

FACTOR AFFECTING CUSTOMER SATISFACTION  
IN E-COMMERCE

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## DECLARATION

I hereby declare that:

(1) This undergraduate FYP is the end result of my own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Sole contribution has been made by me in completing the FYP.

(4) The word count of this research report is 10,685 words.

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Date: 08 December 2023

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## DEDICATION

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## LIST OF ABBREVIATIONS

GDP	Growth Domestic Product
CAGR	Cumulative Annual Growth Rate
ECT	Expectation Confirmation Theory
EDP	Expectancy Disconfirmation Theory
VPT	Value Percept Theory
MSC	Multimedia Super Corridor
ICT	Informative and Communications Technologies
MDEC	Malaysia Digital Economy Corporation
eWOM	Electronic Word of Mouth
SEM	Structural Equation Modeling

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## PREFACE

This research is a compulsory subject to be taken by final-year students at Universiti Tunku Abdul Rahman (UTAR) before graduating from university. This study has been conducted for nearly half a year by researchers from the Bachelor of International Business (Hons). Throughout the event, I can learn the process and skills of conducting research projects.

The topic of this research is “Factor affecting customer satisfaction in e-commerce”. This research aims to define the relationship between the variables. Hence, researchers conducted the project to understand what and how factors affect customer satisfaction in e-commerce. This research can let an e-business owner to more understand customer satisfaction in order to improve it business.

Optimizing factors that influence customer satisfaction is paramount in the realm of e-commerce. By addressing key elements, businesses can enhance their performance, operational efficiency, and overall effectiveness in meeting customer needs. Proactively managing these factors not only reduces the likelihood of customer attrition but also contributes to the retention of satisfied clients. The insights gained from this research are anticipated to be instrumental for future studies and researchers seeking a deeper comprehension of the cause-and-effect relationships in the domain of e-commerce customer satisfaction.

## ABSTRACT

Customer satisfaction as a concept encompasses different formulations, theories, policies, and practices. The literature on customer satisfaction presents a great deal of diversity. Since most Malaysians had experienced online shopping therefore, this research will use the variables of reliability, web design, customer experience and guarantee/ safety to test what factors had given a better level of satisfaction to customers.

This research which involved 222 respondents aged between 18 years old and above was conducted by distributing the Google survey form. The questionnaires were distributed through online platforms, including WhatsApp, Facebook, Instagram, WeChat and Microsoft Team because the data collection process can be quick and involves low costs. Structural Equation Modeling (PLS-SEM) has been utilized to analyze the collected data to test the hypothesis. Based on the findings, it has been proven that the relationship between the four independent variables with the dependent variables, which the four independent variables (reliability, web design, customer experience and guarantee) have relationship with dependent variable (customer satisfaction).

Moreover, the limitations and recommendations of this study were addressed in the final chapter to provide further improvement suggestions for future researchers in this study field.

## **Chapter 1: Introduction**

### **1.0 Research Overview**

E-commerce is also known as electronic commerce or internet commerce where it involves the process of buying and selling activities, transferring and receiving money from the transaction where the whole process is completed by using the internet. It arose from the result of the combination of digital technology, the internet, and commercial industries to enhance productivity, efficiency, and consumer services. The rise of the internet as well as smartphones and other mobile device usage has contributed to the growth of e-commerce over the past decades. It is the medium for the transactions between consumers and firms. E-commerce is the subset of e-business as the whole business transaction can be performed by electronic means via email, phone, fax, online brochure, shopping cart, e-payment, payment gateway, electronic data interchange, and file transfer protocol without the need to use paper (Sanyal, 2019).

The presence of e-commerce has provided an alternative for people to conduct buying and selling activities. The primary competitive advantages of e-commerce compared to the brick- and-mortar retail shop are the 24/7 availability of products, the overcoming of geographical barriers, and most importantly, timesaving (Rahmayanti et al., 2021). Despite the mentioned benefits, there are still some customers who prefer to purchase physical goods as they can touch, feel, and try the products before making the purchase decision.



According to Ibrahim et al. (2019), online shopping can provide more flexibility and opportunities. For instance, online shopping enables customers to increase their product knowledge via online research and reduce their reliance on the salesperson. If a consumer intends to purchase without the restriction of time, place, and location and is less interrupted, online shopping is an ideal place for them. The sellers can use e-commerce to perform business transactions regardless of anytime or anywhere. The sellers can also use e-commerce to perform operational skills, information provision, and post-sales service with the objective of retaining customers.

The convenience of internet technology has caused people to start to adapt and rely on e-commerce. A clear example would be when people began to change their purchasing patterns in the past from shopping at physical stores to e-shopping. The shifting speed had been accelerated during the outbreak of the Covid-19 pandemic where the implementation of movement control orders and people had to use e-commerce to purchase daily necessities or to order foods. In e-commerce, people can connect the internet to their devices such as laptops, desktops, and smartphones and enjoy e-shopping at any time and anywhere. In short, the popularization of the Internet has slowly integrated living styles and changed the conventional purchasing method.

## **1.1 Research Background**

E-commerce recorded explosive growth, especially during the COVID-19 pandemic. This can be proved by the statistics from the United Nations Conference on Trade and Development (2022) where the average number of users who made purchases online had increased from 53% at a pre-pandemic level to 60% during the

COVID-19 pandemic across the world and the increase is led by the online retail store. The same scenario happened in Malaysia where the income contribution from e-commerce experienced exponential growth and it achieved RM201.1 billion in 2021 and surpassed RM1 trillion for the first time, which translated to 22% growth compared to 2020. To a greater extent, among all the total internet users in Malaysia, nearly half of them made online purchases in the last year. On the other hand, due to the vast advantages of e-commerce, there is a significant increase in the number of retailers who offer online store interfaces to their consumers.

E-commerce spending has been stimulated since COVID-19 and it has become the new norm in Malaysia. For instance, in 2021, online spending on food increased by 78% and online spending on fashion has increased by 49.5%. Yet, the contribution of e-commerce to Malaysia's Gross Domestic Product (GDP) has increased from 11.6% in 2020 to 13.0% in 2021 (Chong, 2023). Hence, to further stimulate the growth of e-commerce, the government of Malaysia allocated a budget of RM50 million in 2022 to encourage the adoption of e-commerce among small and medium enterprises in Malaysia (Compare Hero, 2022).

According to research by Future Market Insights (2023), the market size of the e-commerce industry is forecasted at \$11.5 trillion in 2023 and will be expanded at the cumulative annual growth rate (CAGR) of 19% to \$65.5 trillion in 2033, which is equivalent to six-fold of the market size in 2023. The swift growth of the e-commerce market is due to the rapid growth of new technologies, increasing demand for internet access and disposable income.

## 1.2 Problem Statement

Even though e-commerce has become a global trend and played an important role in people's lives and the country's economy, in the meanwhile, there are some problems faced when customers make purchases from online shopping. The first problem is the technical issue. It should be noted that the prerequisite to enable transactions in e-commerce can be conducted in the presence of the Internet. Hence, the stability of the internet is very important in this scenario. However, there is some scenario where technical issue might exist such as website downtime or slow page loading time where the mentioned technical issues might cause the customers to become frustrated and eventually affect the business as it has affected the overall satisfaction level throughout the online shopping and purchasing process (Business News Daily, 2021).

The second problem faced by e-commerce is the security threats, such as data breaches, fraud, and hacking. Due to the rising cyberattacks and data breaches, consumers will become warier in sharing their personal information or financial information online such as consumer's full name, date of birth, credit card number and so on. According to Statista (2023), 34.1 million data records were being exposed worldwide in 2022, where it is representing a rise of 38% compared to 2021 and up to 92% happened due to cyberattacks. One of the breakthroughs for the data breaches is the online payment system when the consumers intend to make the payment on the items selected in the online shopping carts. This scenario might also cause the loss of a portion of customers from online purchases to offline purchases as they might decide to make the payment via cash transaction. In the event of they still intend to make the purchase online, they will select cash on delivery as the payment method and they will make the cash payment whenever the goods are delivered to their doorstep.

Third, due to the increasing trend in e-commerce, higher competition exists when more and more people attempt to venture into e-commerce. The other reason is the barrier to entry into e-commerce is low as the initial capital required is lower compared to the traditional brick-and-mortar retail business as people do not need to pay for the monthly fixed overhead costs such as rental and utilities. In other words, the trial-and-error cost in e-commerce is relatively low compared to the brick-and-mortar business which further encouraged more people to venture into e-commerce to give it a try. Yet, the competition in e-commerce is even stiffer as the business in the e-commerce world is broader less where the competitors might not necessarily come from the same region within a country, but they also might come from overseas.

