In recent years, many academics have increasingly begun to utilize social media platforms to collect data for their studies, such as Al-Ghraibah, 2020; Alreshaidan, 2016; Salem & Nor, 2020.

Instagram, YouTube, and Facebook are also used in Saudi Arabia (Global Media Insight, 2021). However, they are not as suitable for this study as WhatsApp and Twitter because Instagram and YouTube are not user-friendly when conducting a survey that contains a consent form and survey link and Facebook was not as attainable and accessible to the researcher as

WhatsApp and Twitter. Therefore, this research was limited to WhatsApp and Twitter platforms for recruiting participants for this study.

The researcher sent the survey invitation to all of his Saudi Arabian WhatsApp contact list members and asked them to fill out the survey and pass the message on to their own WhatsApp contact lists. In addition to the researcher's WhatsApp contact list, the researcher recruited people from different Saudi Arabian regions and asked them to send the survey to their WhatsApp group lists that reside in the same region to improve the diversity of the survey. As for the Twitter platform, the researcher used multiple Saudi Arabian influential Tweeters to promote two tweets, one in Arabic and the other in English, that contained brief invitation messages and links to the survey.

There were 1,735 clicks for the Arabic version of the survey. As indicated in Figure 5, 1,171 came via the Twitter platform and 564 were assumed to have come from the WhatsApp platform. The invitation message appeared in the Twitter timeline of more than 180,000 tweeters. However, only about 2% of those tweeters (i.e., 2,921 users) engaged with the invitation message, and about 1% of the 180,000 tweeters clicked on the link. As expected, the Twitter platform represented a powerful tool by which to access the target population.

As for the English version of the survey, 153 clicks came from the distributed link. Figure 6 shows that only 21 of those clicks came from the Twitter platform, which means that the remaining 132 clicks came from the WhatsApp platform. Unlike the Arabic invitation message, the English invitation message was not promoted by English-speaking Tweeters. Thus, the majority came from the WhatsApp platform. The English invitation message appeared in the timeline of about 18,000 tweeters. However, less than 1% of those tweeters, 80 users, engaged with the English invitation message, and about 0.12% of the 18,000 tweeters clicked the link.

Figure 5

Twitter Activity Related to the Arabic Invitation Message

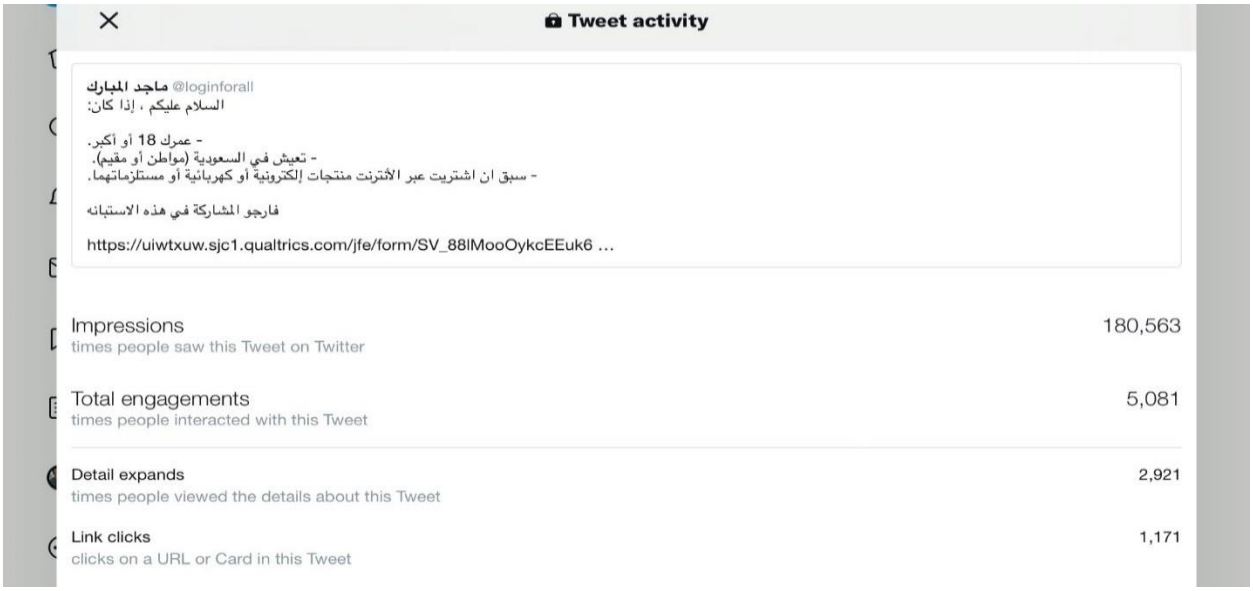
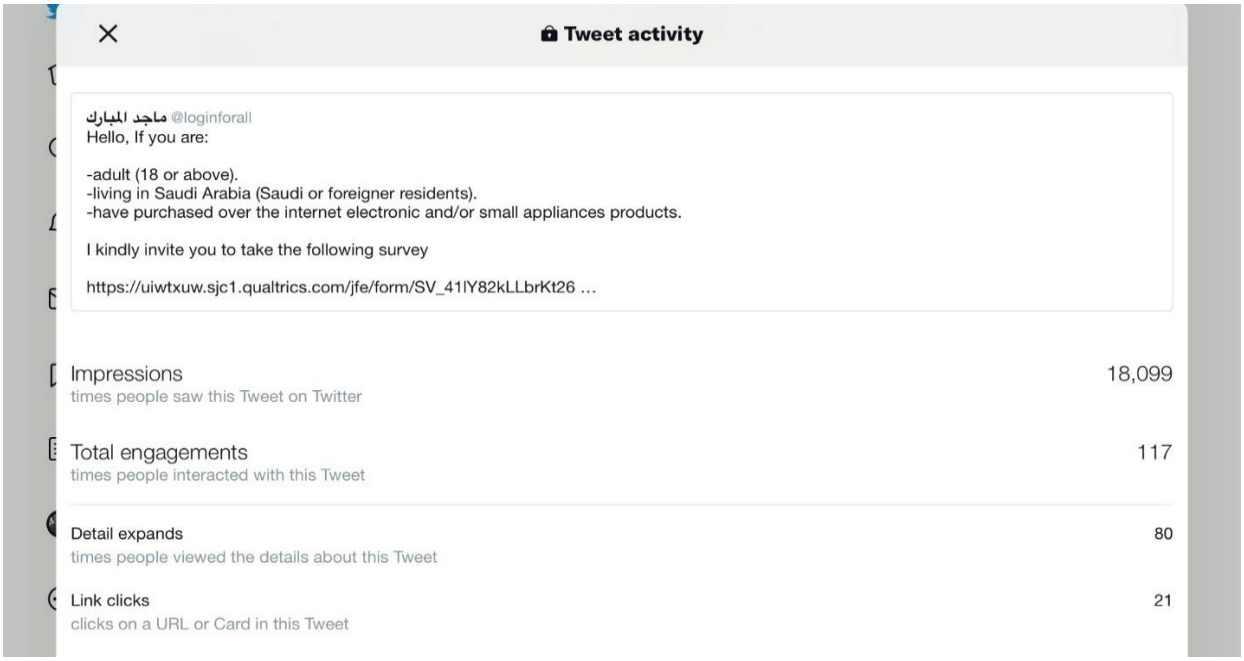


Figure 6

Twitter Activity Related to the English Invitation Message



Data Analysis

First, the researcher downloaded the participants' data from Qualtrics^{XM} into SPSS® version 28. Then, the data were checked to ensure that each participant fit the research criteria, which were as follows:

1. Age criterion: the participant is 18 years old or above.
2. Population criterion: the participant is living in Saudi Arabia.
3. Analysis criterion: the participant's data is not missing any of the study's variables.
4. Filtering questions criterion: Participants had correctly answered the filters questions.
5. Research setting criterion: the evaluated e-tailer serves the Saudi electronic and home appliances sector.

Qualtrics^{XM} indicated that the Arabic version of the survey had 1,735 responses. However, 146 of the responses were removed because they failed to pass the consent form stage. After checking the data for the above criteria, another 14 responses were removed as they did not meet the full study criteria. To control for population fitness, the research instrument included a demographic question to identify the location of the respondents. As a result, 31 responses were removed as the respondents were not members of the research population. Another 704 responses were removed as they were completely missing the dependent variable. Moreover, the instrument contained two filter questions in which the respondents were directed to select a specific answer to control for the authenticity of the answers. An additional 199 responses were removed because the respondents did not pass this test. Finally, 18 responses were removed since

the respondents evaluated e-tailers from sectors other than the Saudi Arabian electronics and home appliances sector.

Table 3

The Final Numbers of Respondents Received via the Arabic Version of the Survey.

Item	Responses Removed	Total Sample
Number of responses	0	1735
Did not sign the consent form	146	1589
Age criterion	14	1575
Population criterion	31	1544
Analysis criterion	704	840
Filtering questions criterion	199	641
Research setting criterion	18	623
Final responses of the Arabic version	0	623

Qualtrics^{XM} indicated that the English version of the survey had 153 responses. However, 85 responses were removed because they did not pass the consent form stage. Another 22 responses were removed as they were completely missing the dependent variable. As indicated earlier, the instrument contained two filter questions in which the respondents were directed to select a specific answer to control for the authenticity of the answers. Ten responses were removed because they did not pass this test. Finally, one response was removed because the respondent evaluated an e-tailer from a sector other than the Saudi Arabian electronics and home appliances sector.

Table 4

The Final Numbers of Respondents Received via the English Version of the Survey

Item	Responses Removed	Total Sample
Number of responses	0	153
Did not sign the consent form	85	68
Age criterion	0	68
Population criterion	0	68
Analysis criterion	22	46
Filtering questions criterion	10	36
Research setting criterion	1	35
Final responses of the English version	0	35

Descriptive Analysis

Using SPSS, the researcher generated descriptive data on the demographic characteristics of the participants, as well as the factors that were evaluated in relation to e-service quality. Chapter Four of this study will include the descriptive statistics that were generated as well as the test-based assumptions and inferential statistics. For the purpose of addressing the research questions and hypotheses, the researcher performed simple and multiple regression analyses. An alpha level of .05 will be used for all analyses.

Simple Regression

For RQ2[1] and hypothesis at the overall VESQS level, a simple regression analysis was performed to evaluate the ability of the overall e-service quality to predict the e-customer satisfaction related to the Saudi Arabian adult shopping online for electronics and small appliances as well as illustrate the independent variables' predictive power. The simple regression model is as follows:

$$\hat{Y}_{\text{e-Customer Satisfaction}} = \beta 0 + \beta 1_{\text{Overall e-service quality score}}$$

In addition to the relatively larger sample size, the assumptions of linearity, outliers, normality, homoscedasticity, and independence of observation were checked prior to performing the regression analysis (Tabachnick & Fidell, 2013). A simple regression analysis requires the use of one continuous dependent variable and one continuous or categorical independent variable. The questionnaire's items relevant to e-service quality were summed and averaged for use in the model. The overall e-service quality score was used to evaluate how much of the customer satisfaction variance could be explained by the overall e-service quality.

Multiple Regression

For RQ2[2] and hypothesis at VESQS component level, a multiple regression analysis was performed to evaluate the ability of each of the seven e-service quality factors in predicting the e-customer satisfaction of the participants and illustrate the independent variables' predictive power. The multiple regression model is as follows:

$$\hat{Y}_{\text{e-Customer Satisfaction}} = \beta 0 + \beta 1_{IQ} + \beta 2_{CS} + \beta 3_{DS} + \beta 4_{PP} + \beta 5_{MD} + \beta 6_{OC} + \beta 7_{RP}$$

In addition to the relatively larger sample size, the assumptions of linearity, outliers, normality, multicollinearity, homoscedasticity, and independence of observation were checked prior to performing the multiple regression analysis (Tabachnick & Fidell, 2013). A multiple regression analysis requires the use of one continuous dependent variable and two or more continuous or categorical independent variables. The questionnaire's items relevant to each e-service quality factor were summed and averaged independently to be used in the model. Each averaged e-service quality component score was used to evaluate how much of the e-customer satisfaction variance could be explained by the seven e-service quality components.

Ethical Considerations

To comply with ethical considerations, the researcher completed the basic Collaborative Institutional Training Initiative program. Prior to the data collection process, the researcher received permission from the IRB at UIW. The participants were asked to sign an electronic informed consent form that contained information concerning the study's objectives, participant's voluntary contribution, participant's potential risks, and participant's right to withdraw from the study at any time. The participants were reassured that their anonymity and confidentiality would be protected and that the study would not include any personally

identifying information. During the data collection process, the researcher stored the data in a secure, password-protected document.

Limitations

The findings of this proposed study should be considered with its limitations. One major limitation is that the study utilized a quantitative, non-experimental, correlation design, which limited the ability of the researcher to explore deeper insights regarding the respondents' answers. The design did not enable the researcher to answer ‘why questions’ regarding the nature of the relationship between e-service quality and e-customer satisfaction.

Moreover, the research design employs a convenience sampling method from participants residing in Saudi Arabia who have shopped for electronics and small appliances. Thus, the findings cannot be generalized to all types of retail business, such as fashion and furniture.

Another limitation is that the respondents were asked to assess their recent purchase experiences. However, it can be assumed that other experiences may have had an impact on the overall judgment of the respondents. Therefore, it is likely incorrect to assume that the respondents’ assessments accurately reflect the actual assessment of the reported e-tailer.

Chapter 4: Data Analysis and Results

This quantitative, non-experimental, correlational study investigates the association between e-service quality as measured by the VESQS and the levels of customer satisfaction of Saudi Arabian adults when buying electronics and small appliances from online retailers. The study also sought to determine to what extent e-service quality components, as a group and independently, predict the e-customer satisfaction of the participants of this study. Therefore, the independent variables comprised the seven components of VESQS and the overall score of the VESQS. The dependent variable was e-customer satisfaction as measured and collected using VCSS, which is also part of the VESQS instrument.

The total number of survey items was 54, comprised of 11 sample descriptive questions, 38 questions about e-service quality (VESQS), and 5 questions about e-customer satisfaction (VCSS). The data were collected from an online survey through the QualtricsXM survey platform between 01 October 2021 and 30 October 2021. The data were transferred from the online QualtricsXM survey platform into SPSS version 28 for further analysis. This chapter presents the results of the data analysis and discusses both the descriptive and inferential statistics.

Descriptive Statistics

Reliability Tests of the Instruments

Reliability refers to an instrument's internal consistency to provide similar measurement for the same construct. In other words, the construct's items must have appropriate intercorrelations (Creswell & Creswell, 2018). An instrument's internal consistency is measured by calculating the Cronbach's alpha (α) value for the instrument's components or the construct's items. The value of Cronbach's alpha ranges from 0 to 1, and a higher score indicates better

reliability (Creswell & Creswell, 2018). Many authors propose a minimum of .70 as an acceptable score for the instrument's internal consistency (Creswell & Creswell, 2018; Heale & Twycross, 2015; Pallant, 2016).

In this study, two versions (Arabic and English) of the same scales were used to explore the participants' views on certain behaviors concerning their shopping experience from an online retailer. The reported Cronbach's alpha exceeded the .70 benchmark for both versions, thus indicating acceptable reliability for VCSS, overall VESQS, and VESQS components. However, the relatively large difference in the omni-channel variable coefficients for both versions raised a flag that a statistically significant difference may exist in this variable. In order to ensure that there were no statistical differences between the two survey versions, the researcher conducted a statistical test using cocron® software for comparing Cronbach alphas coefficients of all variables (Diedenhofen & Much, 2016). After conducting the tests, the results indicated that all measures of internal consistency coefficients had no statistically significant differences in all variables. Thus, the relatively large variation between the coefficients of omni-channel in both versions may be attributed to the relatively small sample size of the English version. Table 5 summarizes the measures of internal consistency for both versions of the survey and statistical significance of the differences between the Arabic and English versions.