The fourth problem that exists is web design. It should be noted that a well-designed website will enable consumers to easily spot the things that they intend to look for. However, it is discovered that the common web design problem for e-commerce sellers is a lack of design consistency as standards are not set when designing the webpage. According to SWEOR (2023), the survey discovered that 38% of customers will stop engaging with a website in the event the layout or content is found to be unattractive and 88% of online consumers are less likely to return to the same seller if they encounter the bad experience. In the meanwhile, 39% of consumers will stop engaging with the website if it takes too long to load the images as commonly the users will only expect a maximum of 2 seconds to load the images. Besides, the images used on the website are either too small or too big. Aside from that, the product's image quality is blurred, and it will reduce the persuasive level of the product and the consumers might end up thinking twice before purchasing the product. Also, some webpages do not leave the proper contact information such as the phone number, email address, and physical premise address and the consumers might find it difficult to reach the sellers for further information or enquiries.

## **1.3 Research Objectives**

Below are the research objectives for this study:

### **1.3.1 General Objective:**

To examine the factors affecting customers' satisfaction in e-commerce.

### **1.3.2 Specific Objectives:**

- a. To examine the relationship between reliability and customer satisfaction in e-commerce.
- b. To examine the relationship between web design and customers' satisfaction in e-commerce.
- c. To examine the relationship between customer experience and customer satisfaction in e-commerce.
- d. To examine the relationship between guarantee/safety with customer satisfaction in e-commerce.

## **1.4 Research Questions**

Below are the research questions for this study:

- a. What is the relationship between reliability and customer satisfaction in e-commerce?
- b. What is the relationship between web design and customers' satisfaction in e-commerce?
- c. What is the relationship between customer experience and customer satisfaction in e-commerce?
- d. What is the relationship between guarantee/safety with customer satisfaction in e-commerce?

## **1.5 Significance of Research**

This research is useful to e-commerce operators or e-business owners as it enables them to understand the importance of e-commerce, especially for those small and medium enterprises where their exposure to e-commerce is relatively low. It provides additional channels for them to market their goods or services and maximize their earnings and in the meanwhile, this can help to reduce the reliance on brick-and-mortar premises. From this research, e-business owners will know the aspects that should be emphasized if they venture into e-commerce. For the existing e-business owners, this research will enable them to have greater exposure to the aspects that they should look out for to further improve their business and increase their competitive advantages over peers.

Besides, this research is useful for government authorities or policymakers since they are the ones who implement and execute the policy to ensure the economic prosperity of a country. The policymaker should have a clear understanding that e-commerce is the current and future trend and has a significant contribution to a country's economy. Hence, in drafting the rules or regulations, the impact of the policies implemented towards e-commerce should be taken into consideration. Also, the performance of e-commerce activities should be monitored from time to time and the relevant stimulating policies should be implemented to stimulate the e-commerce sector when the performance of e-commerce is low.

## **Chapter 2: Literature Review**

### **2.1 Introduction**

This chapter is dedicated to the review of related literature with a view to contextualizing this research in the broader academic landscape. Theories that are essential to the understanding of research are first discussed, followed by an exploration of past research done on the variables of the study. Hypothesis development and theoretical framework are the concluding parts of this chapter.

### **2.2 Underpinning Theory**

This work can be understood clearly from multiple theories; hence three theories are identified.

#### **2.2.1 Expectation-Confirmation Theory (ECT)**

The focus of this study is to explore the factors affecting customer satisfaction in e-commerce; hence the Expectation-Confirmation Theory (ECT) is considered as an invaluable theory through which to scrutinize and understand consumer behaviour. Originally proposed by Oliver (1980), ECT has its roots in consumer psychology and postulates that the satisfaction of individuals is a function of their expectation and disconfirmation (Oliver, 1980). Specifically, the theory suggests that prior to making a purchase, customers form certain expectations about a product or service. Once they have made the purchase and used the product or service, they then



compare their initial expectations to their actual experience. The level of satisfaction is determined by how much the experience confirms or disconfirms their expectations (Rahi & Abd. Ghani, 2019).

Applying ECT in the context of e-commerce is essential for its potency to illuminate fertile ground for investigating a plethora of factors that could influence customer satisfaction. For instance, one of the variables of interest in this study is the 'reliability' of the e-commerce platform. Before making a purchase, customers might expect that the platform will deliver their chosen products on time and in excellent condition. Should the platform consistently meet or exceed these expectations, a higher level of customer satisfaction is likely to be reported. This aligns seamlessly with the ECT's central tenet, emphasizing the role of expectation and confirmation in shaping customer attitudes (Duanmu et al., 2018).

Another variable considered in this very work is 'web design,' which encompasses the aesthetics and navigability of the e-commerce platform. In the eye and from the angle of ECT, if customers anticipate that the platform will be user-friendly but find it difficult to navigate, their level of satisfaction is likely to be lower due to the negative disconfirmation of their expectations (Fu et al., 2018). On the other hand, the variable of 'guarantees and safety measures' also ties back to ECT. E-commerce platforms often highlight their security features to set expectations of safe and secure transactions. If these features are perceived as reliable by customers, their expectations are confirmed, leading to a positive impact on their overall satisfaction with the e-commerce experience (Suherman & Usman, 2019).

The focus on customer experience, another variable in this study, is particularly salient when framed through ECT. The holistic e-commerce experience includes not just the transaction but also the interactions with customer service, the delivery process, and even the unboxing experience. If these align well with customer expectations, then according to ECT, a higher level of satisfaction can be expected (Rahi et al., 2022).

### **2.2.2 The Expectancy Disconfirmation Paradigm Theory**

The Expectancy Disconfirmation Paradigm was proposed by Richard L. Oliver in 1977. It suggests that customers' satisfaction is derived from the gap between their expectations before a purchase and their perceptions after experiencing the product or service. When the post-purchase experience exceeds the initial expectations, positive disconfirmation occurs, leading to satisfaction. Conversely, if the experience falls short, negative disconfirmation results, leading to dissatisfaction (Churchill & Surprenant, 1982).

In the e-commerce landscape, the EDP theory becomes highly relevant. For example, take the variable of 'web design' from the study. When consumers navigate an e-commerce site, they have pre-established expectations about site design, ease of navigation, and overall user-friendliness. If the e-commerce site offers a seamless browsing experience, surpassing their expectations, positive disconfirmation occurs. On the other hand, if the site is cumbersome or counterintuitive, the negative disconfirmation can lead to potential cart abandonment or reduced likelihood of future purchases from the same platform (Koufaris & Hampton-Sosa, 2004).

Another area in which EDP could be applied is the 'guarantees and safety measures'. Before making a purchase, customers might expect that their financial details will be secure and that there's a money-back guarantee if the product doesn't meet their standards. Any deviation— either positive or negative—from this expectation can significantly influence their satisfaction levels (Chattahoochee, 2001).

### 2.2.3 Value Percept Theory

The Value Percept Theory has its origins in the broader discussions of consumer value, which has been developed and expanded upon by various scholars over the years, notably Monroe and Krishnan in the early 1980s. Value Percept Theory revolves around the perception of value, which is a significant driver of consumer satisfaction and behaviour. In this theory, consumers assess the value of a product or service based on their perceived benefits minus the perceived costs (Zeithaml, 1988). The perceived benefits can be tangible (like product features) or intangible (like brand reputation), while perceived costs can encompass monetary costs, time, effort, and any potential risks.

Applying the Value Percept Theory to e-commerce, the variable of 'customer experience' stands out. Customers will weigh the entire gamut of their online shopping journey against the costs incurred. This journey might include ease of finding products, clarity of product descriptions, efficiency of the checkout process, speed of delivery, and after-sales support. If the perceived benefits exceed the costs, the overall perceived value rises, leading to higher satisfaction. Conversely, if the costs—be it in terms of money, time, or effort—outweigh the benefits, the perceived value drops, potentially leading to dissatisfaction (Parasuraman & Grewal, 2000).

Moreover, in the 'guarantee/safety' context, customers will perceive high value if they feel their transactions are secure without any additional costs or effort from their side. On the other hand, if they perceive a high risk in online transactions without commensurate benefits, the perceived value diminishes, affecting their satisfaction negatively (Kim, Ferrin & Rao, 2008).

The combination of the Expectation-Confirmation Theory (ECT), the Expectancy Disconfirmation Paradigm Theory (EDP), and the Value Percept Theory (VPT) will provide a comprehensive understanding of the multifaceted nature of customer satisfaction particularly in

e-commerce. Each theory, while distinct, complements the others to paint a complete picture of the customer's experience, from expectation to post-purchase reflection.

Both ECT and EDP emphasize the critical role of consumer expectations and the subsequent alignment or misalignment with their post-purchase experience. While ECT sheds light on the satisfaction stemming from how post-purchase experiences confirm prior expectations, EDP zeroed down on the difference or "gap" between what was anticipated before a purchase and what is perceived after. Taking 'reliability' and 'web design' as key variables, the user's initial impression and expectations set by the platform's design serve as a foundation for any potential disconfirmation upon navigating or purchasing. Should the platform falter or exceed its promises, these theories help unpack the subsequent satisfaction or dissatisfaction the user feels.

On the other hand, the Value Percept Theory (VPT) brings a slightly different perspective into the mix and focuses on perceived benefits and costs. While ECT and EDP revolve around expectation alignment, VPT explores the overarching value a customer derives from their experience. While ECT and EDP would gauge satisfaction based on how prior expectations resonate with the received experience, VPT focuses on how customers weigh the benefits of their online shopping journey against the costs incurred, be it monetary, time, or effort.

### **2.3 Background of the development of E-commerce in Malaysia**

E-commerce in Malaysia has been steadily growing, laying its foundation as early as the late 1990s and early 2000s. Malaysia's recognition of the potential of e-commerce was evident when the government launched the Multimedia Super Corridor (MSC) in 1996, a special economic zone aimed at advancing the country's IT infrastructure and promoting digital innovation (Yusof, et al., 2019). The MSC initiative signaled the country's proactive efforts to make Malaysia an e-commerce hub, fostering a conducive environment for both domestic and international ICT companies.

During the mid-2000s, Malaysia saw a surge in internet penetration, which became a catalyst for the growth of e-commerce platforms. The rise of mobile devices, increased accessibility to broadband services, and changing consumer behaviour played pivotal roles in accelerating the adoption of online shopping (Tan, et al., 2017). Platforms like Lazada, Shopee, and Zalora began to dominate the e-commerce scene, offering diverse products that catered to the local market's needs.

The government's support in advancing e-commerce is further underscored by policy frameworks and initiatives. The Malaysia Digital Economy Corporation (MDEC) was established to oversee the transformation of Malaysia's digital economy, further pushing the e-commerce frontier (Wahab, et al., 2018). The eUsahawan and eRezeki programs, introduced in the late 2010s, aimed to equip Malaysians with the necessary digital skills and knowledge to tap into the global e-commerce market.

However, while Malaysia had promising growth, challenges also emerged. Trust issues, payment security concerns, and logistical inefficiencies sometimes hamper the full realization of e-commerce potential (Ismail & Muda, 2017). But with the

government's proactive approach and the private sector's resilience, solutions have been continually developed to overcome these barriers.

In more recent years, e-commerce growth in Malaysia has been unprecedented. The COVID-19 pandemic played a significant role in this surge, as many turned to online shopping due to lockdown and health concerns (Rahman & Ahmad, 2020). The pandemic, while posing challenges, showcased the vitality and potential of e-commerce as an essential avenue for business continuity.

## **2.4 Customer satisfaction in E-Commerce**

Customer satisfaction simply refers to the measure of how products, services, or experiences meet or surpass customer expectations (Liu & Kao, 2022). Specifically, customer satisfaction is an evaluative judgment that represents the emotional response and perception of an individual to the discrepancy between prior expectations and the actual performance of a product or service (Taherdoost & Madanchian, 2021). Rooted in psychological and marketing literature, it is often conceptualized as the difference between a customer's expectations of a product or service and their perceived experience with it (Gajewska et al., 2020). A positive difference indicates satisfaction, while a negative difference indicates dissatisfaction. Satisfaction, being a post-consumption evaluation, reflects the entirety of a customer's experience and can be influenced by a myriad of tangible and intangible factors ranging from product quality to emotional engagement (Liu & Kao, 2022; Kraus et al., 2019).

In the context of e-commerce, customer satisfaction does not solely hinge on the tangible product received, but also on the entire online shopping experience - from the ease of navigation on a website, the comprehensiveness of product information, the security of payment gateways, to the promptness of customer support. (Taherdoost & Madanchian, 2021; Gajewska et al., 2020) This means that maintaining high levels of customer satisfaction becomes both a monumental challenge and a business imperative, particularly for e-commerce.

In traditional business models, satisfied customers are more likely to return and engage in repeat purchases, reducing the cost of customer acquisition, demonstrating brand loyalty, and becoming brand advocates, providing invaluable word-of-mouth marketing. Conversely, dissatisfaction cannot only deter a customer from revisiting but also dissuade potential customers through negative feedback (Goutam et al., 2021). Online platforms enable easier dissemination of customer reviews and experiences, amplifying the impact of satisfaction or dissatisfaction exponentially. A single negative experience can reverberate through social media and review platforms, causing potential reputational damage that can be costly to rectify. On the flip side, high levels of customer satisfaction can result in viral positive reviews, serving as influential social proof that can attract new customers (Wilson & Christella, 2019). Hence with the amplifying effect of social media and online forums, the ripple effects of a single customer's satisfaction or dissatisfaction can have significant impacts on a brand's reputation and profitability.

## **2.5 Determinants of Customer Satisfaction in E-Commerce**

### **2.5.1 Reliability**

Reliability, as traditionally understood, pertains to the consistency, predictability and dependability of a system, process, or entity. It refers to the extent to which consumers can expect a consistent level of quality or performance from their interactions with a brand, product, or service (Chanthasaksathian & Nuangjamnong, 2021). The notion of reliability encompasses more than just the physical durability of a product; it also encapsulates the predictability and dependability of the entire customer experience, from the initial stages of consideration to the post-purchase period. When applied to commerce, reliability often references the ability of a



provider to consistently deliver promised services or products without failure. While in the context of e-commerce, it aggregates measures of the consistency and dependability of consumers' experience throughout their online shopping journey (Yahaya Nasidi et al., 2021).

At a fundamental level, the digital nature of e-commerce means that customers do not have the tangible touch points common in traditional shopping. They cannot touch, try out, or immediately assess the products. As such, their trust is largely placed on the reliability of the digital interface and the promises made therein. If an e-commerce platform consistently delivers what it showcases and promises, consumers are more likely to develop trust and loyalty towards it. (Masyhuri, M. (2022; Yahaya Nasidi et al., 2021). Basically, e-commerce reliability ensures that the online shopping process – from browsing to order placement and even post-purchase interactions – is smooth, consistent, and devoid of hiccups.

If consumers find an e-commerce platform to be reliable, they are not only likely to make a purchase but are also likely to return for future transactions. (Wilson, & Christella, 2019). Reliability in product descriptions, for example, mitigates the risk consumers feel when they can't physically inspect a product before buying. Accurate product descriptions, therefore, increase trust and, by extension, customer satisfaction. Likewise, reliability in payment processes ensures that transactions are secure and free from glitches, further enhancing the customer's trust and satisfaction levels. Reliability influences not only customer retention but also customer advocacy (Chanthasaksathian & Nuangjamnong, 2021). Satisfied and trusting customers are more likely to recommend an e-commerce platform to others, thereby reducing customer acquisition costs and increasing the lifetime value of each customer. Furthermore, the transparent nature of online reviews and social media means that perceptions of reliability, good or bad, can spread rapidly, exerting a significant influence on a brand's reputation.

### 2.5.2 Web Design

Web design may simply refer to the creation and aesthetic arrangement of the visual elements of a website. It aims to create a digital environment that is not only visually pleasing but also functional, intuitive, and aligned with the objectives of a website or application (Ha Nam Khanh, 2020). It encompasses a variety of components, including layout, colour schemes, typography, images, and interactivity elements. A well-designed website aims to guide the user effortlessly from one action to the next, facilitating not just user engagement but also conversions, which in e-commerce means completing a purchase (Dang & Pham, 2018). The ultimate goal of web design is not just to create visually appealing sites, but also to ensure that websites are user-friendly and optimized for various devices and screen sizes.

In the context of e-commerce where online platforms often serve as the first point of interaction between a brand and its potential customers, first impressions are vital. Unlike traditional brick-and-mortar stores where consumers can physically interact with products, e-commerce platforms solely rely on their digital interface to attract and engage potential customers. The design of an e-commerce site can heavily influence a consumer's decision to make a purchase, continue browsing, or leave the site altogether as it sets the stage for the entire customer experience (Hsieh, 2022). Features like navigation ease, load times, search functionalities, and even the quality of product images are central to the customer's experience and can profoundly impact their decision to proceed to checkout or abandon the cart (Wilson et al., 2019). Essentially, e-commerce web design is not just about making a website look good; it is about how effectively the design elements work together to facilitate the buying process.

### 2.5.3 Customer Experience

Customer experience as a multi-faceted concept, encompasses several sorts of interaction a consumer has with a business, from the first point of contact to post-purchase support. It encompasses the sum total of perceptions, feelings, emotions, and reactions that customers undergo throughout their journey with a brand (Becker & Jaakkola, 2020). These experiences can be shaped by various elements, including the quality of the product, the efficacy of customer service, the ease of the purchasing process, and even the intuitiveness of a brand's digital presence.