Moreover, Vajrapana (2019) reported scores of between .87 and .94 Cronbach's alpha for all seven VESQS tested components, results that are very close to the scores illustrated in Tables 5. Furthermore, Vajrapana (2019) reported Cronbach's alpha of .92 for VCSS, almost the same scores as those in the table below. The close proximity of the Cronbach's alpha coefficients reported by this study with those reported by the instrument's developer indicates that the VESQS and VCSS share the same strong internal consistency.

Table 5

Measure of Internal Consistency – Arabic and English Versions

Scale	Number of Items	Arabic Version		English Version		Statistical Difference	
		Cronbach Alpha	N	Cronbach Alpha	N	Chisq	*p*
VCSS – Overall	5	.93	623	.93	35	.00	1.00
VESQS – Overall	36	.94	623	.93	35	.26	.61
Information Quality	6	.87	623	.82	35	1.24	.27
Privacy Protection	5	.81	623	.85	35	.55	.46
Delivery System	4	.89	623	.89	35	.00	1.00
Return Policy	5	.92	623	.89	35	1.18	.28
Customer Service	5	.94	623	.92	35	.96	.33
Multidevice Compatibility	6	.92	623	.94	35	.80	.37
Omni-Channel	5	.84	623	.75	35	2.41	.121

Sample Demographics

Gender. Table 6 shows that 68.5% (*n* = 451) of the participants were male and 31.5% (*n* = 207) were female. This gender distribution is not consistent with the country's overall demographic distribution, as discussed in chapter two. In Saudi Arabia, the male population is about 57%, whereas the female is about 43%. The higher percentage of male participants in this study might be attributed to the main data collection tool employed: the social media platform Twitter. According to Digital Marketing Community (2021), more males use Twitter than females in Saudi Arabia. In addition, the nature of the products covered in this study might also play a factor. Wirthman (2017) concluded that male consumers buy more electronic products than females.

Table 6

Participants' Gender

Gender	*N*	Percent
Male	451	68.5
Female	207	31.5
Total	658	100

Age Groups. Table 7 presents the age of the participants categorized into groups. The three most common age ranges among the participants were between 26-35 (32%, *n* = 210), between 36-45 (28%, *n* = 182), and between 18-25 years old (19%, *n* = 128). There were far fewer participants in the last age group of 66 or older than any other group (1%, *n* = 6).

Table 7

Participants' Age Groups

Age Group	*N*	Percent
From 18 to 25 years	128	19
From 26 to 35 years	210	32
From 36 to 45 years	182	28
From 46 to 55 years	106	16
From 56 to 65 years	26	4
From 66 years old or more	6	1
Total	658	100

Education. Table 8 presents the participants' education levels. Most participants hold an undergraduate degree (64%, *n* = 421). Participants with a postgraduate degree also had a substantial presence in this research sample (18.5%, *n* = 124). Very few participants had not completed a high school diploma (0.5%, *n* = 3).

Table 8

Participants' Education

Degree	*N*	Percent
High School Diploma	110	17
Undergraduate	421	64
Master	102	15.5
Doctoral	22	3
Other	3	.5
Total	658	100

Type of Residency. Table 9 displays the participants' type of residency. Of the 658 participants, Saudi nationals made up the vast majority (94%, *n* = 619). It is worth noting that

this distribution is quite different from overall population of Saudi Arabia, of which Saudi nationals make up only 63% (GAS, 2020).

Table 9

Type of Residency

Nationality	*N*	Percent
Saudi nationals	619	94
Non-Saudi nationals	39	6
Total	658	100

Sample Geographics

Regional Location. Table 10 shows the regions of Saudi Arabia in which the participants live. The majority of participants reside in the Central region of Saudi Arabia (72%, $n = 475$), followed by the Western region (11%, $n = 75$), and Eastern region (9%, $n = 58$). According to the Saudi General Authority for Statistics (2020), these three regions represent 66% of the Saudi population, whereas they make up 92% of the sample population.

Table 10

Participants' Regional Location

Region	*N*	Percent
Central	475	72
Western	75	11
Northern	20	3
Southern	30	5
Eastern	58	9
Total	658	100

Location Type. The location type is a critical demographic variable because of its influence on the infrastructures in which e-tailers operate. Table 11 distinguishes between three types of location: major city, small town, and village. Most participants reside in major cities

(85.3%, *n* = 561). Far fewer respondents live in either small towns (11.4%, *n* = 75) or villages (3.3%, *n* = 22).

Table 11

Participants' Location Type

Location	*N*	Percent
Major City	561	85.3
Small Town	75	11.4
Village	22	3.3
Total	658	100

Overview Participants' Shopping Practices/Tendencies

This section discusses the results of the participants' demographic analysis that are relevant to the consumers' behaviors toward electronic and small appliances when shopping through an online platform in Saudi Arabia. Five main behaviors were examined, namely shopping frequency, purchasing device, frequently used websites, most preferred websites, and the participants' chosen e-tailer.

Shopping Frequency. Participants were asked to estimate how frequently they shop online for electronics and small appliances via online retailers, and Table 12 presents this data as divided into four categories. Most participants shopped less frequently than once a month for electronic and small appliances (68%, *n* = 446), whereas 15% (*n* = 100) of participants did so monthly. These results are consistent with earlier studies that flagged how these products, namely TVs, phones, food mixers, etc., usually have long life and thus shoppers need to replace them less frequently.

Table 12

Participants Shopping Frequency

E-tailer	*N*	Percent
Less than once a month	446	68
Once a month	100	15
Twice a month	63	10
Three times a month or more	49	7
Total	658	100

Purchasing Device. Participants were asked to identify what kind of electronic device they most frequently use when buying from an online retailer from among four options, namely mobile phones, PC or laptops, tablets, and others. Table 13 indicates that mobile phones were the most used device in the sample (83%, *n* = 546), followed by PC and laptops (13%, *n* = 86). The predominance of mobile phones when shopping for electronic and small appliances products should inform the e-tailer's web design.

Table 13

Most Frequently Used Device to Purchase Products From Online Websites

Region	*N*	Percent
Mobile Phones	546	83
PC or Laptop	86	13
Tablet	26	4
Total	658	100

Frequently Used E-Tailers. Participants were given the option to select more than one option when asked which e-tailers they used most frequently for electronics and small appliance purchases (Table 14). Three Saudi e-tailers that also operate brick-and-mortar stores were included among the choices: Jarir.com, eXtra.com.sa, and Xcite.com.sa. Amazon serves the Saudi market through its Global website and its recently launched website Amazon KSA. Noon.com is a KSA-UAE-based virtual mall, similar to e-bay.com, that some retail businesses

use to reach customers within the Gulf region (Alarbiya, 2017). AliExpress is a Chinese e-tailer with no physical stores within Saudi Arabia or the Gulf region. (Alarbiya, 2017). The most frequently used e-tailer was Noon.com (22.1%, *n* = 438), followed by Amazon KSA (17.5%, *n* = 346), and Jarir.com (14.4%, *n* = 285). It is worth noting, however, that Amazon's two retailers combined (KSA and Global) had a larger market share (30.1%, *n* = 596) than Noon.com.

Table 14

Most Frequent Used E-Tailers

E-tailer	*N*	Percent
Noon.com	438	22.1
Amazon KSA	346	17.5
Jarir.com	285	14.4
Amazon Global	250	12.6
eXtra	219	11.1
AliExpress	141	7.1
Xcite	75	3.8
Other Saudi Website	108	5.5
Other International Website	116	5.9
Total	1978	100

Most Preferred E-tailers. Even though participants often used multiple E-tailers, they also identified a preference for one e-tailer over another when buying electronics and small appliances. Table 15 depicts the most preferred e-tailers among participants and reveals a striking similarity to the data gathered on most frequently used e-tailers (Table 14). The only remarkable difference between the two data sets is that Amazon KSA switches places with Amazon Global in Table 15. The most preferred e-tailer was Noon.com (19.6%, *n* = 129), followed by Amazon Global (18.2%, *n* = 120), Jarir.com (16.9%, *n* = 111), and Amazon KSA (15.3%, *n* = 101). Both Amazon KSA and Amazon Global websites (33.5%, *n* = 221) again combine to outweigh Noon.com.

Table 15

Most Preferred E-Tailers

E-tailer	*N*	Percent
Noon.com	129	19.6
Amazon Global	120	18.2
Jarir.com	111	16.9
Amazon KSA	101	15.3
eXtra	73	11.1
AliExpress	43	6.5
Xcite	24	3.6
Other Saudi Website	26	4
Other International Website	31	4.7
Total	658	100

Evaluated E-tailers. Before moving to the main section of the survey that collected information relevant to the study's variables, participants were asked to select an e-tailer they had recently used for all of the subsequent questions. Table 16 indicates that the most evaluated e-tailer was Noon.com (27.4%, *n* = 180), followed by Amazon KSA (17.6%, *n* = 116), Jarir.com (16%, *n* = 105), and Amazon Global (14%, *n* = 92).

Table 16

Sample's Evaluated E-Tailers

E-tailer	*N*	Percent
Noon.com	180	27.4
Amazon KSA	116	17.6
Jarir.com	105	16
Amazon Global	92	14
eXtra	70	10.6
AliExpress	36	5.5
Xcite	15	2.3
Other	44	6.7
Total	658	100

Scoring of the Overall VESQS, VESQS Components, and VCSS

Instrument Interpretation

According to Vajrapana (2019), the VESQS questionnaire explores the perceptions of e-customers of 36 e-retail attributes (36 survey items) at the evaluated website. These 36 attributes are relevant to the seven components of online shopping e-service quality. VESQS uses a 5-point Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The component's mean score is measured by dividing the sum of the mean score of its attributes by the total number of attributes. Of note, the overall VESQS mean score is determined by summing the 36 attributes mean scores over seven, the total number of components.

The VCSS questionnaire surveyed five items, using the same scale as the VESQS questionnaire. The sum of these items' mean scores was divided by the total number of items to determine the average mean score of the participants' satisfaction with the evaluated e-tailer. The score ranges from 1-to-5, where 5 indicates strong agreement, 1 indicates strong disagreement, and 3 indicates a neutral standpoint. Thus, we could measure the attribute perceived at the evaluated E-tailers.

The interpretation of the respondents' choices (survey answers) is very important in understanding the results presented in this chapter. For example, the VESQS survey contains a phrase, "information on this site is easy to understand". This is one of six attributes that form the information quality component. When the respondents choose five, it indicates strong agreement that the information at the evaluated website was easy to understand. When the respondents chose three, it indicates the e-tailer was not successful in making e-customers perceive the attribute during their e-retail experiences. Therefore, the desirable average score indicating good e-service quality is four and above. An average mean score above three and less than four

indicates that respondents' perceptions were not conclusive that the evaluated e-tailer possessed the measured attributes. The following table summarizes the interpretations of multiple mean scores.

Table 17

Mean Score Interpretation

Mean Score	Label	Description	Outcome
2.00 or less	Conclusive disagreement	Respondents *conclusively disagree* that e-retail attribute(s) was (were) perceived at the evaluated e-tailer.	Not a desirable score at all
More than 2.00 and less than 3.00	Inconclusive disagreement	Respondents who *disagree* are more than those who *agree* that e-retail attribute(s) was (were) perceived at the evaluated e-tailer. However, the *disagreement* was not *conclusive*.	Not a desirable score
Exactly 3.00	Uncertain	Respondents are *uncertain* that e-retail attribute(s) was (were) perceived at the evaluated e-tailer. This means e-tailer was unsuccessful in demonstrating the measured e-retail attribute.	Not a desirable score
More than 3.00 and less than 4.00	Inconclusive agreement	Respondents who *agree* are more than those who *disagree* that e-retail attribute(s) was (were) perceived at the evaluated e-tailer. However, the *agreement* was not *conclusive*.	Less than a desirable score
4.00 to 5	Conclusive agreement	Respondents *conclusively agree* that e-retail attribute(s) was (were) perceived at the evaluated e-tailer	Desirable score

Descriptive Statistics of the Study Variables and Their Measured Attributes

Table 18 depicts the overall mean scores for the VCSS, overall VESQS, and VESQS components. The participants' overall satisfaction with evaluated e-tailer measured by VCSS was high (M = 4.04, SD = .68). In other words, the VCSS instrument indicates that study participants were satisfied with the e-tailer they selected to evaluate in this portion of the study. It is worth noting, however, that the reported mean scores covered the full range (from 1-to-5), indicating that some participants were very unsatisfied with the e-tailer they chose to assess.

Table 18

Descriptive Statistics of the Study Variables

Variable	Mean				Median	Mode
	Min.	Max.	M	SD		
VCSS – Overall	1.00	5.00	4.04	.68	4.00	4.00
VESQS – Overall	2.12	5.00	3.66	.51	3.62	3.71*
Information Quality	1.33	5.00	3.88	.66	4.00	4.00
Privacy Protection	1.40	5.00	3.60	.70	3.60	4.00
Delivery System	1.00	5.00	3.63	.92	3.75	4.00
Return Policy	1.00	5.00	3.29	.87	3.00	3.00
Customer Service	1.00	5.00	3.56	.83	3.60	3.00
Multidevice Compatibility	2.17	5.00	4.32	.58	4.17	4.00
Omni-Channel	1.00	5.00	3.32	.66	3.20	3.00

*VESQS mode is not a whole number because it is aggregate of seven components.

The results related to the overall VESQS were close to those of the VCSS. The mean score of the participants' perception of e-service quality provided by their chosen e-tailer was 3.66 (M = 3.66, SD = .51), from which the researcher concludes that the participants moderately agreed that the e-service quality attributes measured by VESQS existed within the evaluated e-tailer of their choice. The most positively evaluated e-service quality component was multi-device compatibility (M = 4.32, SD = .58), followed by information quality (M = 3.88, SD = .66). Return policy had the lowest mean score of e-service quality at 3.29 (M = 3.29, SD = .87).

Table 19

Descriptive Statistics of E-Service Quality of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
VESQS	noon.com	180	3.58	.55
	Jarir.com	105	3.78	.43
	AliExpress	36	3.53	.37
	Amazon-KSA	116	3.66	.47
	Amazon-Global	92	3.80	.52
	extra.com.sa	70	3.55	.56
	xcite.com.sa	15	3.56	.33
	Other	44	3.68	.57
	Overall VESQS Mean	658	3.66	.51

*Statistically significant: Welch ANOVA $F(7, 144.877) = 3.81$, $p < .001$.

Information Quality Attributes. The overall information quality component's mean was 3.88. Table 20 depicts the results of the different information quality attributes as measured by VESQS. The participants reported most information quality attributes above the scale's neutral position of three and less than the scale's mild agreement position of four. The attributes' mode scores of four, however, indicate that most participants were in agreement. Therefore, the researcher concluded that all the information quality attributes were perceived at all the evaluated E-tailers. The calculated means of the data indicate, on the one hand, that the predominant information quality attribute was whether the e-tailers provided information that was easy to understand ($M = 4.00$, $SD = .79$). On the other hand, the attribute with the lowest mean score was the level of detail provided ($M = 3.80$, $SD = .90$).