In the context of e-commerce, customer experience encompasses every element, from website speed, navigability, product descriptions, and checkout processes, to after-sales support (Amarullah et al., 2022). When customers visit an e-commerce website; the ease with which they can find a product, the clarity of product images, the simplicity of the payment process, and the promptness of customer service responses can make or break their experience (Mitchev et al., 2022). Positive customer experiences often lead to higher customer retention, increased brand loyalty, positive word-of-mouth, and ultimately, greater revenue. On the flip side, a single negative experience can deter potential customers, given how swiftly and widely negative reviews can spread in today's digital age (Beig & Nika, 2022).

With the absence of a physical storefront, the e-commerce platform itself becomes the 'face' of the business. A seamless, intuitive, and enjoyable online experience can lead to higher conversion rates, lower cart abandonment rates, and increased repeat business (Karahanli & Touma, 2021). E-commerce businesses that listen to their customers, leverage data analytics to tailor the shopping experience, and consistently iterate and improve upon their digital presence tend to outperform their competitors.

#### **2.5.4 Guarantee/Safety**

In the context of e-commerce, safety refers to the protective measures, practices, and protocols employed to safeguard transactions, data, and interactions from threats, unauthorized access, and fraud (Suherman & Usman, 2019). In the digital shopping environment, safety and security are paramount for a multitude of reasons. Given the nature of online transactions, which require sharing sensitive financial information such as credit card details and passwords, the potential for fraudulent activities is exponentially greater. Online shoppers expect, and rightly so, that e-commerce platforms will use state-of-the-art encryption methods, secure sockets layer (SSL) certificates, and robust authentication procedures to safeguard their personal and financial data. If an online store fails to provide such security measures, consumers are likely to abandon their shopping carts, no matter how attractive the products or deals may be (Dwiyanto et al., 2019; v etal., 2021).

The relationship between safety, particularly in the form of security, and customer satisfaction in e-commerce is both direct and intricate. Secure transactions are not merely a functional requirement; they are a significant determinant of customer satisfaction. Customers who experience seamless and secure transactions are likely to not only complete their current purchase but also return for future business. Their satisfaction often translates into positive reviews and word-of-mouth recommendations, which are invaluable in the fiercely competitive e-commerce landscape (Usman & Dyanti, 2019; Usman & Izhari, 2019).

## 2.6 Hypothesis Development

Chanthasaksathian and Nuangjamnong (2021) in their study sought to understand the influence of various independent variables, including reliability, on online repurchase intention in Bangkok, specifically on the GET application. Using a quantitative approach with data gathered via questionnaires, the study found that reliability, among other factors, had a positive significant effect on online repurchase intention on the GET application platform.

Another insightful study conducted by Yahaya Nasidi et al. (2021) aimed to examine the factors affecting online shopping behaviour among subscribers of online stores in Nigeria. By distributing self-administered questionnaires to subscribers and analyzing data using Smart-PLS, the research highlighted a positive relationship between reliability and online shopping behaviour, emphasizing the importance of reliability in the e-commerce sphere.

Also, Masyhuri (2022) analyzed the primary determinants of customer satisfaction for e-commerce companies. By drawing insights from the work of Yoon (2007) and evaluating two leading e-commerce platforms, Amazon and eBay, the research revealed that reliability stands out as having the highest impact on customer satisfaction in online commerce. In the same vein, Wilson and Christella (2019) sought to understand the factors affecting customer satisfaction in the Indonesian e-commerce industry. Gathering data through questionnaires and analyzing it with the PLS-SEM Method, their study underscores that reliability plays a significant role in positively influencing customer satisfaction in e-commerce.

Drawing from these studies, the relationship between reliability and customer satisfaction in e-commerce becomes evident. Reliability emerges as a cornerstone, fostering trust and ensuring repurchase intentions, significantly influencing overall customer satisfaction in the world of e-commerce. On this premise, the first hypothesis of the study is formulated as follows:

***H1: There is a significant positive relationship between reliability and customer satisfaction in e-commerce.***

Ha Nam Khanh's (2020) research focused on customer satisfaction at the Tiki.vn e-commerce platform. By interviewing 200 individual customers and analyzing the data through SPSS 20, the study identified four factors that positively impact customer satisfaction with online services. Among them, web design emerged as a vital determinant in influencing online service quality and thus customer satisfaction on the Tiki.vn platform.

Likewise, Dang and Pham (2018) focussed on the understanding of the perceptions of consumers regarding online shopping in Vietnam, borrowing from the adoption theory and the technology acceptance model. They collected data from 221 consumers and analyzed it using structural equation modeling. A central finding from their research showed that consumer perception of web design directly influences perceptions of reliability, privacy, customer service, and subsequently purchase intention.

Hsieh (2022) sought to understand how website design impacts e-loyalty, given the significance of online customer behaviour in today's e-commerce boom. Surveying 207 Taobao customers, the study found that website design, especially aspects like information & navigation design and visual design, significantly boosts e-loyalty among online shoppers.

Wilson, Keni, and Tan (2019) undertook a cross-continental analysis to understand the implications of website design quality and service quality on repurchase intention in the e-commerce sector. They distributed 1000 questionnaires electronically across four continents. Analyzing the data through the PLS-SEM method, it was found that in the American e-commerce industry, website design quality plays a pivotal role in influencing consumers' repurchase intention. This influence was found to be stronger than in other continents, such as Asia, Australia, and Europe.

Priscillia et al. (2021) aimed to analyse how website design quality influences customer trust and repurchase intention among Shopee users in Jakarta. Collecting data from 170 respondents, their study revealed that website design quality directly impacts customer trust, which in turn affects repurchase intention.

In synthesizing these findings, it is evident that web design not only plays a fundamental role in influencing customer satisfaction but also extends its impact on other domains, such as customer trust, e-loyalty, and repurchase intentions which leads to customer satisfaction in e-commerce. On the basis of this, the following hypothesis is made:

***H2: There is a significant positive relationship between web design and customer satisfaction in e-commerce.***

Amarullah et al. (2022) embarked on an investigation focusing on the influence of eWOM (electronic Word-of-Mouth) credibility on trust and perceived risk, while also looking at the subsequent effect on purchase intention. The online shopping experience was considered as a moderator in this relationship. Drawing data from 247 e-commerce consumers in Indonesia, the research found that eWOM credibility notably positively influenced trust in e-retailers and purchase intentions. Crucially, the online shopping experience was found to have a positive moderating effect between perceived risk and purchase intention. This indicates that the quality and nature of online shopping experiences can alter the dynamics of consumer perceptions and intentions.

Mitchev, Janda, & Nuangjamnong (2022) set out to explore how various factors, including online shopping experience, impact online repurchase intentions on Thai e-Commerce platforms. They analyzed perceived ease of use, enjoyment, customer satisfaction, trust, and online shopping experience. Collecting data from 422 respondents, their analysis revealed that the online shopping experience had a notable impact on trust. This demonstrates that the overall experience a customer has

while shopping online can significantly bolster their trust towards the platform, thereby potentially enhancing customer satisfaction.

Beig & Nika (2022) directed their research towards understanding the influence of brand experience on brand equity in the context of online shopping portals in Jammu and Kashmir. Using a multi-stage sampling method targeting 460 respondents, their results indicated that different dimensions of brand experience, such as sensory, affective, behavioural, and intellectual experiences, all had a positive impact on various facets of brand equity. This reinforces the idea that cultivating a unique and enjoyable brand experience can significantly enhance perceptions among online shoppers. This improved perception can, in turn, directly impact customer satisfaction in the e-commerce domain.

These studies collectively highlight the profound role customer experience plays in shaping various facets of e-commerce, from trust and purchase intention to brand equity. On the basis of this reality, the following hypothesis is developed:

***H3: There is a significant positive relationship between customer experience and customer satisfaction in e-commerce.***

Suherman & Usman, (2019) study dives deep into the realm of e-commerce, focusing on how trust, satisfaction, and risk perception influence the buying interest online. Their findings underline the significant relationship between trust, satisfaction, and risk perception towards online buying interest. This suggests that when customers trust an e-commerce system and feel satisfied, their intention to purchase increases. Such outcomes emphasize the pivotal role that trust, and satisfaction play in the e-commerce space.

Dwiyanto et al. (2019) conducted research on Lazada, a renowned e-commerce platform, with a focus on understanding factors that influence online purchasing decisions. Notably, their findings



highlight that both trust and security significantly affect online purchasing decisions. In the e-commerce context, security could be equated to a guarantee that transactions will be safe and free from malicious threats, further emphasizing its importance in influencing buying behaviour.

Candra et al. (2021) researched customer behaviour in the fashion e-commerce sector. Their study suggests a negative relationship between perceived risk and trust, but a positive correlation between trust, perceived benefits, and purchase intention. It underscores that when perceived risks in e-commerce platforms decrease, trust is heightened, subsequently leading to increased purchase intentions.

Usman & Dyanti (2019) sought to understand the impact of various factors on buying interest in the e-commerce sector, including the quality of websites and risk perception. The research underlines that there is a significant joint correlation between the quality of the website, which includes its security features, and risk perception. These factors collectively influence the buying interest, indicating the importance of a secure (guaranteed) website in shaping positive customer experiences and intentions.

Usman & Izhari (2019) investigated the role of trust, safety, service quality, and risk perception in influencing purchasing decisions via social network sites. They found that trust, security (which offers a form of guarantee), service quality, and risk perception jointly play a crucial role in shaping purchase decisions.

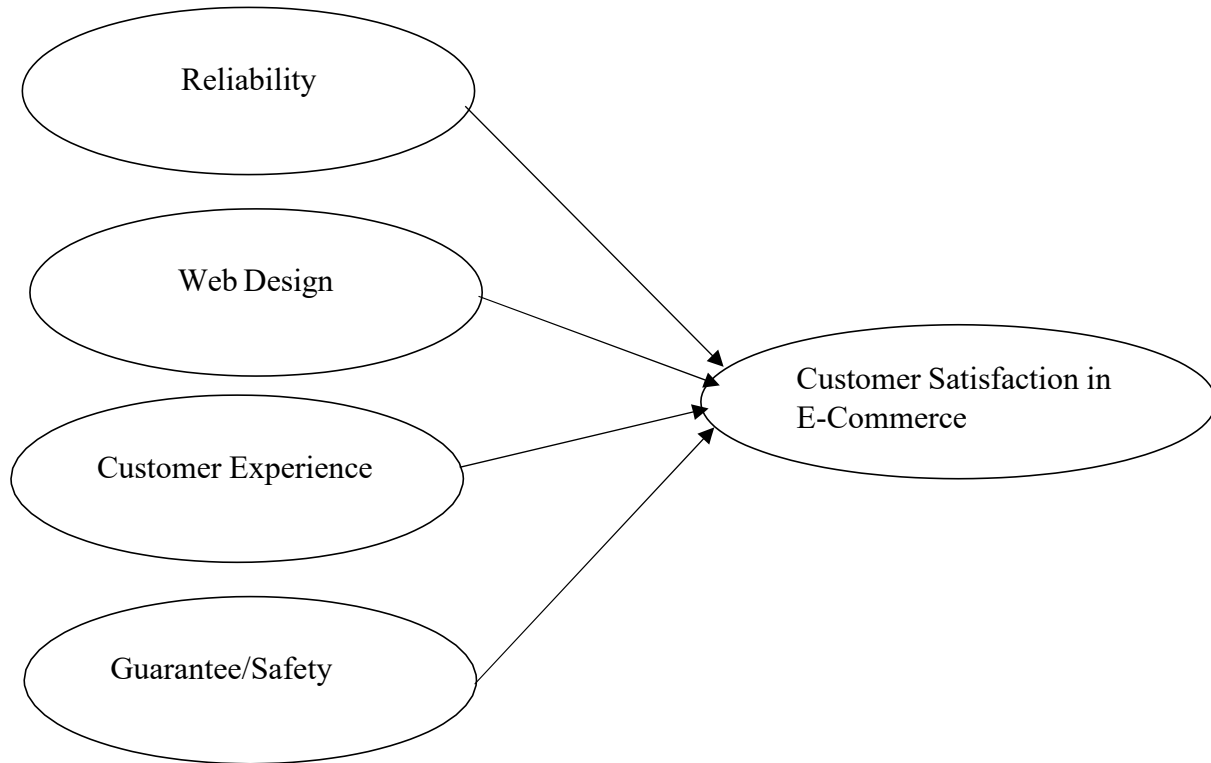
Across these studies, two consistent themes emerge. First, guarantee or safety (often discussed in terms of trust, security, and risk perception) is a significant determinant of customer behaviour in e-commerce settings. Second, this guarantee or safety, in turn, significantly influences customer satisfaction, which is evident from increased buying interest and positive purchasing decisions. The result of these studies forms a solid ground for the following hypothesis:

***H4: There is a significant positive relationship between guarantee/safety and customer satisfaction in e-commerce.***

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## 2.7 Conceptual Framework

Figure 2.8 Proposed conceptual Framework



## **Chapter 3: Methodology**

### **3.1 Introduction**

This chapter discusses the methodology used for this study. The essence is to detail the procedures followed in collecting and analyzing the data used in this study.

### **3.2 Research Design**

To achieve the goals of this research, the explanatory cross-sectional survey research design is adopted. The choice of this research design is deeply rooted in its efficacy for elucidating complex relationships among variables. Explanatory research essentially aims to establish a directional cause-effect relationship between and among variables by investigating how an independent variable can affect a dependent variable. When this is combined with a cross-sectional survey—where data is collected at one point in time—the result is a robust design capable of providing a snapshot of variables and their relationships at a specific moment (Smith, 2018).

Because data is collected at one specific point in time, the design is often quicker and more cost-effective than longitudinal designs, making it particularly useful for studies that require timely data (Johnson & Christensen, 2019). This design is also remarkably versatile, allowing for the use of various data collection methods such as online surveys, face-to-face interviews, or telephone questionnaires (Bryman, 2017). Additionally, this approach lends itself to replicability, thereby enhancing the study's validity and broader applicability.

But one of the most frequently cited disadvantages of this design is that the data is collected at a single time point and also the design cannot definitively establish causality. It is challenging to ascertain whether the independent variable directly leads to changes in the dependent variable or if other intervening variables are at play (Babbie, 2017). There is also the risk of recall bias if respondents are asked to report past behaviours or events. And since the data is essentially a snapshot, it may not accurately capture trends or changes that happen over a longer time frame (Johnson & Christensen, 2019).

In the context of this study, which aims to explore the determinants of customer satisfaction in e-commerce, the chosen research design is particularly apt, spitting out the limitations. Since the ever- evolving landscape of e-commerce is subject to rapid changes due to technological advancements, fluctuating consumer behaviours, and shifting market dynamics, therefore, a research design that offers insights into the current situation is invaluable for both academic and practical considerations. The efficiency and adaptability of the explanatory cross-sectional survey research design makes it especially suited for capturing the myriad factors that influence customer satisfaction in the fast-paced, dynamic environment of e-commerce. Thus, despite its limitations, the chosen research design stands as the most appropriate framework for investigating the complex variables at play in this study.

### **3.3 Sampling Design**

In every research endeavour, the precision of outcomes largely depends on how representative the sample is concerning the entire population.

### **3.3.1 Target Population**

In this study, the focus population consists of all online shoppers in the Klang Valley. This is a diverse group with varied buying behaviours, preferences, and experiences; therefore, it is crucial to have a sampling process in a manner that encapsulates these diversities comprehensively.

### **3.3.2 Sampling Techniques**

Criterion sampling has been selected as the sampling technique for this study. This is a type of non-probability sampling method where individuals are chosen based on predetermined criteria (Siochrú, 2022). In this case, the criteria are geographical (Klang Valley) and behavioural (having made an online purchase within the last six months). Criterion sampling allows for a more in-depth investigation into a very specific aspect or subgroup of the population. By narrowing down the sample in this way, the data collected is not only more directly applicable to the research questions but is also more likely to be current and relevant. One of the major advantages of criterion sampling is its precision, as it ensures that the respondents are not just random online shoppers, but those who have experiences most relevant to the study. This method helps to eliminate irrelevant data or participants who do not fit the study's focus, thereby leading to more accurate and reliable results that is good enough to make a decision (Siochrú, 2022).

### **3.3.3 Sampling Size**

To determine the sample size for this study, Hair et al.'s (2011) "10-times rule" method has been adopted. This guideline posits that the sample size should be ten

times the maximum number of paths pointing at any latent variable in the structural equation model. This approach is especially useful for methods like Partial Least Squares Structural Equation Modeling (PLS-SEM), which often require larger sample sizes for greater accuracy and reliability (Hair et al., 2011).

Given the model's complexity, which includes 21 items, the sample size has been set at 210 respondents. This number is large enough to ensure the robustness of the data, allowing for meaningful interpretation and conclusions, yet it remains manageable in terms of feasibility and resource allocation. Overall, the choice of criterion sampling, coupled with a scientifically determined sample size, puts this study in a strong position to offer valuable insights into consumer behaviour in the e-commerce sector within the Klang Valley.

### **3.4 Data Collection Methods**

This study adopts the survey method for its data collection, given its suitability to gather comprehensive insights from a broad spectrum of respondents in a structured manner. A survey, in essence, is a methodological approach that allows researchers to glean information from a predetermined group by employing standardized questionnaires or interviews (Smith, 2017). The digital age has seen a surge in the use of online surveys, which are both economical and efficient. This study will exploit the vast reach of social media platforms to disseminate the survey link, ensuring a diverse respondent pool while still meeting the set criterion: those having made online purchases within the last six months.