Table 20

Descriptive Statistics of the Information Quality Component Attributes

Variable	Mean				Median	Mode
	Min.	Max.	M	SD		
Information is easy to understand.	1	5	4.00	.79	4	4
The information is at the right level of detail.	1	5	3.80	.90	4	4
The site shows good pictures of the products.	1	5	3.90	.89	4	4
Information is up to date.	1	5	3.87	.82	4	4
Information is well organized.	1	5	3.89	.84	4	4
Information is in an appropriate format.	1	5	3.81	.85	4	4

The data also demonstrates clear patterns when examined in light of the e-tailer chosen for evaluation. The data were found to be statistically significant Welch ANOVA $F(7, 147.025) = 6.48$, $p < .001$. As illustrated in Table 21, the information quality component was perceived to be higher within the Amazon Global data ($M = 4.16$, $SD = .62$). E-tailers operating from Saudi Arabia received quite varied responses. The Saudi e-tailer Jarir.com was higher than all other Saudi e-tailers and most international e-tailers ($M = 4.05$, $SD = .54$). Such other Saudi e-tailers as eXtra.com.sa ($M = 3.80$, $SD = .66$) and xcite.com.sa ($M = 3.86$, $SD = .36$) received lower scores for the quality of their information than most of their international competitors.

Table 21

Descriptive Statistics of the Information Quality Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Information Quality	noon.com	180	3.66	.73
	Jarir.com	105	4.05	.54
	AliExpress	36	3.83	.50
	Amazon-KSA	116	3.85	.64
	Amazon-Global	92	4.16	.62
	extra.com.sa	70	3.80	.66
	xcite.com.sa	15	3.86	.36
	Other	44	4.02	.65
	Overall Component Mean	658	3.88	.66

*Statistically significant: Welch ANOVA $F(7, 147.025) = 6.48$, $p < .001$.

Privacy Protection Attributes. The overall privacy protection component's score was ($M = 3.60$, $SD = .70$) (Table 18). Table 22 depicts the privacy protection attributes results as measured by VESQS. Participants reported all privacy protection attributes were above the scale's neutral position of three and less than the scale's mild agreement position of four. On the one hand, the predominant measured attribute was the retailer's ability to protect their credit card information ($M = 3.83$, $SD = .84$). The mode score of four for this attribute suggests that most participants agreed that the e-tailer they had chosen to evaluate took adequate precautions. On the other hand, the attribute with the lowest mean score within the privacy protection component was the retailer's commitment to protecting data about their online shopping behaviors ($M = 3.34$, $SD = 1.01$). The mode score of three for this attribute suggests that most participants were neutral about this policy and attribute for their chosen e-tailer.

Table 22

Descriptive Statistics of the Privacy Protection Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
This site assures me that other sites will not get my information.	1	5	3.45	.97	3	3
This site keeps my personal information secure.	1	5	3.65	.88	4	4
This site carefully protects my credit card information.	1	5	3.83	.84	4	4
This site makes sure to protect information about my online shopping behaviors.	1	5	3.34	1.01	3	3
This site will not purposely misuse my personal information.	1	5	3.74	.89	4	4

The data exhibits clear patterns based on which e-tailer was chosen for evaluation. The data were found to be statistically significant Welch ANOVA $F(7, 144.358) = 2.23$, $p = .035$. Table 23 depicts how privacy protection was most perceived for the Saudi e-tailer Jarir.com data ($M = 3.77$, $SD = .64$), followed by Amazon Global ($M = 3.67$, $SD = .78$). Such other Saudi e-tailers as eXtra.com.sa ($M = 3.59$, $SD = .56$) and xcite.com.sa ($M = 3.40$, $SD = .47$) received lower scores than the overall component mean ($M = 3.60$, $SD = .70$).

Table 23

Descriptive Statistics of the Privacy Protection Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Privacy Protection	noon.com	180	3.51	.73
	Jarir.com	105	3.77	.64
	AliExpress	36	3.60	.60
	Amazon-KSA	116	3.54	.73
	Amazon-Global	92	3.67	.78
	extra.com.sa	70	3.59	.56
	xcite.com.sa	15	3.40	.47
	Other	44	3.71	.71
	Overall Component Mean	658	3.60	.70

*Statistically significant: Welch ANOVA $F(7, 144.358) = 2.23$, $p = .035$

Delivery System Attributes. The overall delivery system component score was (*M* = 3.63, *SD* = .92) (Table 18). Table 24 illustrates the participants' ratings of delivery system attributes as measured by VESQS. Participants reported all delivery system attributes were above the scale's neutral position of three and less than the scale's mild agreement position of four. The attributes' mode scores of four, however, indicate that most of the responses were in agreement. Therefore, the researcher concluded that all the delivery system attributes were perceived as available at the evaluated e-tailers by most participants. The calculated means reveal that, on the one hand, the predominant measured attribute was that the evaluated E-tailers' ability to provide an accurate delivery date (*M* = 3.72, *SD* = 1.08). On the other hand, the attribute with which participants were least perceiving was the shipping time's accuracy (*M* = 3.47, *SD* = 1.12).

Table 24

Descriptive Statistics of the Delivery System Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
This site provides me with an accurate delivery date.	1	5	3.72	1.08	4	4
This site provides me with an accurate shipping time.	1	5	3.47	1.12	4	4
This site is committed to delivering orders within a designated time frame.	1	5	3.68	1.04	4	4
This site quickly delivers what I order.	1	5	3.66	1.03	4	4

Moreover, the data exhibits clear patterns when examined according to the choice of evaluated e-tailer (Table 25). The data were found to be statistically significant ANOVA $F(7, 650) = 4.15$, $p < .001$. The delivery system component was most highly perceived by participants who evaluated Amazon Global (*M* = 3.88, *SD* = .78). E-tailers operating from Saudi Arabia received mixed ratings. Jarir.com score was higher than all other Saudi e-tailers and most

international e-tailers (*M* = 3.73, *SD* = .86). Such other Saudi e-tailers as eXtra.com.sa (*M* = 3.39, *SD* = .99) and xcite.com.sa (*M* = 3.42, *SD* = .93) received lower scores than most of their international competitors and the overall mean score for the delivery system attributes (*M* = 3.63, *SD* = .92).

Table 25

Descriptive Statistics of the Delivery System Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Delivery System	noon.com	180	3.64	.94
	Jarir.com	105	3.73	.86
	AliExpress	36	3.08	.79
	Amazon-KSA	116	3.73	.90
	Amazon-Global	92	3.88	.78
	extra.com.sa	70	3.39	.99
	xcite.com.sa	15	3.42	.93
	Other	44	3.53	1.09
	Overall Component Mean	658	3.63	.92

*Statistically significant: ANOVA $F(7, 650) = 4.15$, $p < .001$.

Return Policy Attributes. The overall return policy received the lowest mean score of the seven measured VESQS components (*M* = 3.29, *SD* = .87). Table 26 depicts the data collected about the attributes measured in the return policy component. Participants reported all return policy attributes were above the scale's neutral position of three and less than the scale's mild agreement position of four. The mode score of three for all attributes, however, indicates that most respondents did not agree nor disagree about the perceiving the components attributes at evaluated e-tailer. The calculated means reveal that, on the one hand, the predominant measured attribute within the return policy component was whether participants felt that the cost to return a product was reasonable (*M* = 3.38, *SD* = .94). On the other hand, the attribute with the participants were least perceiving to be available was the speed with which they received a refund for returned products (*M* = 3.17, *SD* = 1.03).

Table 26

Descriptive Statistics of the Return Policy Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
It is easy to return products.	1	5	3.37	1.01	3	3
Returning products is hassle-free.	1	5	3.28	1.04	3	3
Returning costs are reasonable.	1	5	3.38	.94	3	3
The returning process is quick.	1	5	3.23	1.00	3	3
It is fast to get a refund for returned products.	1	5	3.17	1.03	3	3

The data were considered in light of the e-tailer chosen for evaluation (Table 27). The return policy component mean score for Amazon Global was the highest (M = 3.44, SD = .95) followed by Amazon KSA (M = 3.31, SD = .86). Such Saudi e-tailers as Jarir.com (M = 3.27, SD = .74), eXtra.com.sa (M = 3.23, SD = .85), and xcite.com.sa (M = 3.01, SD = .60) were rated lower than the overall component mean score (M = 3.29, SD = .87). However, the differences between e-tailers scores were not statistically significant, Welch ANOVA $F(7, 145.836) = 1.46$, $p = .188$.

Table 27

Descriptive Statistics of the Return Policy Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Return Policy	noon.com	180	3.28	.99
	Jarir.com	105	3.27	.74
	AliExpress	36	3.07	.60
	Amazon-KSA	116	3.31	.86
	Amazon-Global	92	3.44	.95
	extra.com.sa	70	3.23	.85
	xcite.com.sa	15	3.01	.60
	Other	44	3.32	.72
	Overall Component Mean	658	3.29	.87

*Not statistically significant: Welch ANOVA $F(7, 145.836) = 1.46$, $p = .188$.

Customer Service Attributes. The overall customer service component rating was (*M* = 3.56, *SD* = .83). Table 28 illustrates the ratings of the different customer service attributes as measured by VESQS. Participants rated all customer service attributes above the scale's neutral position of three and less than the scale's mild agreement position of four. Furthermore, most attributes' mode scores further support the finding that respondents were perceiving the customer service attributes provided by their evaluated e-tailer.

The predominant measured attribute was participants' ratings of customer service representatives as courteous when resolving problems (*M* = 3.67, *SD* = .86). The attribute with the lowest mean score among the customer service components was the perceived usefulness of customer service employee's knowledge when answering participants' questions (*M* = 3.50, *SD* = .95). Although ratings of the sincerity of the evaluated e-tailer commitment to solving customer problems was not the lowest mean score (*M* = 3.56, *SD* = .92), its mode score of three indicates that most respondents were not sure about perceiving this attribute at the evaluated e-tailer.

Table 28

Descriptive Statistics of the Customer Service Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
Employees of this site properly handle any problems that arise.	1	5	3.53	.95	4	4
Employees of this site have useful knowledge to answer my questions.	1	5	3.50	.95	4	4
Employees of this site are helpful in solving my problems.	1	5	3.52	.93	4	4
Employees of this site are courteous to me when trying to resolve my problems.	1	5	3.67	.86	4	4
This site shows a sincere interest in solving my problems.	1	5	3.56	.92	4	3

Furthermore, the data exhibits clear patterns when examined in light of the chosen e-tailer (Table 29). The data were found to be statistically significant ANOVA $F(7, 650) = 4.13$, $p < .001$. The customer service attributes were perceived to have higher availability for Amazon Global data ($M = 3.86$, $SD = .83$), followed by the Saudi e-tailer Jarir.com ($M = 3.70$, $SD = .78$). Saudi e-tailer eXtra.com.sa ($M = 3.29$, $SD = .87$) received lower ratings than the overall component mean score ($M = 3.56$, $SD = .83$), whereas xcite.com.sa received marginally higher ratings ($M = 3.61$, $SD = .57$).

Table 29

Descriptive Statistics of the Customer Service Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Customer Service	noon.com	180	3.43	.80
	Jarir.com	105	3.70	.78
	AliExpress	36	3.63	.75
	Amazon-KSA	116	3.49	.82
	Amazon-Global	92	3.86	.83
	extra.com.sa	70	3.29	.87
	xcite.com.sa	15	3.61	.57
	Other	44	3.58	.94
	Overall Component Mean	658	3.56	.83

*Statistically significant: ANOVA $F(7, 650) = 4.13$, $p < .001$.

Multi-device Attributes. The mean score of the ratings of the overall multi-device component was the highest of the seven measured VESQS components ($M = 4.32$, $SD = .58$). Table 30 depicts the data gathered about these attributes. Participants reported that all multi-device attributes were above the scale's mild agreement position of four and less than the scale's full agreement position of five. The attributes' mode scores of four confirm that most participants perceived the multi-device functionality attributes at the evaluated e-tailer. The calculated means reveal that, on the one hand, the predominant measured attribute was whether participants agreed that the e-tailer website was easy to access through mobile devices ($M = 4.37$, $SD = .67$). On the other hand, the attribute with the least mean score was the website's functionality on all devices owned by participants ($M = 4.27$, $SD = .71$).

Table 30

Descriptive Statistics of Multi-Device Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
This site is mobile-friendly.	1	5	4.29	.71	4	4
This site is functional on all my devices.	1	5	4.27	.71	4	4
This site is responsive to mobile devices.	2	5	4.36	.63	4	4
This site has an appropriate layout design for mobile access.	1	5	4.28	.73	4	4
Accessing this site through mobile devices is fast.	2	5	4.33	.68	4	4
Accessing this site through mobile devices is easy.	1	5	4.37	.67	4	4

The data also exhibits clear patterns when broken down by e-tailer (Table 31). The data were found to be statistically significant Welch ANOVA $F(7, 142.170) = 3.16$, $p = .004$. Multi-device functionality attributes were perceived to be highly available for Amazon Global (M = 4.42, SD = .57), followed by Amazon KSA (M = 4.42, SD = .52). Such Saudi e-tailers as Jarir.com (M = 4.30, SD = .53), eXtra.com.sa (M = 4.08, SD =.65), and xcite.com.sa (M = 4.07, SD = .41) received lower ratings than the overall component mean score (M = 4.32, SD = .58).

Table 31

Descriptive Statistics of the Multi-Device Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Multi-Device	noon.com	180	4.33	.58
	Jarir.com	105	4.30	.53
	AliExpress	36	4.34	.55
	Amazon-KSA	116	4.42	.52
	Amazon-Global	92	4.42	.57
	extra.com.sa	70	4.08	.65
	xcite.com.sa	15	4.07	.41
	Other	44	4.28	.75
	Overall Component Mean	658	4.32	.58

*Statistically significant: Welch ANOVA $F(7, 142.170) = 3.16$, $p = .004$.

Omni-Channel Attributes. The overall omni-channel component average rating mean score was (*M* = 3.32, *SD* = .66). Table 32 illustrates the omni-channel attributes' ratings as measured by VESQS. Participants reported that all omni-channel attributes were rated above the scale's neutral position of three and less than the scale's mild agreement position of four. The mode score of three for all attributes, however, indicates that most respondents were not sure about perceiving omni-channel attributes at the evaluated e-tailer. It is worth noting that participants were asked to choose 'neutral' as an answer when the evaluated e-tailer does not have a physical store. Mean scores reveal that, on the one hand, the predominant measured attribute was the participants' rating of the convenience of ordering online and picking up the product from the physical store (*M* = 3.45, *SD* = .85). On the other hand, the omni-channel attribute with the least mean score was the ability of employees at a physical store to solve problems related to an online purchase (*M* = 3.19, *SD* = .78).

Table 32

Descriptive Statistics of the Omni-Channel Component Attributes

Measured Attributes	Mean				Median	Mode
	Min.	Max.	M	SD		
It is easy to physically pick up my orders if this site has a physical store near my home.	1	5	3.45	.85	3	3
It is easy to return my orders if this site has a physical store near my home.	1	5	3.30	.86	3	3
This site provides up-to-date information about the inventory available in a physical store.	1	5	3.37	.90	3	3
Employees at a physical store can easily access my online order information.	1	5	3.30	.82	3	3
Employees at a physical store are helpful in solving my online order problems.	1	5	3.19	.78	3	3

Clear patterns emerge when the data is analyzed for the chosen e-tailer (Table 33). The data were found to be statistically significant ANOVA $F(7, 650) = 6.05$, $p < .001$. The omni-channel component attributes were higher for the Saudi E-tailers: Jarir.com data (M = 3.62, SD = .60), xcite.com.sa (M = 3.53, SD = .54), and eXtra.com.sa (M = 3.49, SD = .69). Such major international e-tailers as Amazon Global (M = 3.21, SD = .62) and AliExpress (M = 3.13, SD = .61) scored lower than the overall component mean score (M = 3.32, SD = .66). It comes as no surprise that Saudi e-tailers scored higher than their international peers. Nonetheless, it is strange that some respondents chose a score other than three when evaluating international e-tailers with no physical store in Saudi Arabia, such as Amazon and AliExpress. As noted, participants were asked to choose "neutral" when evaluating an e-tailer without a physical store. Therefore, the mean score for the e-tailer with no physical store should be equal to three. Any e-tailer mean score higher or less than three indicates that some respondents chose an answer other than "neutral". The only explanation for this discrepancy is that the respondents overlooked the note at the top of the omni-channel section, asking them to choose "neutral" when evaluating an e-tailer with no physical store. The mode score of three for most attributes indicates that the majority of the respondents chose "neutral" as an answer. As a result, the researcher did not believe this mistake changed the overall result, and no action was deemed necessary.

Table 33

Descriptive Statistics of the Omni-Channel Component of the Evaluated E-Tailer

Descriptive		N	Mean*	SD
Omni-Channel	noon.com	180	3.21	.73
	Jarir.com	105	3.62	.60
	AliExpress	36	3.13	.61
	Amazon-KSA	116	3.25	.54
	Amazon-Global	92	3.21	.62
	extra.com.sa	70	3.49	.69
	xcite.com.sa	15	3.53	.54
	Other	44	3.33	.60
	Overall Component Mean	658	3.32	.66

*Statistically significant: ANOVA $F(7, 650) = 6.05$, $p < .001$.

Analyses of the Research Questions

Statistical Assumption Checks

Before performing Pearson and regression statistical analyses, the data were examined for a set of statistical assumptions related to the absence of outliers, linearity, and normality (Pallant, 2016). In addition to checking for the correlation assumptions, the assumptions of homoscedasticity, independence of observations, and multicollinearity were also considered before determining whether regression analyses could be conducted (Pallant, 2016). All assumptions were met, and no violations were found as illustrated in the following sub-sections.

Absence of Outliers. Outliers are cases that have extreme results far above or below the majority of cases in the data set (Pallant, 2016). When conducting statistical relationship analysis, it is vital to check the data for outliers because they can affect the strength of the relationship (Pallant, 2016). This study identified outliers for exclusion based on the parameters proposed by Tabachnick and Fidell (2013), i.e., cases that have a standardized residual of more than +3.3 or less than -3.3. Case diagnostics analysis in SPSS flagged eight cases outside the standardized residual parameters. Nevertheless, the researcher elected to keep those cases within the data set because of how few were found (Pallant, 2016). The decision to keep those case was also based on the belief that they were real respondents' perceptions rather than data errors.

Linearity. Linearity refers to a direct and consistently proportional relationship between the independent and dependent variables. The assumption of linearity was checked using scatterplots, the most common way of assessing linearity between two variables (Meyers et al., 2017). The scatterplots in Figures 7 and 8 indicate acceptable linear relationships with some outliers.

Figure 7

Scatterplot of VCSS and Overall VESQS

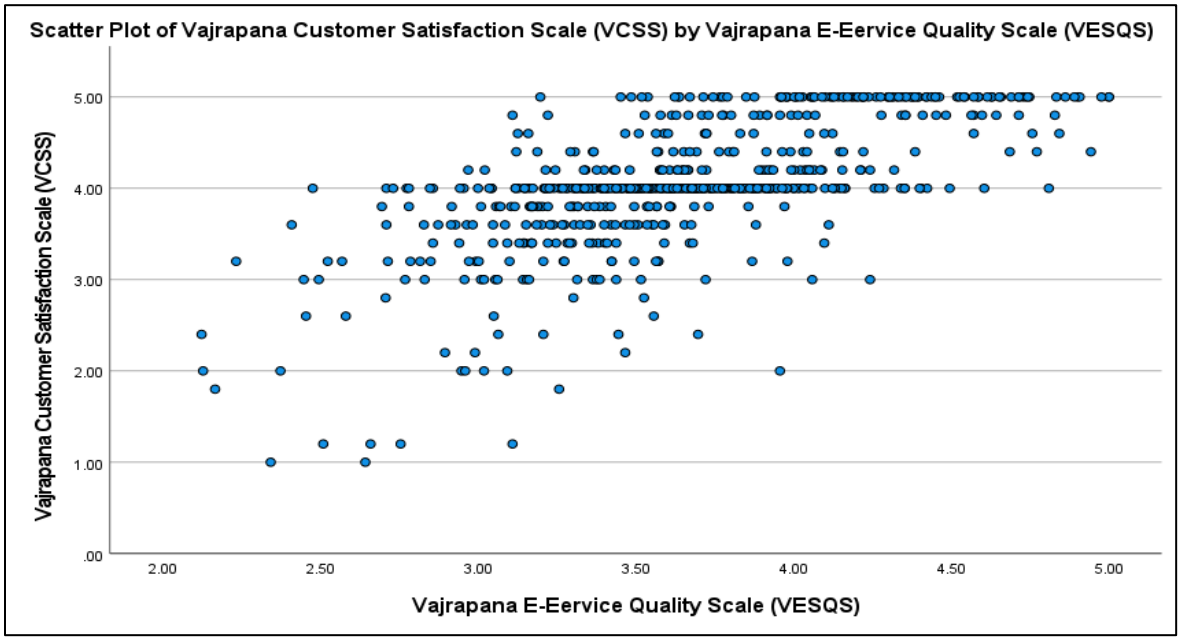


Figure 8

Scatterplot of VCSS and VESQS Components

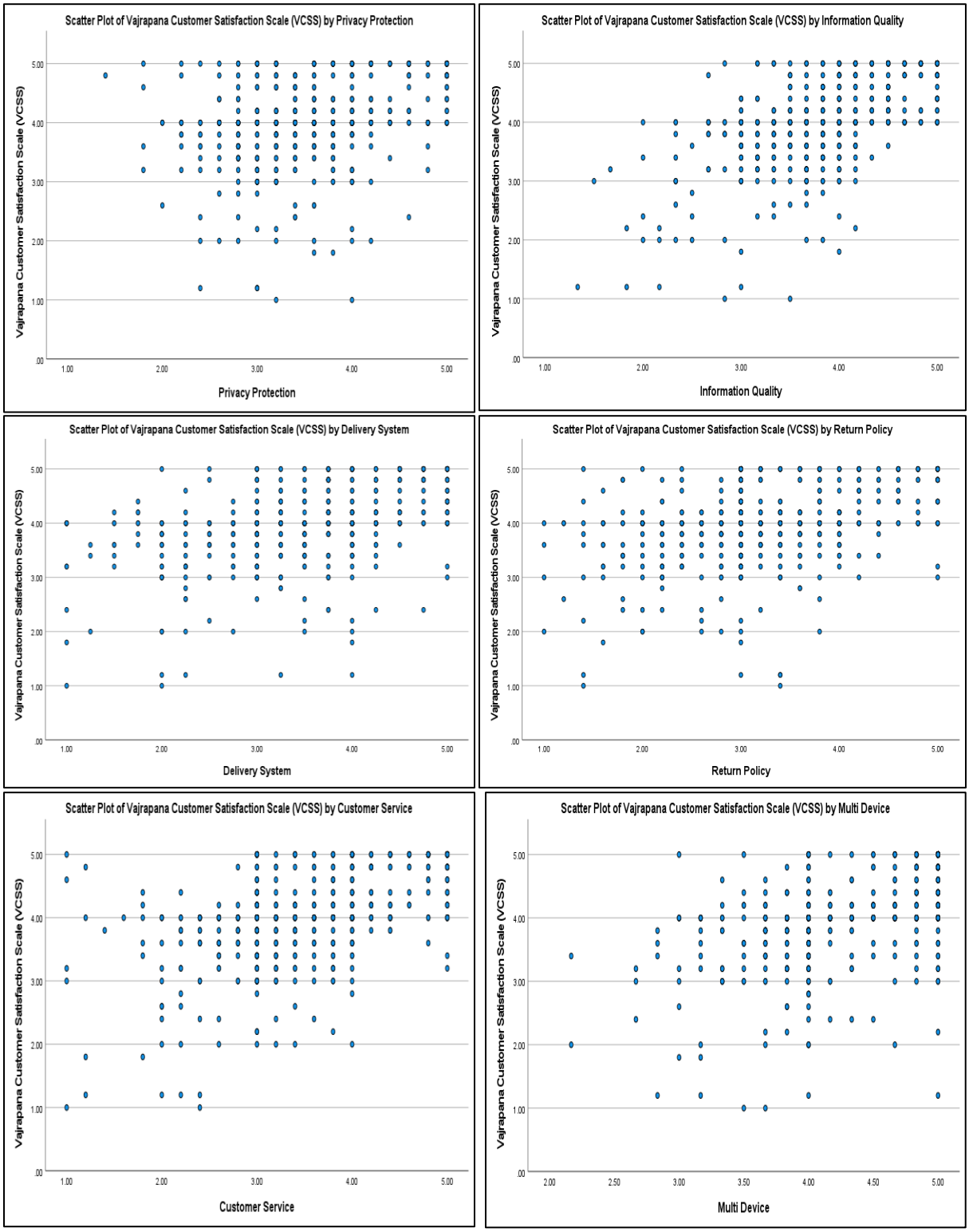
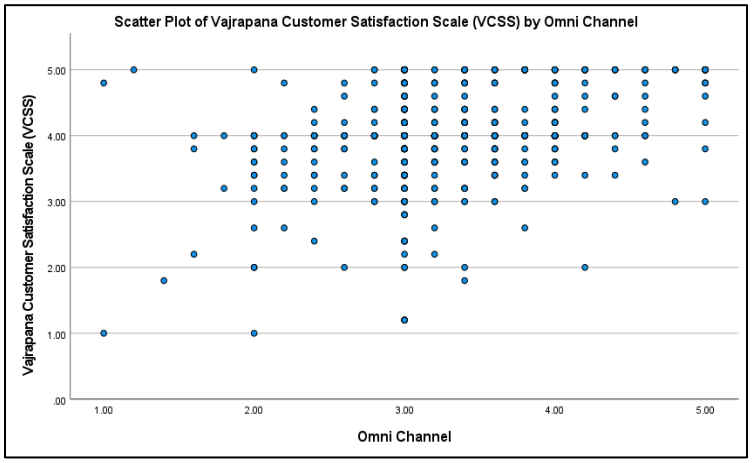


Figure 8 (Continues)

Scatterplot of VCSS and VESQS Components



Normality. Accurate regression analysis requires that the dependent variable's scores were normally distributed. In this study, the assumption of normality was checked by comparing the histogram for the dependent variable (the VCSS) to a superimposed normal curve (Figure 9) and the P-P Plot (Figure 10). Both graphic representations confirm that the assumption of normality was met.

Figure 9

Overall E-Customer Satisfaction VCSS Histogram

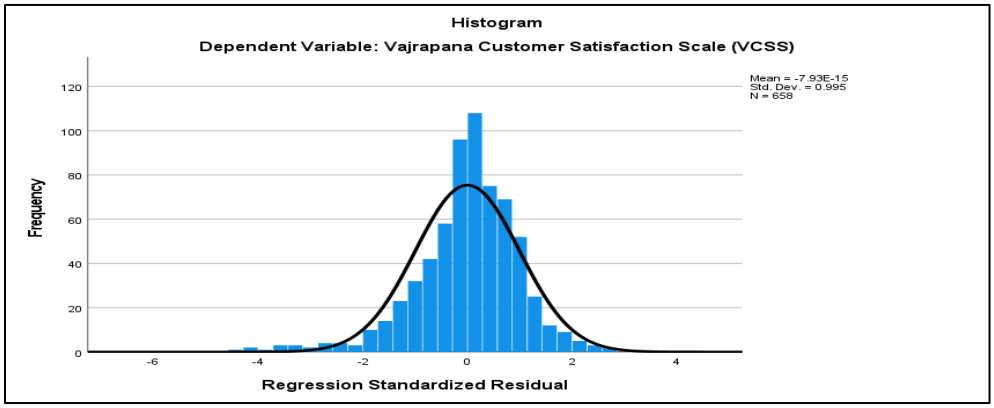
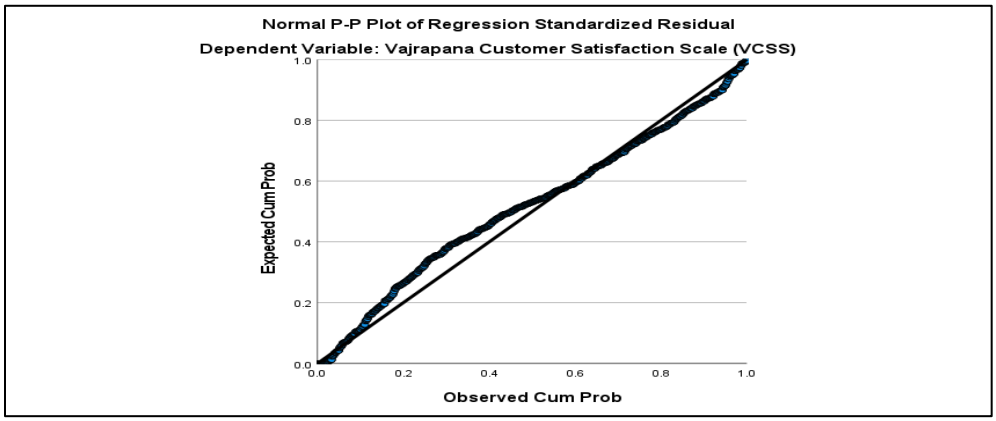


Figure 10

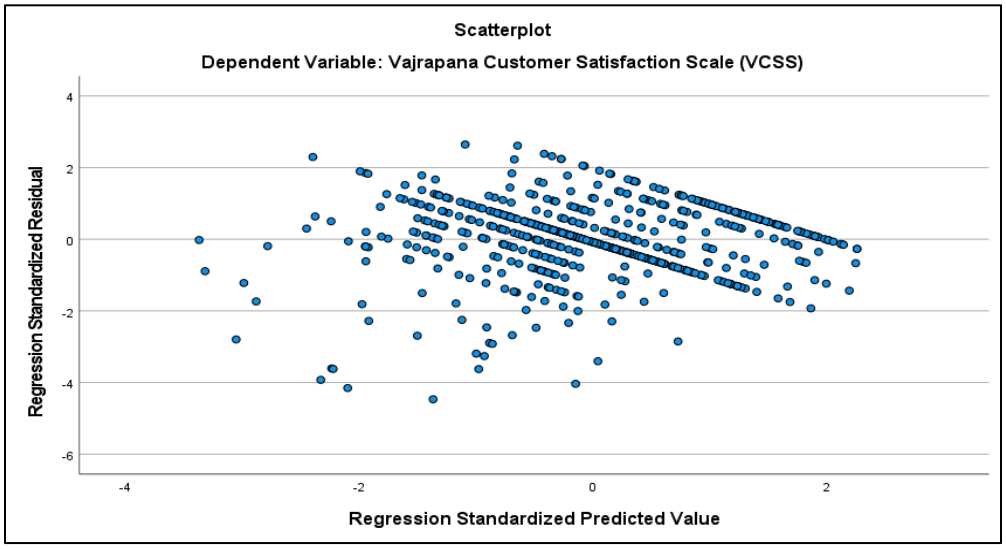
Overall E-Customer Satisfaction P-P Plot



Homoscedasticity. Accurate regression analysis further requires that the residuals are roughly equal for all predicted independent variable values. Pallant (2016) recommends verifying the assumption of homoscedasticity by visualizing the scatterplot of standardized residuals versus the predicted values of the dependent variable's scores. Figure 11 depicts a pattern of residual plots that is neither funnel- nor fan-shaped, thereby indicating that this assumption was met (Pallant, 2016).