### 3.4.1 Primary Data

The primary instrument chosen for this study's data collection is the questionnaire. Questionnaires are structured tools with a series of questions meant to extract specific information from respondents. They are particularly well-suited for research endeavour like this one that aims to uncover patterns in perceptions, attitudes, and behaviors towards e-commerce activities (Burns & Bush, 2017).

There are various advantages to using questionnaires. Firstly, they offer standardization; every participant answers the same questions, ensuring data consistency. This tool is also cost-effective, especially in its online variant, and can reach a wider audience in a relatively short span (Neuman, 2018). Moreover, the anonymity provided by questionnaires can result in more honest and candid responses.

However, the method is not devoid of limitations. The lack of personal interaction means there's no immediate clarification for any ambiguous or confusing questions. Additionally, there's the risk of low response rates, especially with online distribution, which can skew results (Wilson, 2019). The inflexibility of standardized choices may also deter respondents from offering unique insights.

Given this study's scope and objectives, the questionnaire method stands as the most apt. The e-commerce landscape is vast, and the survey can tap into a wider audience seamlessly. The digital means of distribution, especially via social media, aligns well with the subject matter—online shopping.

Furthermore, the items of the questionnaire have been adopted from previous studies, making them both reliable and valid for this research context. Relying on previously validated items adds rigor and authenticity to the study, as they have been tested for relevance and clarity in similar scenarios (Anderson, 2019).

## **3.5 Research Instrument**

This study utilizes a structured questionnaire as its primary tool, aiming to comprehensively grasp the factors affecting customer satisfaction within e-commerce settings.

### **3.5.1 Measurement**

The first section of the questionnaire focuses on capturing demographic data of the respondents regarding age, gender, educational background, and marital status. The second section focuses on the main variables of the study. The reliability of the e-commerce platform is assessed from various angles, from product accuracy to service dependability. Web design, a critical component of user experience, is gauged through statements related to the site's information sufficiency, transaction time, and overall user-friendliness. Further, the study measures customer experience, capturing the efficiency and satisfaction with the services provided by the e-commerce brand. Also, to determine the level of trust users place in the platform, statements measure the perceived safety, security, and overall trustworthiness of the e-commerce site, especially concerning personal information and transaction security.

Each of these statements across the variables utilizes a five-point Likert scale. This format not only allows participants to express their feelings and experiences in a nuanced manner but also facilitates a granular analysis of the data.

Subsequently, the questionnaire aims to evaluate the overarching sentiment of customer satisfaction. It measures aspects like trust in the brand, perceived safety,



the value addition by the platform, and the relevance of tailored offers provided. As with the earlier sections, a Likert scale aids in capturing the gradations in respondents' feelings.

To instill confidence in the participants, the concluding part of the questionnaire emphasizes the absolute confidentiality of their responses. By assuring them of their anonymity, the study ensures the authenticity and integrity of the data, which is crucial for drawing accurate and meaningful conclusions.

### **3.5.2 Pilot test**

Before the main research, a pilot was conducted with 20 participants who bore similar characteristics to those of the main study. The pilot study was done because sometimes, what seems clear to the researcher might be ambiguous to the respondent. The feedback from the pilot can reveal such discrepancies, providing an opportunity to refine and improve the questionnaire for clarity and relevance. Aspects such as the length of the questionnaire, the order of questions, or the modality of data collection can be tweaked based on the pilot's findings.

Upon analyzing the pilot results, the feedback was incorporated to optimize the final questionnaire, enhancing its precision and relevance. It is a step that ensures the instrument truly captures what it is designed to, without unintentional biases or confounders.

An essential aspect of questionnaire-based research is the reliability of the instrument. For this study, the reliability was assessed using Cronbach's alpha, a

metric that gauges internal consistency. Essentially, it verifies that the various items in the questionnaire are cohesively capturing the intended constructs. The outcomes from the pilot were promising in this regard, with all the Cronbach's alpha values registering above 0.78 as shown below:

Table 3.1: Cronbach Alpha Values Example

Alpha Cronbach Value	Interpretation
0.91-1.00	Excellent
0.81-0.90	Good
0.71-0.80	Good and Acceptable
0.61-0.70	Acceptable
0.01-0.60	Nonacceptable

Source: Research Gate

Table 3.2: Cronbach Alpha

Item	Cronbach's alpha
CE	0.737
CS	0.898
G	0.795
R	0.929
WD	0.896

Source: Developed for the research

## **3.6 Data analysis**

For the data analysis in this study, SMART PLS is adopted.

### **3.6.1 Descriptive Analysis**

The respondents' age, gender, marital status, and greatest degree of education were all described and illustrated using the descriptive analysis. Together with the frequency and percentage of respondents, all of these details were condensed and presented as a table and graph. Furthermore, the descriptive data were modified using a Google Form and examined with Microsoft Excel.

### **3.6.2 Inferential Analysis**

SMART PLS will serve as the main tool for inferential analysis, offering critical insights into the relationships among the study's variables.

#### **3.6.2.1 Smart PLS**

SMART PLS employs Partial Least Squares Structural Equation Modelling (PLS-SEM), a robust statistical modeling technique. Before jumping into the relationships between the constructs, it will be imperative to validate the measurement model. Internal consistency reliability will be gauged through composite reliability scores, to make sure that the survey items are consistently measuring the latent constructs. Convergent and discriminant validity will also be assessed, looking at the average

variance extracted (AVE) for each construct and comparing it to its correlations with other constructs.

Once the measurement model has been validated, attention shifts to evaluating the structural model. Path coefficients will be examined to determine the strength and significance of the hypothesized relationships. Additionally, the coefficient of determination or  $R^2$  will help in assessing the explained variance in the dependent variables due to the independent variables. Effect sizes and predictive relevance measures are further assessed, using procedures like bootstrapping to get a more robust picture of the data. Bootstrapping helps in deriving estimates of standard errors and t-values and is a cornerstone for testing the statistical significance of path coefficients.

## **CHAPTER 4: DATA ANALYSIS**

### **4.0 Introduction**

This chapter will present the data analysis result by using the outcome from PLS-SEM software on those 222 sets of questionnaires responses collected.

### **4.1 Descriptive Analysis**

#### **4.1.1 Respondent Demographic Profile**

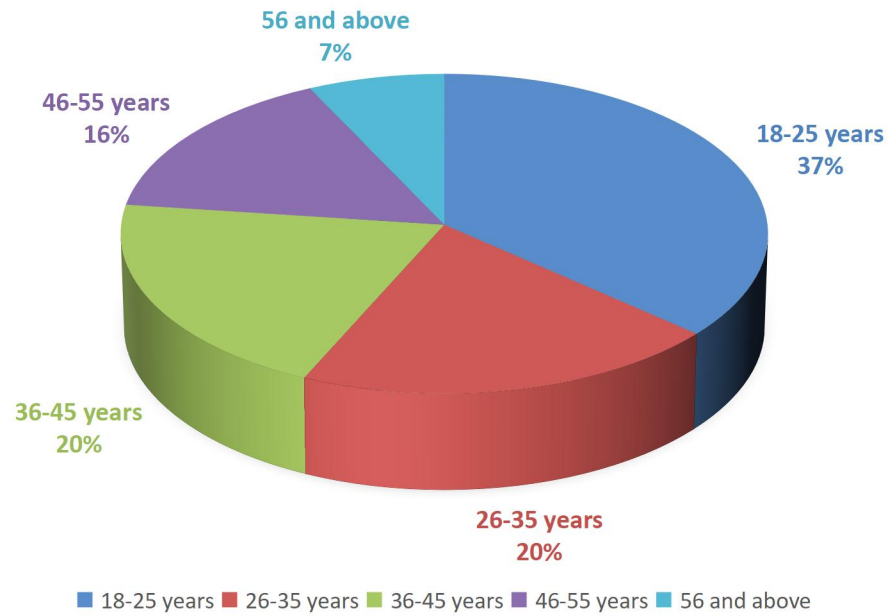
##### **4.1.1.1 Age**

Table 4.1: Age

<b>Age</b>	<b>Frequency</b>	<b>Percentage (%)</b>
18-25 years	81	36.5
26-35 years	45	20.3
36-45 years	45	20.3
46-55 years	35	15.8
56 and above	16	7.2
<b>Total</b>	<b>222</b>	<b>100</b>

Source: Developed for the research

Figure 4.1: Age



Source: Developed for research

Table 4.1 and Figure 4.1 present the age of 222 respondents. From the information above, there are 81 respondents (47.5%) from 18 to 25 years, both 26 to 35 years and 36 to 45 years have same 45 respondents (20.3%), 35 respondents (15.8%) from 46 to 55 years and only 16 respondents (7.2%) from 56 and above.