Figure 11

Standardized Residuals Versus Predicted Values for E-Customer Satisfaction



Independence of Observations. The independence of observations necessitates that the residuals of the dependent variable (e-customer satisfaction) scores are independent of each other. The Durbin-Watson test was used to test for the independence of observation assumption (Pallant, 2016) and generated a value of 1.993. Durbin-Watson test values range between zero and four, and a result of about two indicates less correlation among residuals (Pallant, 2016). Therefore, residuals were independent.

Multicollinearity. Multicollinearity issues occur when a correlation of more than .7 is found between the independent variables (Tabachnick & Fidell, 2013). Pearson's correlation analysis indicates that all independent variables within the multiple regression model were less than .7. Furthermore, the multicollinearity assumption was verified using Tolerance and Variance Inflation Factors (VIF) tests. Tolerance values of more than .10 and VIF values of less than 10 indicate no violations of the multicollinearity assumption (Pallant, 2016). Table 34 confirms that the Tolerance and VIF values for all independent variables were within the normal ranges. Therefore, the multicollinearity assumption was met.

Table 34

Collinearity Statistics between VESQS Components and VCSS

Variable	Collinearity Statistics	
	Tolerance	*VIF*
Information Quality	.64	1.57
Privacy Protection	.75	1.33
Delivery System	.66	1.51
Return Policy	.61	1.64
Customer Service	.52	1.92
Multi Device	.72	1.38
Omni Channel	.83	1.21

Research Question One

RQ1. What, if any, relationship exists between e-service quality measured by VESQS, at the overall and component levels, and customer's satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

H1a: A statistically significant relationship exists between e-service quality measured by VESQS, at the overall and components levels, and customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping for electronics and small appliances.

The first question addressed by this research was the existence of the relationship between e-customer satisfaction as measured by VCSS and e-service quality as measured by VESQS at the overall and components levels. Correlation analysis is also important because regression analysis assumes that independent variables have some relationship with the dependent variable. Therefore, it was vital to test the correlation between the study's variables before addressing the second research question. Regression analysis should be conducted on variables exhibiting a larger than .3 correlation (Pallant, 2016). H1a was tested using the Pearson correlation test. Correlation coefficient values range between +1 and -1, and zero indicates no relationship exists between the two variables (Pallant, 2016). This study interprets *p* scores as follows: .00 - .19 = very weak, .20 - .39 = weak, .40 - .59 = moderate, .60 - .79 = strong, and .80 – 1.0 = very strong (Evans, 1996). Table 35 depicts the correlation coefficients between VCSS and VESQS at the overall and component levels.

Table 35

Summary of Pearson Correlation Coefficients between VCSS and VESQS

Variable	VCSS* *r*	VESQS* *r*	IQ* *r*	PP* *r*	DS* *r*	RP* *r*	CS* *r*	MD* *r*	OC* *r*
VCSS		.66	.59	.34	.49	.41	.51	.51	.33
Overall VESQS*	.66								
IQ*	.59								
PP*	.34								
DS*	.49								
RP*	.41								
CS*	.51								
MD*	.51								
OC*	.33								

* Sig <.001

These results indicate a statistically significant positive correlation between VCSS and all independent variables. The overall VESQS coefficient was $r(658) = .66$, $p < .001$, the strongest relationship among all independent variables. The strength of the relationship between the individual components of the VESQS and the VCSS varied. Whereas information quality $r(658) = .59$, $p < .001$; delivery system $r(658) = .49$, $p < .001$; return process $r(658) = .41$, $p < .001$; customer service $r(658) = .51$, $p < .001$; and multi-device $r(658) = .51$, $p < .001$ components all suggest a moderate relationship with VCSS, the remaining two components, namely privacy protection $r(658) = .34$, $p < .001$ and omni-channel $r(658) = .33$, $p < .001$, demonstrate a weak relationship to the VCSS. These results suggest that the e-service quality components as a group represented by the overall VESQS had a stronger correlation on customer satisfaction than specific individual component.

Table 36

Variables Correlations Versus Descriptive

Variable	VCSS *r*	Mean	SD	Median	Mode
VCSS		4.04	.68	4.00	4.00
VESQS*	.66	3.66	.51	3.62	3.71[a]
Information Quality*	.59	3.88	.66	4.00	4.00
Privacy Protection*	.34	3.60	.70	3.60	4.00
Delivery System*	.49	3.63	.92	3.75	4.00
Return Policy*	.41	3.29	.87	3.00	3.00
Customer Service*	.51	3.56	.83	3.60	3.00
Multi Device*	.51	4.32	.58	4.17	4.00
Omni-channel*	.33	3.32	.66	3.20	3.00

*Sig <.001

[a] VESQS mode is not a whole number because it is aggregate of seven components.

Correlation at Attribute (Item) Level. Appendix G provides detailed information about the associations between the components' attributes and VCSS. A Spearman Rho (r_s) correlation test was used at the measured attributes (item) level. The data at the item level will help the researcher to identify those attributes that had in the most impact on the total component's correlation results. All 36 measured attributes had significant associations and coefficients ranging from between 19% and 51%. On the one hand, the attribute related to the speed in accessing the e-tailer's website through a mobile device had the highest correlation $r_s(658) = .51$, $p < .001$. On the other hand, the attribute related to the ease with which products can be returned at a physical store was the lowest $r_s(658) = .19$, $p < .001$. The data for the remaining 34 attributes is provided in Appendix G.

Research Question Two

RQ2. What, if any, predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both

independently and as group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances?

H2a: A statistically positive and significant predictive relationship exists between (a) information quality; (b) privacy protection (i.e., security); (c) delivery system; (d) the return process; (f) customer service; (g) multi-device compatibility; and (h) omni-channel measured by VESQS, both independently and as group, with customer satisfaction measured by VCSS as perceived by Saudi Arabian adults using online shopping to purchase electronics and small appliances.

Simple Regression. A linear regression analysis was conducted to test the above alternative hypothesis at the group level represented by the overall VESQS. The simple regression was used to evaluate whether e-service quality measured by VESQS (independent variable) could predict e-customer satisfaction (dependent variable) measured by VCSS and illustrate the overall VESQS's predictive power. Before running the regression analysis, the researcher confirmed that all regression assumptions were met. The researcher used an alpha level of $p < .05$ as the criterion to reject the null hypothesis. The simple regression model was statistically significant $F(1,656) = 518.39$, $p < .001$, and the null hypothesis was rejected. The model illustrated that 44% of the variance in the e-customer satisfaction was explained by the overall e-service quality as perceived by the sample's participants $R^2adj = .44$. Table 37 provides a summary of the model coefficients and demonstrates that the VESQS was a significant predictor in the model (Beta = .66, $p < .001$).

Table 37

Summary of the Simple Regression Coefficients

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	*p*
	B	SE_B		
Constant	.77	.15		.000
Overall VESQS	.89	.04	.66	<.001

Dependent Variable: VCSS

The regression equation is as follows:

e-customer satisfaction value = 0.77 + (0.89 x e-service quality score).

Multiple Regression. Multiple regression analysis was used to evaluate whether the seven VESQS components could be used to predict e-customer satisfaction (dependent variable) as measured by VCSS and to illustrate the VESQS components' independent predictive power. Before running the regression analysis, the researcher confirmed that all regression assumptions were met. The researcher used an alpha level of $p < .05$ as the criterion to reject the null hypothesis. The multiple regression model was statistically significant $F(7,650) = 92.42$, $p < .001$, and the null hypothesis at the components level was rejected. The total model illustrated that 49% of the variance in e-customer satisfaction ratings was explained by the seven e-service quality components as perceived by the sample's participants and measured by VESQS $R^2adj = .49$. Table 38 provides a summary of the model coefficients. Whereas information quality (Beta = .32, $p < .001$), delivery system (Beta = .15, $p < .001$), customer service (Beta = .14, $p < .001$), multi-device compatibility (Beta = .22, $p < .001$), and omni-channel (Beta = .08, $p < .013$) components were statistically significant predictors and contributed to the model, neither the privacy protection (Beta = .01, $p = .886$) nor return policy (Beta = .06, $p = .079$) were.

Table 38

Summary of the Multiple Regression Coefficients

Variable	Unstandardized Coefficients		Standardized Coefficients Beta	*p*
	B	SE_B		
Constant	.38	.17		.025
Information Quality	.33	.04	.32	<.001
Privacy Protection	.01	.03	.01	.886
Delivery System	.11	.03	.15	<.001
Return Policy	.05	.03	.06	.079
Customer Service	.12	.03	.14	<.001
Multi Device	.26	.04	.22	<.001
Omni Channel	.08	.03	.08	.013

Dependent Variable: VCSS

Summary

Chapter four began by discussing the reliability of results obtained from the study's instruments as well as an overview of the study sample characteristics (N = 658). Descriptive statistics for the study variables were illustrated and followed by a review of the regression assumptions that needed to be met before addressing the research questions using statistical analysis methods. The inferential analysis results for Pearson's correlation and regression analyses were provided indicating statistically significant relationship between e-customer satisfaction and all independent variables. All of the inferential analyses were conducted using SPSS version 28. The researcher used an alpha level of $p < .05$ as the criterion to reject the null hypothesis. Chapter 5 will conclude this study with a discussion of the results and implications for theory and practice.

Chapter 5: Discussion and Conclusions

This research was designed to address the challenge facing Saudi brick-and-mortar retailers serving the electronics and small appliances sector in order to compete with global e-tailers such as Amazon and AliExpress. Unlike international E-tailers, Saudi retailers have little experience in dealing with customers frequenting online platforms. The resistance of Saudi customers to online shopping may have contributed to the slow adoption of online business among Saudi retailers (Nacher, 2019; Wazzan, 2017). However, the complete lockdown due to the global pandemic (COVID-19) changed the norm. It forced Saudi residents and retailers to expand their online shopping as it was the only available means of buying electronics, small appliances, and accessories. Unlike the traditional retail sector, online shopping entails web design, timely delivery, and higher-risk payment methods, thus requiring new skills to maintain high levels of customer satisfaction (Grob, 2020).

To effectively compete with well-experienced global E-tailers, the researcher of this study suggests that Saudi e-tailers serving the electronics and small appliances sector should learn how to ensure customer satisfaction through the online platform. E-customer satisfaction is important since it has been found to have an influence on business parameters such as loyalty and retention (Pratminingsih et al., 2013), market share (Rego et al., 2013), and the cost of selling (Frennea et al., 2014; Lim et al., 2020). E-customer satisfaction should lead to sustainable profitably given that e-tailers understand the “elements of customer experience [that] have measurable, positive downstream consequences” (Keiningham et al., 2015a, p. 279). Therefore, Saudi e-tailers must maintain a higher level of e-customer satisfaction over their global competitors.

One way to influence e-customer satisfaction is to maintain a competent e-service quality that matches Saudi customers' perceptions (Burt & Sparks, 2003). E-service quality is "the extent to which a website facilitates efficient and effective shopping, purchasing, and delivery of products" (Parasuraman et al., 2005, p. 8). Scholarly research has been published to identify the key components of e-service quality. In this study, Table 1 summarizes its key components. After reviewing several scholarly publications, this study adopted Vajrapana's (2019) view of e-service quality. The author developed a scale (VESQS) to explore the electronics and small appliances sector in Saudi Arabia. VESQS was built by carefully analyzing existing e-service quality scales, followed by eight qualitative focus groups to ensure that online shoppers agreed on the emerging components. Then, Vajrapana (2019) carried out a quantitative analysis to test the validity and reliability of these emerging components. The author found that contemporary e-service should include seven components: information quality, privacy protection, delivery system, return processes, customer service, multi-device compatibility, and omni-channel.

The purpose of this particular quantitative study - which utilized a non-experimental, correlational design - was to evaluate the association between the components of the e-service quality measured by VESQS as perceived by Saudi Arabian adults as well as their levels of satisfaction experienced in relation to the online retailers from which they purchased their electronics and small appliances. The study further sought to determine to what extent e-service quality components, both independently and as a group, predict e-customers satisfaction.

In this chapter, the researcher will summarize the main findings. Comprehensive discussions will follow to cover the multiple emerging aspects found in previous research. The implications and recommendations of these findings will be offered. Finally, the chapter concludes with research limitations and recommendations for future research.

Summary of the Findings

The study was conducted to explore the perceptions of online shoppers living in Saudi Arabia. It is summarized in Table 2. Of note, the participants were limited to adults (18 years of age or older), both male and female, who live in any region of Saudi Arabia. They had to have completed at least one purchase transaction over the internet for electronics and small electrical appliances products. The study utilized a non-probability, convenience sampling method "in which [the] respondents are chosen based on convenience and availability" (Creswell & Creswell, 2018, p. 150). Using G*Power analysis, a minimum of 277 participants were needed to run a multiple regression test.

The data were collected from an online survey through the Qualtrics^{XM} survey platform. The researcher combined the VESQS, VCSS, and demographic questionnaires into one single survey. The participants were given a choice to take the survey in English or Arabic. VESQS and VCSS were originally designed in the English language. The study's author supervised an Arabic translation and the adaption of the instrument following the guidelines presented by Beaton et al. (2000), using the back-translation technique. Table 5 summarizes the measures of internal consistency for the Arabic and English versions, respectively. The close proximity of Cronbach's alpha values reported by this study compared to those reported by the instrument's developer indicates that VESQS and VCSS share the same strong internal consistency.

The survey participants were invited to participate via the WhatsApp and Twitter platforms. Tables 3 and 4 illustrate the final numbers of the useable survey and the cases removed based on the criteria listed in Chapter 3. The final figure showed that 658 complete responses were used for the data analysis. The data were analyzed using SPSS version 28. The

researcher used descriptive statistics, Pearson correlation test, and regression analyses to address the research questions.

Tables 6 through 11 provide information on the demographic and geographic characteristics of the study participants. Of the 658 respondents, males represented 68.5% (*n* = 451). The highest percentages were from the group between 26-35 years of age (31.9%, *n* = 210). Participants with an undergraduate degree comprised the largest participating group (64%, *n* = 421). Participants of the Saudi nationality represented 94% (*n* = 619) of the final sample. The majority of respondents came from the most populated region of Saudi Arabia, the Central region (72.2%, *n* = 475). About 85% of the respondents live in major cities (*n* = 561).

In addition to the demographic descriptive, the researcher provides characteristics of the sample relevant to their online shopping behaviors for electronics and small appliances and accessories. Tables 12 through 15 contain details about these characteristics. The majority of the study participants indicated that they shopped less than once a month for electronics and small appliances (67.8%, *n* = 446). Mobile phones were the dominating device used when purchasing online (82.9%, *n* = 546). The virtual mall, Noon.com, was the most frequently used website (22.1%, *n* = 438). Amazon serves Saudi customers through two online shopping websites. If the data from the two websites were combined, Amazon would be the most frequently used e-tailer (30.1%, *n* = 596). The Saudi e-tailers represented only 34.8% of the most frequently used website by the study's participants. Of those Saudi E-tailers, Jarir.com was the highest (14.4%, *n* = 285) followed by eXtra.com.sa (11.1%, *n* = 219) and Xcite (3.8%, *n* = 75). Then, the participants were asked to choose only one website as their most preferred e-tailer. The results were quite similar to the results for the most frequently used E-tailers.

To address the main research questions, the participants were asked to evaluate only one online shopping website they had recently used to purchase electronics or small appliances products or their accessories. Table 16 lists all the evaluated websites. Noon.com was the most evaluated website by the study sample (27.4%, *n* = 180) followed by Amazon KSA (17.6%, *n* = 116), Jarir.com (16%, *n* = 105), and Amazon Global (14%, n = 92).

The findings indicate that the participants were overall satisfied with their most recently used e-tailer (*M* = 4.04, *S.D.* = .68). Measured through the overall VESQS, they reported that, to some extent, most of the overall e-service quality attributes were perceived during their most recent purchase experiences (*M* = 3.66, *S.D.* = .51).

In addition, detailed data were reported, indicating which of the seven VESQS components had been perceived the most during the participants' recent purchase experiences. The reported data includes the components' overall average mean, the mean of its attributes, and the mean of each evaluated e-tailer. For example, the most predominant e-service quality component was multi-device compatibility (*M* = 4.32, *S.D.* = .58). Within the multi-device component, the most predominant measured attribute was that participants agreed that the e-tailer website was easy to access through a mobile device (*M* = 4.37, *S.D.* = .67). This attribute was perceived by participants at all of the evaluated E-tailers. The highest mean score among all e-tailers was shared by Amazon Global (M = 4.42, *SD* = .57) and Amazon KSA (M = 4.42, *SD* = .52). Apart from the Saudi e-tailer Jarir.com, the international e-tailers scored higher than the Saudi e-tailers in all components and attributes. Full data is reported in Tables 18 through 33.

When examining the relationship between overall service quality and e-customer satisfaction, the correlation results show a statistically significant, strong, and positive relationship between the two variables $r(658) = .66$, $p < .001$. In addition, Table 35 provides

information about the relationship between e-customer satisfaction and each of the seven service quality components. At the components level, the correlations were significant and ranged from weak to moderate. The information quality component had the highest correlation coefficient $r(658) = .59$, $p < .001$, while the omni-channel component was the lowest $r(658) = .33$, $p < .001$. Moreover, correlations between the e-customer and the 36 attributes of service quality were reported to distinguish the attributes with a higher participation in the results of the overall component. Appendix G illustrates each attribute's correlation coefficient with e-customer satisfaction. All the attributes had a significant positive relationship with e-customer satisfaction.

The current study explored the ability of overall e-service quality as measured by VESQS to predict e-customer satisfaction. The simple regression analysis results indicate that the model is statistically significant, while the overall e-service quality explains 44% of the change in e-customer satisfaction.

In addition, the researcher ran a multiple regression model to explore the independent contribution of the seven VESQS components in terms of the predictive power of e-service quality on e-customer satisfaction. The total model illustrates that the seven e-service quality components explain 49% of the variance in e-customer satisfaction. Only five components are statistically significant predictors and contribute to the model. These components are information quality, delivery system, customer service, multi-device compatibility, and omni-channel. The results also indicate that privacy protection and the return policy are not statistically significant predictors of e-customer satisfaction. The best predictor of the five statically-significant components was information quality, as it was found to contribute 32% to e-service quality's predictive power on e-customer satisfaction. Then came multi-device compatibility at 22%, delivery system at 15%, customer service at 14%, and omni-channel at 8%.

Discussions

Study Instrument Discussion

The results of this study support the reliability of the set of attributes and components forming the VESQS instrument (Table 5). When Vajrapana (2019), the VESQS instrument developer, reviewed the existing e-service quality tools, the most popular tool appeared to be the E-S-QUAL developed by Parasuraman et al. in 2005. Many studies have used E-S-QUAL to produce a great set of knowledge that has contributed to both practical and academic fields (e.g. Boshoff, 2007; Dastane et al., 2018; Serkan et al., 2010; Yaya et al., 2016). Since the introduction of E-S-QUAL, online shopping has greatly progressed and consumers' perceptions have shifted (Alqahtani, 2016; Bishop, 2013; Collomb, 2018). The progress of online shopping has been triggered by many factors, such as the smartphone revolution and the popularity of tablet devices (Bilgihan et al., 2016; Meola, 2020; Singha & Swait, 2017). In addition, the competition among retailers has become intense, and brick-and-mortar businesses have been struggling to compete with their online shopping rivals (Jun et al., 2004). Some of these retailers have responded by engaging in online shopping through an omni-channel format, utilizing their physical store as a competitive advantage (Shankar et al., 2011).

E-S-QUAL measures only 22 attributes classified under four components: efficiency, system availability, fulfillment, and privacy. Although these 22 attributes and four components are important, E-S-QUAL did not assess other emerging components such as device compatibility, information quality, and retail channel in great detail. As a result, there is a need for an updated e-service quality scale that addresses the new development in online shopping was critical for retailers engaging in online business. This study supports the need to measure additional e-service attributes and components. For example, the omni-channel component,

which to the best of my knowledge was only introduced in VESQS, was found to be significantly correlated and predictive of e-customer satisfaction (Tables 35 & 38). Thus, it is vital to include omni-channel attributes when assessing the e-service quality provided by online businesses. Also, the current study has translated and adapted VESQS to the Arabic language and tested it within the Saudi Arabian online shopping environment. The results indicate that both the English and Arabic versions demonstrate strong reliability across all seven components, supporting Vajrapana's (2019) findings. Therefore, one might infer that VESQS is not influenced by cultural differences between the U.S sample used in Vajrapana's study and the sample in the current study.

Survey Distribution Discussion

Researchers often face challenges in reaching their target population in order to meet sampling objectives (Ramo et al., 2011). Many suggest using social media platforms as an alternative method to reach more participants (Lane et al., 2015). This study used two social media platforms to recruit participants: WhatsApp and Twitter. The information presented in Figures 5 and 6 supports the suggestion of using social media to reach a large number of potential participants and attain the sampling objectives. For example, this study needed 277 to 660 complete to meet sampling objectives (Table 2). Via the Twitter platform, the Arabic version invitation tweet was seen by about 180,000 users yet only attracted 2,921 users (i.e., 2%). After applying the inclusion criteria for this research, however, only 658 participants met the criteria. Having 658 complete results represented the maximum number needed. Therefore, social media platforms might be great recruiting tools for researchers worried about facing low recruiting numbers. The problem with social media platforms is that the survey might be filled by participants irrelevant to the target population. Researchers could add population inclusion

criteria to the survey to ensure that all participants represent the target population. For example, this study intended to explore the perceptions of participants living only in Saudi Arabia. In the demographic survey section, the respondents were given the option to select if they were currently living abroad. As a result, 31 responses were removed as they were not among the target population.

Descriptive Findings Discussion

International E-Tailers Versus Saudi E-Tailers. The study's descriptive findings indicate that Saudi residents purchase about 89% of their electronic and small appliances from seven major e-tailers (Table 14). Of these major retailers, only three Saudi e-tailers serve the sector through online and physical stores, namely Jarir.com, eXtra.com.sa, and Xcite.com. Before the year 2016, these three Saudi e-tailers captured most of the Saudi electronic and small appliances sector since they were its only major players. The information in Table 14 confirms the concerns stated in the problem statement about Saudi e-tailers losing their market share to those international rivals that have greater knowledge in operating online shopping businesses. In 2017, Amazon announced the launch of its operation in Saudi Arabia. The data collected for this study reveals that about 34% of the study sample indicates a preference to use Amazon to buy electronic and small appliances. Amazon percentage was far higher than the share of the three Saudi e-tailers Jarir.com, eXtra.com.sa, and Xcite.com, as a group or individually, who had 17%, 11%, and 4%, respectively. As Burt and Sparks (2003) suggested, once e-commerce retailers fine-tune their e-service quality to match customer expectations, the game will have new rules. The rapid increase of customers preferring to use Amazon in the Saudi market revealed by the current study might provide more support for the importance of e-service quality in influencing customers‘ e-tailers choice preferences. It is true other factors might have contributed to the

increased preference of Amazon such as product's availability, lower prices, etc. However, Amazon had the highest mean scores in five of the seven e-service quality components and at the same time most respondents reported that they prefer Amazon over other e-tailer which support the relationship stated in the theoretical framework in this study. Furthermore, Scoring the highest might indicate that Amazon has fine-tuned its e-service quality to match Saudi customer preferences better than other competitors. Therefore, Saudi e-tailers might need to learn how to compete properly with international online shopping companies, such as Amazon, to avoid reaching the point where they need to exit the market – similar to what happened to Toys-R-Us (Schlosser, 2017) - or close most of their physical stores like GAP did (Taylor, 2020).

Shopping Device. For over a decade, mobile devices have grown rapidly in all hands. Marketing experts soon signaled that mobile devices would determine the quality of the online shopping experience because they would bring the majority of customers a finger click away from e-tailers (Bedgood, 2016). The expected a massive takeover of mobile devices to the E-tailers' great competitive advantage, particularly when integrated with physical store operations (Faulds et al., 2017). Through an omni-channel, e-tailers would have access to real-time data to inform their supply-chain and guide their customers (Faulds et al., 2017). The research sample used in this study confirms the widespread use of mobile devices for online shopping. About 83% of the participants indicated that mobile devices were their most frequently used devices for online shopping. Therefore, it is expected that mobile devices will influence the priority of developing online shopping apps that match customer preferences.

E-Service Quality Versus E-Customer Satisfaction Discussions

Relationship Confirmation. This study adopted Vajrapana's (2019) e-service quality as a theoretical framework. Based on a mixed-method design and using a sample from the U.S., the

author suggests that contemporary e-service quality consists of seven components, namely information quality, privacy protection (i.e., security), delivery system, return process, customer service, multi-device compatibility, and omni-channel. The author also found that e-service quality is significantly correlated with e-customer satisfaction. The current study confirms this relationship, using a sample from Saudi Arabia. Thus, as e-service quality increases, so e-customer satisfaction will increase. In addition, the study adds to the body of knowledge on the predictive relationship between e-service quality and e-customer satisfaction as measured by VESQS and VCSS. The results indicate that overall e-service quality is a significant predictor of e-customer satisfaction. E-tailers serving the Saudi electronic and small appliances sector might benefit from learning that overall e-service quality explains about 44% of the change in e-customer satisfaction.

Cross-Culture Relationship. Conducting this research in Saudi Arabia indicates that the relationship between e-service quality and e-customer satisfaction may be evident in multiple cultures. The association found between e-service quality and e-customer satisfaction in this study is similar to the results presented by the instrument developer conducted in the U.S. It is also consistent with Kalia et al. (2016), who tested the relationship among 308 customers buying all sorts of electronic, electric, and apparel products from online shopping websites in India. The authors concluded that the relationship did exist, and e-customer satisfaction plays a mediator role between e-service quality and future purchase intention. These three studies support the significant, positive relationship between e-service quality and e-customer satisfaction in different cultures across the globe.

Other Sectors. In addition, the relationship between e-service quality and e-customer satisfaction has been tested within different sectors. While the current study looked at the

relationship within the Saudi electronic and small appliances sector, Al-Hawari (2014) tested this relationship within the UAE banking sector. The author took a sample of 245 bank customers and concluded that such a relationship exists between e-service quality and e-customer satisfaction. The researcher notes that the strength of the relationship may even be stronger among less social customers. In fact, e-customer satisfaction has been found to have an impact on e-customer loyalty.

Important Learning. Since e-service quality has been important in influencing e-customer satisfaction, e-tailers should ensure they possess the e-service quality attributes that match customer perceptions. Although the number of participants in this study who agreed on perceiving the e-service quality attributes was more than those who did not agree, the final results are not conclusive. The data shows that the majority of participants were neither agreeing nor disagreeing about perceiving the e-service quality attributes of the evaluated e-tailers. Therefore, this study's researcher concludes that overall e-service quality in the Saudi electronic and small appliances sector is not well established by e-tailers to match customer perceptions. One explanation could be the new emergence of online shopping in Saudi Arabia. As stated earlier, Amazon and Noon.com entered the market after 2016. Since e-service quality is composed of seven components, tweaking these components to match the Saudi sector is expected to require collecting enormous amounts of data to inform e-tailers on how to design a competent e-service quality mixture. As time passes and more real data is collected, e-service quality is expected to improve and gradually match online shopper perceptions. Also, past E-tailers' experience may have contributed to the variation in performance among the emerging e-tailers in this study. Amazon, the long experienced global online shopping e-tailer, emerged as having the highest e-service quality mean among all E-tailers. However, being the highest does

not imply that Amazon attained a conclusive, positive evaluation since most participants reported not being sure about how well Amazon's e-service quality actually was.

Saudi e-tailers may view this as an opportunity and a threat at the same time. It is an opportunity since there is still room for improvement to build a competent e-service quality. Saudi brick-and-mortar retailers have long experienced dealing with Saudi customers - more than Amazon and the other international competitors in the Saudi market. Therefore, they should take advantage of this knowledge to build a competent e-service quality before others do. On the other hand, Amazon already is the most frequently used and preferred e-tailer, but it still has room to improve its e-service quality. If Saudi e-tailers do not improve their e-service quality promptly, the risk of more customers preferring Amazon will grow higher and become a major threat to their survival.

E-Service Quality Components Discussions

Most Perceived Component. Apart from the multi-device component, all the e-service quality components' attributes in this study were not conclusively perceived to be possessed by the evaluated e-tailer. The majority of the participants reported that the multi-device component's attributes were apparent within the evaluated e-tailer. The multi-device component was second in terms of its association with e-customer satisfaction and the second important predictor of the five components that are significant predictors of e-customer satisfaction. The most important multi-device attributes were: fast and easy access using mobile phones, appropriate mobile layout design, and the ability to function in all the devices owned by e-customers. This information is consistent with the information presented in the shopping device section of this chapter. This research found that 83% of the sample has been using mobile devices to shop for products. The multi-device component is important, and the data suggest that

e-tailers perform well in making customers feel that all the components' attributes are being demonstrated.

This result is consistent with Vajrapana (2019), who found a significant positive relationship between the multi-device and e-customer satisfaction. In the EFA analysis conducted by the researcher, multi-device compatibility had the highest eigenvalue (11.084), accounting for 30.8% of the variance. In addition, the information has recently been confirmed by Meng and Sego (2020), using a sample of 500 consumers. The researchers found that the device's efficiency and responsiveness positively affect e-customer satisfaction. Consequently, e-customer satisfaction is a positive predictor of making a purchase and spreading it word-of-mouth to other potential e-customers.

Important E-Service Quality Component. Of the seven e-service quality components, information quality had the strongest correlation with e-customer satisfaction. About 59% of the time, when information quality increases, e-service quality also increases. Based on the results of this study, the information quality component is the most important predictor of e-customer satisfaction. About a third of the influential power of e-service quality over the change in e-customer satisfaction comes from the information quality component.