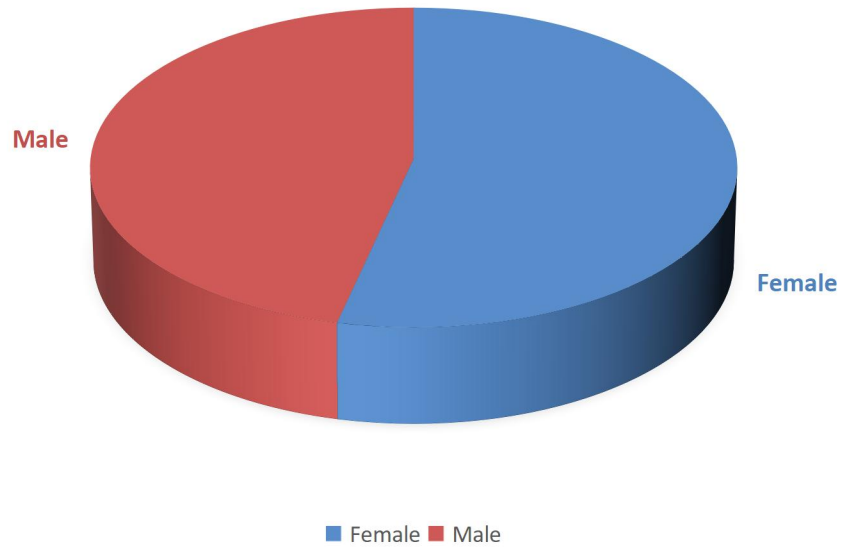
#### 4.1.1.2 Gender

Table 4.2 Gender

Gender	Frequency	Percentage
Female	119	53.6
Male	103	46.4
<b>Total</b>	<b>222</b>	<b>100</b>

Source: Developed for research

Figure 4.2 Gender



Source: Developed for research

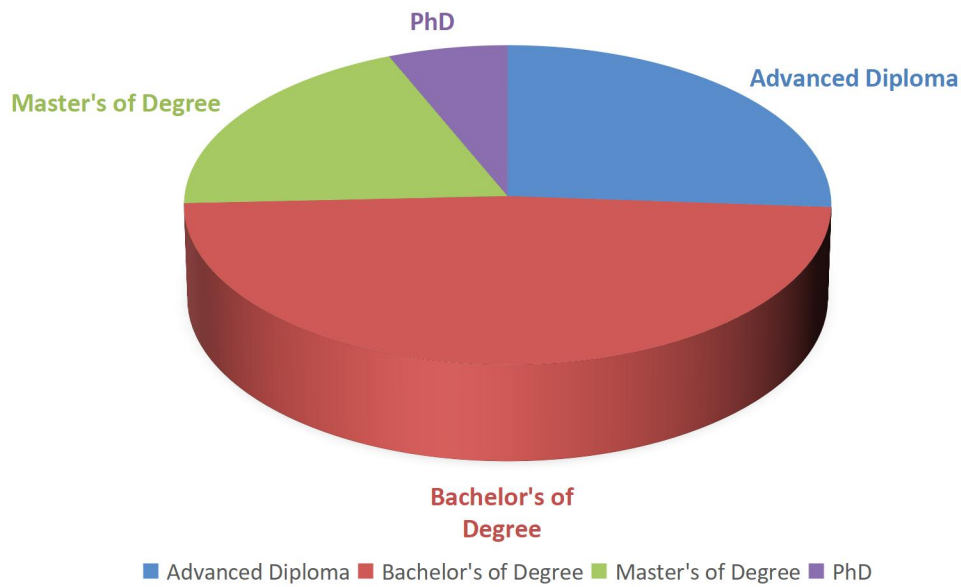
Table 4.1 and Figure 4.2 present the gender population of 222 respondents. From the information, Females stand for the majority of the respondents with 119 (53.6) of them participating in the questionnaire.

#### 4.1.1.3 Level of Education

Table 4.3: Level of Education

Level of Education	Frequency	Percentage
Advanced Diploma	58	26.1
Bachelor's of Degree	107	48.2
Master's of Degree	43	19.4
PhD	14	6.3
<b>Total</b>	<b>222</b>	<b>100</b>

Figure 4.3: Level of Education



Source: Developed for research

According to table 4.3 and figure 4.3, among the 222 respondents, the majority of them had a level of education in Bachelor's of Degree which is 107(48.2%) of people. Following the level of education in advanced diploma, 58 respondents (26.1%), 43 respondents (19.4%) had level of education in Master's of Degree and 14 respondents (6.3%) had a PhD level of education.

#### 4.1.1.4 Marital status

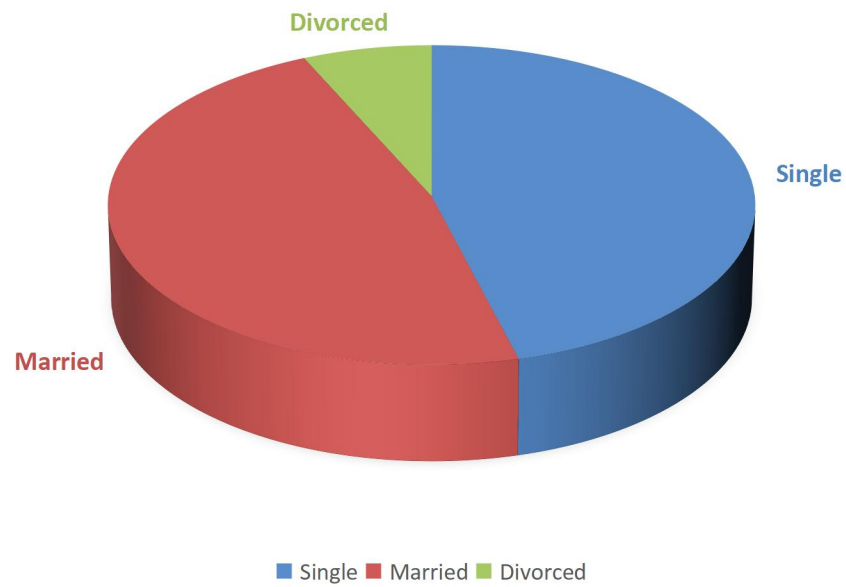
Table 4.4 Marital status

Marital Status	Frequency	Percentage
Single	102	45.9
Married	105	47.3
Divorced	15	6.8
<b>Total</b>	<b>222</b>	<b>100</b>

Source: Developed for research



Figure 4.4 Marital Status



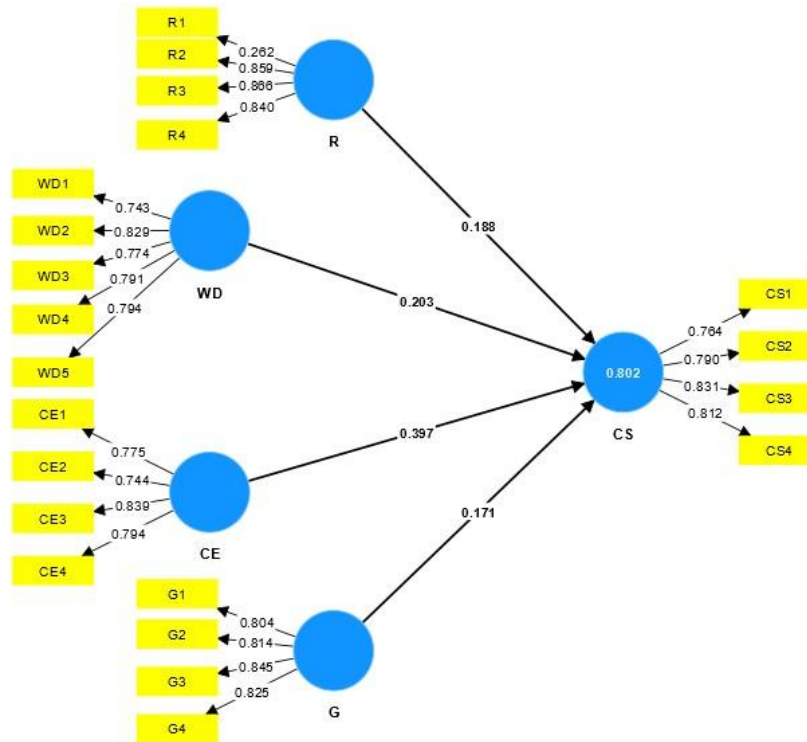
Source: Developed for research

Table 4.4 and Figure 4.4 show the marital status population of 222 respondents. There are 102 respondents (45.9%) who are single, 105 respondents (47.3%) are married, and 15 respondents (6.8%) have divorced.

## 4.2 Inferential Analysis

### 4.2.1 Measurement Model Assessment

Figure 4.5: Measurement Model



Adapted from: PLS-SEM4.0

For the measurement model assessment, various evaluations were undertaken, encompassing internal consistency reliability, indicator reliability, convergence validity, and discriminant validity. Each assessment employs distinct types of values, guided by specific rules of thumb. Figure 4.1 in this subsection illustrates the structure of the measurement model, depicting the relationships between independent variables and the dependent variable.