The result of information quality in this study confirms the conclusion of Eid (2001), who surveyed about 235 participants in Saudi Arabia to explore the effect of information quality on e-customer satisfaction. The results indicate that e-customer satisfaction is significantly influenced by information quality ($\beta = 0.30$, $p < 0.005$). The author stated that about 62% of the variance in customer satisfaction is explained by both information and user interface quality. On the other hand, the information quality results of the current study and those found by Eid (2011) contradict the data revealed by Vajrapana (2019), who surveyed 627 online shoppers in the

United States. The author concluded that information quality is not significantly related to customer satisfaction. It is hard to find the exact reason for the contradiction—one reason may be the cultural differences between Saudi and U.S. e-customers. Members of different cultures vary in the experiences that form their social norms, beliefs, and values, thereby influencing their perceptions (Alazab et al., 2020). U.S. e-customers have been using online shopping for over a decade, while Saudi e-customers have only been using online shopping for the last five years (Nacher, 2019; Wazzan, 2017). Such a long experience might explain U.S. e-customers view of information quality as a less significant factor in determining e-service quality as compared to the Saudi e-customers, who have a recent online shopping experience.

Important Information Quality Attributes. In this study, the most important information quality attribute that needs retailers' attention is providing information with the right level of detail. As illustrated in Appendix G, this attribute had the highest association with e-customer satisfaction. On the other hand, it had the least mean score, indicating it was the least perceived attribute among the component's attributes. Because the information quality component was the top predictor of e-customer satisfaction while providing information at the right level of detail was the most important attribute, it is safe to assume that e-tailers managing to improve this attribute will most likely have more chances to reach higher e-customers satisfaction than e-tailers who do not.

Another important information quality attribute in this study is displaying information in the appropriate format. For example, Saudi Arabia uses the metric system for measurements. The products listed on E-tailers' websites should use metric instead of imperial units. The appropriate format may include the page design versus the device used to display the information. E-tailers should ensure that their desktop version of their websites match laptop and P.C. specifications

and not use one version for all devices. Finding an appropriate website/device design might be an area for further exploration by interested e-tailers and/or researchers. Also, the use of quality images on their websites was found to be an important information quality attribute. The influence of using good pictures is consistent with Algharabat et al. (2017), who concluded that those with 3D quality affect e-customers' attitudes toward the websites they use for online shopping, which, in turn, impacts the customer satisfaction.

The current study found that information quality requires that information be easy to understand, well organized, and up to date. The results indicate that Amazon and Jarir.com were perceived to conclusively maintain an overall information quality component that matches participant perceptions. Other Saudi e-tailers need to pay more attention to this important e-service quality component.

Strategic E-Service Quality Component for Saudi E-Tailers. Of the five components that are deemed significant predictors of e-customer satisfaction, omni-channel was the least important, meaning it had the weakest association. However, the results of this component may have been statistically affected in that 468 of the 658 participants were evaluating e-tailers with no physical stores. The final results indicate that about 8% of the e-service quality power to predict e-customer satisfaction came from the omni-channel component. Allegedly, Vajrapana (2019) has been the first - and so far only researcher - to include omni-channel in an e-service quality scale. The author reached this conclusion using mixed-method research. Participants in the focus groups pointed out that omni-channel should be the main construct in developing an e-service quality scale. This suggestion was supported by surveying 627 online shoppers and carrying out an EFA analysis in which omni-channel had the second-highest score with an eigenvalue of 3.9. It accounted for 10.8 % (Cronbach's alpha = 0.93). In contrast to the current

study, Vajrapana found no significant relationship between omni-channel and e-customer satisfaction. Instead, omni-channel was found to have a significant positive relationship with customer loyalty ($p < 0.001$).

For Saudi e-tailers, omni-channel is one of the strategic components that could provide them with a competitive advantage over those international online shopping websites with no physical store capabilities. Academic and professional advisors have emphasized that an omni-channel strategy should be built around boosting the physical stores' e-commerce capability while taking advantage of the showrooming phenomena (Radial, 2016). Showrooming occurs when customers navigate physical stores to search for a product and then try to find the cheapest offer online (Mehra et al., 2013). E-tailers with physical stores should view these visits as an opportunity to provide incentives for customers to close the deal during the same trip through the use of price matching or in-store promotion offers (Radial, 2016).

In addition, using a physical store as a pick-up point is another advantage for e-tailers applying an omni-channel format. This study found a positive correlation between e-customer satisfaction and using the physical store as a pick-up point for online orders. Notably, the ability of the physical store staff to solve online order problems was the most important omni-channel attribute with the highest association coefficient and the least mean score. The low mean score indicates that the evaluated e-tailer did not perform well in demonstrating this attribute.

Other E-Service Quality Components. In this study, two e-service quality components show similar associations and prediction results: delivery system and customer service components. Their contribution to the predictive power accounts for 15% and 14%, respectively. As for customer service, the results of this study confirm the findings of McLean and Ose-Frimpong (2017). The authors collected 302 usable surveys from mobile phone customers to

investigate the role of the customer service provided by live chat on e-customer satisfaction. The authors found that customer service influences customer satisfaction, but it depends on many moderating factors such as the purpose of the call, the visual presence of the customer service representative, and the time needed to connect with a representative.

In this regard, Vajrapana (2019) stated that good customer service in an online platform mandates that representatives be well trained to address promptly any problems that arise. The author found based on multiple focus groups that customer service should be a standalone construct within optimal e-service quality. In a sampling of about 627, the author found that customer service has a significant positive effect on customer satisfaction and 23.5% of the variance is explained by customer service. The author concluded that "the better customer service a site provides, the less likely customers will switch to other sites" (Vajrapana, 2019, p. 57).

As for the delivery system component, the result of this study confirms the findings of Wahab and Khong (2019). The researchers examined this relationship among 384 online shoppers living in Kuala Lumpur, Malaysia. They found that system delivery affects customer satisfaction while response time aspects quality ($\beta = 0.102$, $p < 0.001$). However, the researchers examined attributes not covered in the current study: service variety, product availability, and tracking capabilities that were not statistically significant for e-customer satisfaction. Meanwhile, in the current study, e-tailer commitment to delivering orders within the designated time frame was found to be the most important attribute since it had the highest correlation with e-customer satisfaction.

Implications and Recommendations

Theoretical Implications

The theoretical framework of this study was guided by the findings of Vajrapana (2019), who developed an updated e-service quality scale and examined its relationships with three variables, including e-customer satisfaction. This choice of framework resulted from reviewing eight e-service quality scales (Table 1). The current study contributes to the overall e-service quality literature by confirming the positive relationship with e-customer satisfaction, using the VESQS instrument. While Vajrapana (2019) established a relationship within the individualistic cultures of the West, this study confirms this relationship within the collective culture of Saudi Arabia. In addition, it tested the relationship with a more homogenized sample by focusing on the Saudi electronic and small appliances sector as compared to Vajrapana (2019) and Kalia et al. (2016) who used broad samples from multiples sectors.

This study provides information based on evidence regarding the predictive power of the seven e-service quality components measured by VESQS on e-customer satisfaction as measured by VCSS. As a result, it adds the knowledge that privacy protection and return policy components are not significant predictors of e-customer satisfaction in the Saudi electronic and small appliances sector at the current time. Knowing that online shopping has recently boomed in Saudi Arabia, this may change once other components reach their maturity stage. It implies that while Saudi e-customers have recent experience in online shopping, they have not experienced substantial privacy protection issues. As online transactions increase, these privacy issues might increase. As a result, the privacy protection component might emerge as a significant predictor of e-customer satisfaction. Another reason for privacy protection not being significant is how online shopping transactions are conducted: banks in Saudi Arabia use double

authentication to approve transactions. In addition to the security code of the selected bank card, text message verification will be sent to customers for transaction approval. Therefore, Saudi e-customers may feel less concerned about the potential exposure of their bank information.

Moreover, the remaining five components were significant and varied in their contributions to the e-service quality predictive power on e-customer satisfaction. The results of this study provide a priority order based on the contribution of each component to the predictive power of e-service quality. In a newly-emerged online shopping market such as Saudi Arabia, the information quality component was found to have the highest contribution to the predictive power of e-service quality on e-customer satisfaction. This finding was completely different than what has been found in more mature markets such as the U.S., as information quality was found not to have a significant relationship with e-customer satisfaction (Vajrapana, 2019).

Implications and Recommendations for E-Tailers

Within less than four years of entering the Saudi market, Amazon was found (per this study) to be the most preferred e-tailer in the electronic and small appliances sector. The company's rapid takeover should be alarming for Saudi e-tailers operating in this sphere. This study has reached conclusions of great value to those Saudi e-tailers competing in the sector. First, information quality is the most important e-service quality component as it contributes greatly to customer e-satisfaction. Also, the study participants were not conclusive about the availability of the information component's attributes at the evaluated E-tailers, thereby allowing room for improvement to creates a competitive edge in the sector. Therefore, one of the study's recommendations to e-tailers, including those from Saudi Arabia, is to ensure that the information provided on their websites matches their Saudi customer preferences. One way is to

add feedback capabilities on each visited webpage to find out whether the information was helpful, affording the possibility of e-customers' suggestions for improvement.

Another important conclusion in the current study is that Saudi e-tailers have not yet taken advantage of their physical stores to make a difference in customer perceptions. Applying an omni-channel strategy is expected to create an entry barrier for new international e-tailers. The physical store could act as a pick-up and/or drop-off point for customer convivence. Through these physical stores, Saudi e-tailers could provide support for customers who require assistance in using electronic or electrical products.

Another important piece of advice for Saudi e-tailers is to provide physical store employees with the proper training to handle and solve online order problems. The omni-channel component involves major changes at the organization level to apply recent technologies that can integrate and demonstrate the data from the physical store and the online mode spontaneously (Granata, 2021).

Implications for Saudi Policy Makers

Recent data shows that unemployment rates in Saudi Arabia has jumped from 6.13% in 2019 to 8.22% this year (Statista, 2022). Such a massive leap can likely be attributed to the global pandemic (COVID-19) that led most retail industry personnel to lose their jobs, either temporally or permanently. While a pandemic is a temporary situation expected to resolve after some time, the closure of local retail businesses due to increased competition from major international online shopping companies will have a permanent effect. International e-tailers carry out most of their operations from outside Saudi Arabia. Thus, many retail jobs will be lost to foreign countries. The current study raises a red flag by warning that most Saudi e-tailers

might be losing market share to their international peers outside of Saudi Arabia. Eventually, Saudi retailers might struggle to compete, and local employees might risk losing their jobs.

The Saudi Human Resource Development Fund (HRDF) is a government organization concerned with helping non-government organizations hire more Saudi nationals. HRDF provides incentives such as salary support, monetary training support, and sponsor research that lead to hiring more Saudi nationals. It claims to be dynamic in considering any form of support that hires and retains Saudi nationals. This study might serve to inform HRDF research and training schemes. For example, information quality has emerged as an important e-service quality component that will help Saudi e-tailers achieve higher e-customer satisfaction levels. Training incentives might be directed to e-tailers that need to improve this component. HRDF could sponsor research that provides guidelines to e-tailers in developing a competent e-service quality system.

HRDF could also support research that addresses how to effectively operate a retail business in an omni-channel format to give Saudi e-tailers an edge over their international peers. Other governmental funds could assist by providing interest-free loans to help Saudi e-tailers implement advanced technological applications and improve their e-service quality components.

Implications and Recommendations for Researchers

The current study highlights the role of social media in the research process. Because social media are widely used, the researcher was able to deliver the invitation's message and survey link to more than 180,000 potential participants. The main platforms used were WhatsApp and Twitter. This study thereby engendered data that could be used to assist researchers in estimating the potential response rate when using Twitter for distributing surveys. In this study, about 1% of the +180,000 Twitters users who saw the invitation engaged with the

survey. The conclusion that can be drawn from this experience is that the social media platform was indeed a powerful tool to help secure the necessary number of participants to achieve the desired sampling targets. However, to take full advantage of the high exposure of social media platforms, researchers need to learn how improve engagements rates. Perhaps researchers need to explore in great detail the services provided by Twitter Inc. in which the message could be viewed by users that share certain characteristics. For example, this study is intended for respondents residing only in Saudi Arabia. Through Promoted Tweet service, Twitter could ensure that the exposure of the invitation message will be limited to people residing in Saudi Arabia. Furthermore, one important piece of advice for researchers interested in using social media is to use enough, appropriate demographic questions that describe the research target population. These demographic questions will help eliminate participants that do not belong to the target population. For example, in this research, participants were given the chance to select the age group of less than 18 years, yet it was not part of the covered population. Of note, 14 participants were removed because they did not comply with the target population age criterion (Table 3).

Limitations

As with any research, the findings of this study should only be considered in view of the associated limitations. One major limitation is the project scope. Even though the project covers online retail in Saudi Arabia, it only pertained to the electronics and small appliances online retail sector. Thus, the findings cannot be assumed to apply to other retail sectors such as fashion, furniture, grocery, etc., that might require business models appropriate to their products. Also, the study utilized a quantitative, non-experimental, predictive design, which limited the ability of the researcher to explore deeper insights regarding the respondents' answers. The

design did not enable the researcher to answer “why questions” regarding the nature of the relationship between e-service quality and e-customer satisfaction.

Another limitation is the one shared by most researchers which is the inability to use random sampling due to the difficulties to reach every member of the population to randomly select respondents for this study. Therefore, this research used convenience sampling as it provides more practical and economical techniques to collect the data necessary for addressing the research problem. However, the use of a convenience sampling method mandates extreme caution when generalizing findings to all customers shopping for electronic and small appliances. The received data needs to be considered from the sample’s viewpoints, not the population.

Another limitation is that the respondents were asked to assess their recent purchase experiences. However, it may be assumed that other experiences could have impacted their overall judgment. Therefore, it is incorrect to entirely assume that the respondents’ assessments accurately reflect an actual assessment of the evaluated e-tailer.

After conducting the research, several limitations emerged. Most stemmed from the findings in the demographics section. The proportion of the participants’ nationalities, age groups, regional locations, and gender were not compatible with the Saudi population. For example, nationality was divided into two groups, namely Saudi and non-Saudi (Table 9). In this research, the Saudi nationals made up the vast majority (94%, $n = 619$). This figure is not compatible with the Saudi Arabian population, in which Saudi nationals represent only 63% of the population.

Recommendations for Future Research

Based on the findings and limitations of this research, several recommendations for future research are pertinent. First, the study sample was limited to the electronic and small appliances online shopping sector; therefore, future studies should consider exploring the relationship with other online shopping sectors. Next, a future researcher might be interested in exploring the relationship between e-service quality and other important business factors such as e-customer loyalty and the e-tailer's perceived value. Also, future research might consider the relationship of other important factors such as products' availability, competitive low prices etc. and their impact on customers' e-tailers preferences. The findings of the proposed research could then be compared with the current findings to make sure if those factors had an influence similar to the e-service quality or not and help e-tailers learn more about factors that determine customers' e-tailers preferences.

In the end, the results of this study indicate that information quality is the most important aspect of e-service quality. Qualitative research methods might be useful in digging for a deeper understanding of important information that could lead to higher e-customer satisfaction. The focus group method generates guided deep discussions between a few e-customers to obtain their viewpoints on several predesigned examples to help participants provide meaningful criticism. In addition, an in-depth format might help explore the opinions of participants who have a one-to-one conversation preference.

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Appendices

Appendix A: Permission for Use of VESQS

Re: Permission to use the E-service Quality Scale

HP

Huddleston, Patricia <huddles2@msu.edu>
To Almobarak, Majed A.
Cc PAPHAJREE VAJRAPANA

10/13/2020

You replied to this message on 10/13/2020 8:25 AM.

Hi Majed,

So sorry for the delay. It is fine to go ahead and use Dr. Vajrapana's e-service quality scale. Good luck with your study.

Dr. Huddleston

==========

"Music is the heartbeat that can bring people together." Dave Brubeck

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Appendix B: Institutional Review Board Approval

UNIVERSITY OF THE INCARNATE WORD

May 21, 2021

PI: Mr Majed Almobarak

Protocol title: The Impact of e-Service Quality on the Customer Satisfaction of Electronic and Small Appliances Online Shoppers in Saudi Arabia

Majed:

Your request for revisions to exempt protocol 20-11-008 was approved. The following revisions to your protocol have been approved:

- Survey/interview/data collection instrument(s)
- Translation of consent form to an additional language
- Recruitment materials, flyers, etc.

Please keep in mind these additional IRB requirements:

- Either a study status update (for exempt studies) or a request for continuing review (for expedited and full Board studies) must be completed for projects extending past one year, and closure of completed studies must be reported. Use either the **IRB Study Status Update**, **IRB Continuing Review Request** or **IRB Closure** form.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **IRB Amendment Request** form.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol. Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research and Sponsored Projects Operations.

Sincerely,

Mary Jo Bilicek
Research Compliance Coordinator
University of the Incarnate Word
(210) 805-3565
bilicek@uiwtx.edu

Appendix C: Consent Letter (English)

Dear Online Shopper living in Saudi Arabia,

As an adult (18 years and above) living in Saudi Arabia (Saudi or non-Saudi), you are invited to participate in a doctoral research project about your perceptions regarding online shopping experience for electronic and small appliances products from Saudi Arabia. The information obtained from this survey will be used by the researcher to formulate recommendations for retailers involved in online shopping and expected to help improve customers' online shopping experience in the future. Your participation is completely voluntary, and you may decline to take this survey if you choose. Please note there is no direct benefit that will accrue to you from taking this survey; however, your participation will contribute greatly to our knowledge about online shopping experience from Saudi Arabia.

Things you should know-

Your responses to this survey will be anonymous and the research findings from the data collected will be reported in aggregate form. Since we are not collecting any personally identifying information from you, your responses will not be linked back to you.

Taking the survey-

Completing and submitting this survey represents informed consent to participate in the research study. You may choose to opt out of the study at any time. If you have questions at any time about the study or survey, you may contact Mr. Majed Almobarak at majded4phd@gmail.com or Dr. Arthur Hernandez at aeherna8@uiwtx.edu.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information or offer input, contact the UIW (Institutional Review Board) (IRB) at (210) 805-3036. This research and survey tool has been approved by the UIW IRB (IRB #XX-XX-XXX).

Thank you in advance for your time,

Majed Almobarak, PhD-Candidate
University of the Incarnate Word, Texas

Consent

Moving to the survey section indicates that you (1) consent to take part in this research study, and (2) that you have read and understand the information given above.

Take the Survey [https://uiwtxuw.sjc1.qualtrics.com/jfe/form/SV_b8UdiUiP58QCCaO]

Appendix D: Consent Letter (Arabic)

عزيزي المتسوق / عزيزتي المتسوقة عبر الانترنت:

كانسان راشد (18 عاماً أو أكبر) يعيش في المملكة العربية السعودية (سعودي أو مقيم)، أدعوك للمشاركة في البحث المقدم لدرجة الدكتوراة والذي يستطلع انطباعاتك الشخصية عن تجربة التسوق والشراء عبر الانترنت للمنتجات الإلكترونية والكهربائية ومستلزماتهما من المملكة العربية السعودية. المعلومات المتحصلة من هذا الاستبانة سوف تستخدم من قبل الباحث لتقديم توصيات لتجار التجزئة ويتوقع ان تسهم مستقبلاً في الارتقاء بتجربة المتسوق عبر الانترنت المقيم في السعودية. كما أن المشاركة في هذه الدراسة تطوعية ولن يترتب عليها أي فائدة أو ضرر مباشر عليكم، ويحق لكم الانسحاب في أي وقت بدون أي تبعات.

جميع المعلومات الواردة بهذه الاستبانة سيتم التعامل معها بسرية تامة ولن تستخدم إلا لأغراض البحث العلمي فقط وقد تنشر النتائج في المجلات والمؤتمرات العلمية بدون إظهار هوية المشاركين. سيتم عرض وتحليل النتائج بشكل إجمالي ولا يوجد ما يشير إلى هوية المشاركين بالدراسة.

الباحث يقدر مشاركتك في هذه الدراسة ويثمن وقتك المبذول فيها، فالمرجو منك إكمال الاستبانة حتى نهايتها. أن اجابتك على هذه الاستبانة وتسليمها تعني بانك موافق على المشاركة علماً بانك تستطيع الانسحاب في أي وقت تشاء. إذا كنت تحتاج أي معلومات إضافية يرجى التواصل مع الباحث **السيد / ماجد المبارك** على البريد الالكتروني majded4phd@gmail.com كما يمكنك التواصل مع المشرف على الأطروحة العلمية **الدكتور / آرثر هرناندز** على البريد الالكتروني aeherna8@uiwtx.edu .

إذا كان لديك أسئلة حول حقوقك أو شكوى أو الاستفسار عن دورك كمشارك في الدراسة أو كنت ترغب في الحصول على معلومات أو تقديم ملاحظات، ارجو التواصل مع لجنة أخلاقيات البحث العلمي بجامعة انكارنت وورد – تكساس (Institutional Review Board) على الرقم 210-805-3036. مع العلم بأن هذا البحث والاستبانة تم مراجعتها واعتمادها من قبل لجنة أخلاقيات البحث العلمي بجامعة UIW (IRB#20-11-008).

شاكراً ومقدراً تعاونكم ،

المرشح لدرجة الدكتوارة / ماجد بن عبدالله المبارك
جامعة انكارنت وورد – تكساس

النقر على رابط الاستبانة أدناه يعني أنه تم اطلاعك على المعلومات المذكورة أعلاه وتم فهمها فهماً جيداً بما يكفي لاتخاذ قرار مشاركتك وكذلك موافقتك على المشاركة.

رابط الاستبانة [https://uiwtxuw.sjc1.qualtrics.com/jfe/form/SV_8cYEdi39KiDrIJo]

Appendix E: Short Recruitment Message via Social Media

English

If you are an adult (18 or above) living in Saudi Arabia (Saudi or foreigner resident) and have purchased electronic and small products (e.g., computers, hardware, accessories, TVs, electrical small appliances, etc.) through the internet, I kindly ask you to take the following survey: https://uiwtxuw.sjc1.qualtrics.com/jfe/form/SV_b8UdiUiP58QCCaO

Arabic

إذا كان عمرك 18 عاماً أو أكبر وتعيش في المملكة العربية السعودية (مواطن أو مقيم) وسبق ان اشتريت عبر الانترنت منتجات الإلكترونية أو كهربائية أو مستلزماتهما (مثل الكمبيوترات والتلفزيونات والأجهزة المنزلية الصغيرة والإكسسوارات الخاصة بهم) فاني ادعوك للمشاركة في هذه الاستبانة:

https://uiwtxuw.sjc1.qualtrics.com/jfe/form/SV_8cYEdi39KiDrIJo

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Appendix F: Questionaries (English Version)

How often do you purchase tangible products online?

- ☐ Less than once a month
- ☐ Once a month
- ☐ Twice a month
- ☐ Three times a month
- ☐ Four times a month
- ☐ More than four times a month

Please select the site(s) that you have used before to buy electronic and small appliances products from? (Check all that apply**)**

- ☐ eXtra.com
- ☐ electorstores.com (Electro)
- ☐ Jarir.com
- ☐ Amazon.sa (Saudi Arabia)
- ☐ Amazon.com (Global)
- ☐ Alibaba.com
- ☐ Noon.com
- ☐ Xcite
- ☐ Alassly.com
- ☐ Aswaq.com
- ☐ Pcsea.net
- ☐ eddy.com.sa
- ☐ Other Local (please specify) _____
- ☐ Other Global (please specify) _____

Who's your most preferred electronic and small appliances online retailer? (Select only one**)**

- ☐ eXtra.com
- ☐ electorstores.com (Electro)
- ☐ Jarir.com
- ☐ Amazon.sa (Saudi Arabia)
- ☐ Amazon.com (Global)
- ☐ Alibaba.com
- ☐ Noon.com
- ☐ Xcite
- ☐ Alassly.com
- ☐ Aswaq.com
- ☐ Pcsea.net
- ☐ eddy.com.sa
- ☐ Other Local (please specify) _____
- ☐ Other Global (please specify) _____

Where do you live?

- ☐ Central of Saudi Arabia
- ☐ North of Saudi Arabia
- ☐ South of Saud Arabia
- ☐ West of Saudi Arabia
- ☐ East of Saudi Arabia
- ☐ Other (please specify) (screened out)

_____

I live in:

- ☐ Urban Area
- ☐ Semi Urban Area
- ☐ Rural Area

How do you access online shopping sites? (Check all that apply)

Appendix F—Continued: Questionaries (English Version)

□ Personal computer
□ Mobile phone
□ Tablet
□ Other (please specify)

_____

Which device do you use most frequently for PURCHASING products from online shopping sites?

□ Personal computer
□ Mobile phone
□ Tablet
□ Other (please specify)

_____

Please identify an online shopping site that you most often purchase tangible electronic and small appliances products from. **(PLEASE IDENTIFY ONLY ONE SITE)**

_____

Regarding the site that you identified in the previous question, please indicate how much you agree or disagree with the following statements about your perception of the site's performance.

Phrase	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Information on this site is easy to understand.					
This site provides information at the right level of detail.					
This site shows good pictures of the products.					
Information on this site is up to date.					
Information on this site is well organized.					
Information contained on this site is in an appropriate format.					
This site assures me that other sites will not get my information.					
This site keeps my personal information secure.					
This site carefully protects my credit card information.					
This site makes sure to protect information about my online shopping behaviors.					
If you are reading this, please select "disagree" for the answer.					
This site will not purposely misuse my personal information.					
This site provides me with an accurate delivery date.					
This site provides me with an accurate shipping time.					
This site is committed to delivering orders within a designated time frame.					
This site quickly delivers what I order.					

Appendix F—Continued: Questionaries (English Version)

Phrase	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
It is easy to return products.					
Returning products is hassle-free.					
Returning costs are reasonable.					
The returning process is quick.					
It is fast to get refund for returned products.					
Employees of this site properly handle any problems that arise.					
Employees of this site have useful knowledge to answer my questions.					
Employees of this site are helpful in solving my problems.					
Employees of this site are courteous to me when trying to resolve my problems.					
This site shows a sincere interest in solving my problems.					
This site is mobile-friendly.					
This site is functional on all my devices.					
This site is responsive to mobile devices.					
This site has an appropriate layout design for mobile access.					
Accessing this site through mobile devices is fast.					
Accessing this site through mobile devices is easy.					
It is easy to physically pick up my orders if this site has a physical store near my home.					
It is easy to return my orders if this site has a physical store near my home.					
This site provides up-to-date information about the inventory available in a physical store.					
Employees at a physical store can easily access my online order information.					

Phrase	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Employees at a physical store are helpful in solving my online order problems.					
If you are reading this, please select "disagree" for the answer.					
ONLINE SHOPPING SATISFACTION					
Phrase	**Strongly Disagree**	**Disagree**	**Neither**	**Agree**	**Strongly Agree**
Based on all of my experience with this site, I feel very satisfied.					
My choice to use this site was a wise one.					
Overall, I am satisfied with the decision to use this site.					
I think I did the right thing when I decided to use this site for making my purchase.					
My overall evaluation of the services provided by this site is very good.					

What is your gender?

□ Male
□ Female

What is your age group?

□ Less than 18 (screened out)
□ 18 – 25 Years.
□ 26 – 35 Years.
□ 36 – 45 Years.
□ 46 – 55 Years.
□ 56 – 65 Years
□ 66 Years or more.

Appendix F—Continued: Questionaries (English Version)

What is your Education?

□ High School
□ Undergraduate Degree.
□ Master
□ Doctoral
□ Other (please specify)_____

In which region do you live in Saudi Arabia?

□ Central Region
□ Western Region.
□ Eastern Region
□ Northern Region
□ Southern Region
□ Other (please specify)_____

I live in…

□ Major City
□ Small Twon.
□ Village-
□ Rural Area
□ Remote Area

Appendix G: *VESQS Attributes Means vs. Correlation*

Information Quality Measured Attributes	VCSS* r_s	Mean	SD	Mode	Median
Information is easy to understand.	.47	4.00	.79	4	4
The information is at the right level of detail.	.50	3.80	.90	4	4
The site shows good pictures of the products.	.45	3.90	.89	4	4
Information is up to date.	.46	3.87	.82	4	4
Information is well organized.	.46	3.89	.84	4	4
Information is in an appropriate format.	.45	3.81	.85	4	4
Privacy Protection Measured Attributes	**VCSS* r_s**	**Mean**	**SD**	**Mode**	**Median**
This site assures me that other sites will not get my information.	.28	3.45	.97	3	3
This site keeps my personal information secure.	.33	3.65	.88	4	4
This site carefully protects my credit card information.	.37	3.83	.84	4	4
This site makes sure to protect information about my online shopping behaviors.	.23	3.34	1.01	3	3
This site will not purposely misuse my personal information.	.32	3.74	.89	4	4
Delivery System Measured Attributes	**VCSS* r_s**	**Mean**	**SD**	**Mode**	**Median**
This site provides me with an accurate delivery date.	.45	3.72	1.08	4	4
This site provides me with an accurate shipping time.	.42	3.47	1.12	4	4
This site is committed to delivering orders within a designated time frame.	.50	3.68	1.04	4	4
This site quickly delivers what I order.	.47	3.66	1.03	4	4
Return Process Measured Attributes	**VCSS* r_s**	**Mean**	**SD**	**Mode**	**Median**
It is easy to return products.	.30	3.37	1.01	3	3
Returning products is hassle-free.	.33	3.28	1.04	3	3
Returning costs are reasonable.	.32	3.38	.94	3	3
The returning process is quick.	.36	3.23	1.00	3	3
It is fast to get a refund for returned products.	.39	3.17	1.03	3	3

Appendix G — Continued: *VESQS Attributes Means vs Correlation*

Customer Service Measured Attributes	VCSS* r_s	Mean	SD	Mode	Median
Employees of this site properly handle any problems that arise.	.45	3.53	.95	4	4
Employees of this site have useful knowledge to answer my questions.	.45	3.50	.95	4	4
Employees of this site are helpful in solving my problems.	.45	3.52	.93	4	4
Employees of this site are courteous to me when trying to resolve my problems.	.42	3.67	.86	4	4
This site shows a sincere interest in solving my problems.	.47	3.56	.92	3	4
Multi-Device Measured Attributes	**VCSS* r_s**	**Mean**	**SD**	**Mode**	**Median**
This site is mobile-friendly.	.47	4.29	.71	4	4
This site is functional on all my devices.	.50	4.27	.71	4	4
This site is responsive to mobile devices.	.50	4.36	.63	4	4
This site has an appropriate layout design for mobile access.	.50	4.28	.73	4	4
Accessing this site through mobile devices is fast.	.51	4.33	.68	4	4
Accessing this site through mobile devices is easy.	.48	4.37	.67	4	4
Omni-Channel Measured Attributes	**VCSS* r_s**	**Mean**	**SD**	**Mode**	**Median**
It is easy to physically pick up my orders if this site has a physical store near my home.	.19	3.45	.85	3	3
It is easy to return my orders if this site has a physical store near my home.	.19	3.30	.86	3	3
This site provides up-to-date information about the inventory available in a physical store.	.21	3.37	.90	3	3
Employees at a physical store can easily access my online order information.	.21	3.30	.82	3	3
Employees at a physical store are helpful in solving my online order problems.	.24	3.19	.78	3	3

* Sig <.001