## 4.2.2 Construct reliability and validity

Table 4.5: Construct reliability and validity

Constructs	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CE	0.798	0.814	0.868	0.622
CS	0.812	0.817	0.877	0.64
G	0.84	0.841	0.893	0.676
R	0.708	0.822	0.822	0.566
WD	0.846	0.85	0.89	0.619

Source: Developed for research

Researchers suggest that a reliability measure falling within the range of 0.7 or higher is deemed acceptable (Heale & Twycross, 2015; Bhatnagar et al., 2014; Chee, 2019; Hinton, 2004). The reliability test for each variable in this study, as presented in Table 4.5, indicates robust reliability, as all coefficients surpass the threshold. Among the 4 independent variables (IV), WD had the highest coefficient with CS, which is 0.846. Meanwhile, R had the lowest, which is 0.708. The Cronbach's  $\alpha$  and composite reliability values for each construct exceed the minimum threshold of 0.70 (HairJ.R et al). All of the above internal consistency reliabilities are accepted, so the data is consistent and reliable. According to HairJr et al, the AVE is identified as the mean value derived from the squared loadings of the indicators linked to the construct and a satisfactory minimum threshold for the AVE is 0.50. Therefore, all the AVE values in Table 4.5 show that those variables fulfill the AVE criteria and possess strong convergent validity.

### 4.2.3 Discriminant Validity

Table 4.6: Fornell-Lacker Criterion

	CE	CS	G	R	WD
CE	0.789				
CS	0.86	0.8			
G	0.814	0.809	0.822		
R	0.808	0.81	0.779	0.752	
WD	0.847	0.837	0.829	0.829	0.787

Source: Developed for the research

The Fornell-Larcker criterion is one of the common approaches used to test the discriminant validity in SEM. More specifically, the technique is used to check the degree to which constructs are discriminant from other constructs in the conceptual model. That is, the method helps evaluate whether the measurement of different constructs is sufficiently distinct by comparing the AVE (average variance extracted) and squared correlation between that construct and all other constructs. According to the Fornell-Larcker criterion, the AVE of each construct should be greater than the squared correlations between that construct and all other constructs (Hilkenmeier et al., 2020). In this case, the Fornell-Larcker criterion is not met for all constructs, which indicates potential issues with construct overlap or measurement error. A good example is the Squared correlation for CE (0.789) against AVE for CS (0.860), G (0.814), R (0.808), and WD (0.847) which shows that the AVE is smaller than the squared correlation. As pointed out, the possible reasons for low discriminant are constructs overlap, where the statements of one construct tend to cross-load or have a higher association with factors of other constructs than what they are intended to measure. This is mostly regarded as conceptual overlap, which happens when the constructs are closely related or the definitions of the constructs are not clear (Lee et al., 2019; Rönkkö, & Cho, 2022). Thus, there is a need for evaluation of each component's factor loading and those that have loading be removed from the conceptual model.

#### 4.2.4 Outer Loadings

Table 4.7: Outer Loadings

	CE	CS	G	R	WD
CE1	0.775				
CE2	0.744				
CE3	0.839				
CE4	0.794				
CS1		0.764			
CS2		0.79			
CS3		0.831			
CS4		0.812			
G1			0.804		
G2			0.814		
G3			0.845		
G4			0.825		
R1				0.262	
R2				0.859	
R3				0.866	
R4				0.84	
WD1					0.743
WD2					0.829
WD3					0.774
WD4					0.791
WD5					0.794

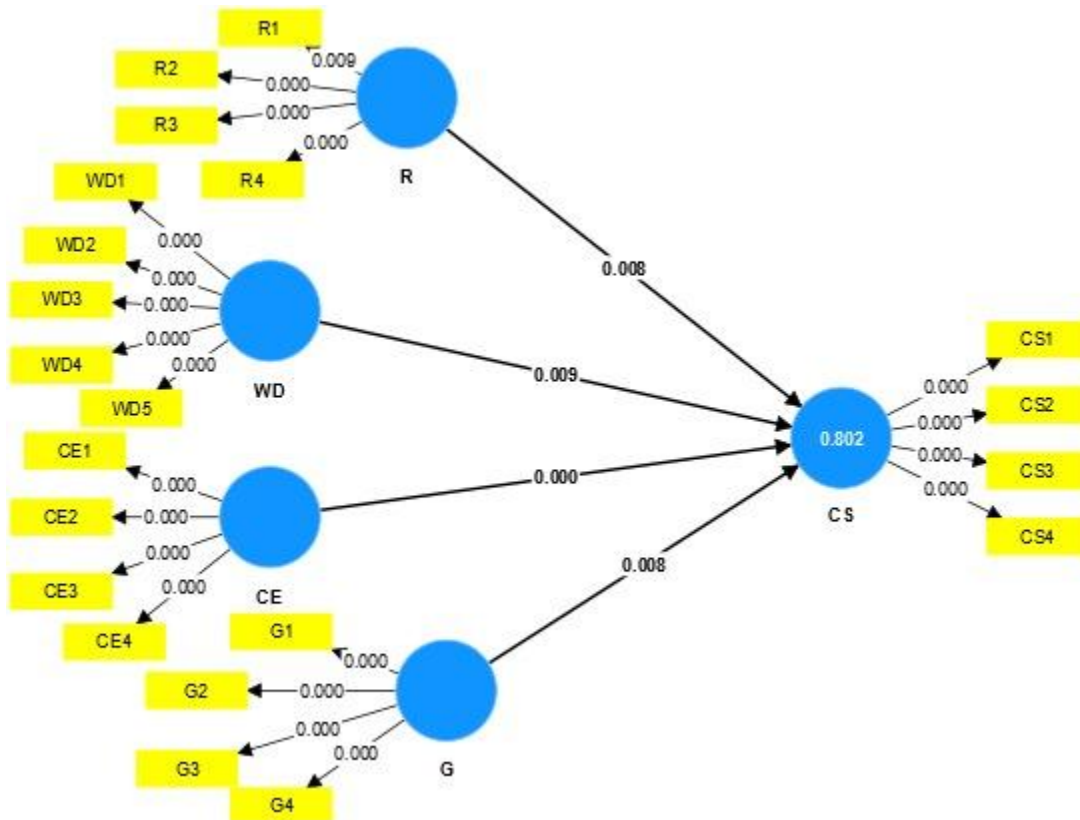
Source: Developed for the research

According to Hamid et al, the value of the outer loadings should be more than 0.70. All of the values had achieved the requirement except for R1. R1 has the value of 0.262 which is below 0.7 remove or delete as it will cause the composite reliability and average variance extracted (AVE).

### 4.3 Structural Model Assessment

The evaluation of the structural model concentrates on gauging the significance and pertinence of path coefficients. Collinearity (Variance Inflation Factor (VIF)), coefficient of determination (R<sup>2</sup> value), and f<sup>2</sup> effect size were employed in this study.

Figure 4.6: Structural Model



Adapted from: PLS-SEM4.0

Prior to conducting the assessment of the structural model, a bootstrapping method was employed to evaluate the significance of the path coefficients. The bootstrapping involved a two-tail test with 5000 bootstrap samples. Subsequently, the structural model assessment included various evaluations, including the collinearity of indicators, the determinant coefficient, and the path coefficients.

### 4.3.1 Collinearity Test (VIF Value)

Table 4.8: Collinearity Test

	VIF
CE1	1.587
CE2	1.485
CE3	1.692
CE4	1.649
CS1	1.588
CS2	1.639
CS3	1.83
CS4	1.691
G1	1.675
G2	1.831
G3	2.004
G4	1.883
R1	1.039
R2	1.883
R3	1.885
R4	1.81
WD1	1.597
WD2	2.002
WD3	1.736
WD4	1.74
WD5	1.819

Source: Developed for the research

The value of the VIF indicates how collinear an indicator is, which means the value should be lower than 5. If VIF values are greater than 5 indicate that there may be problems with predictor construct collinearity (HairJr et al 2021). Based on the result shown in Table 4.8 above, all the results achieve the VIF requirement values, lower than 5. So, there are no collinearity issues.



### 4.3.2 Coefficient of Determinant (R-square value)

Table 4.9: Coefficient of Determinant

	R-square	R-square adjusted
CS	0.802	0.798

Source: Developed for the research

The degree to which a statistical model accurately predicts a result is indicated by a value between 0 and 1, known as the coefficient of determination. Values of 0.75, 0.50, or 0.25 can be classified as considerable, moderate, or weak correspondingly (Hair et al., 2017). In Table 4.9, showed the result of  $R^2$  value 0.802 and  $R^2$  adjusted value 0.798, both of the values exceed the threshold of 0.75, 0.5 and 0.25 which mean the model exhibits significant explanatory capability.

### 4.3.3 Effect Size (F-square)

Table 4.10: Effect Size

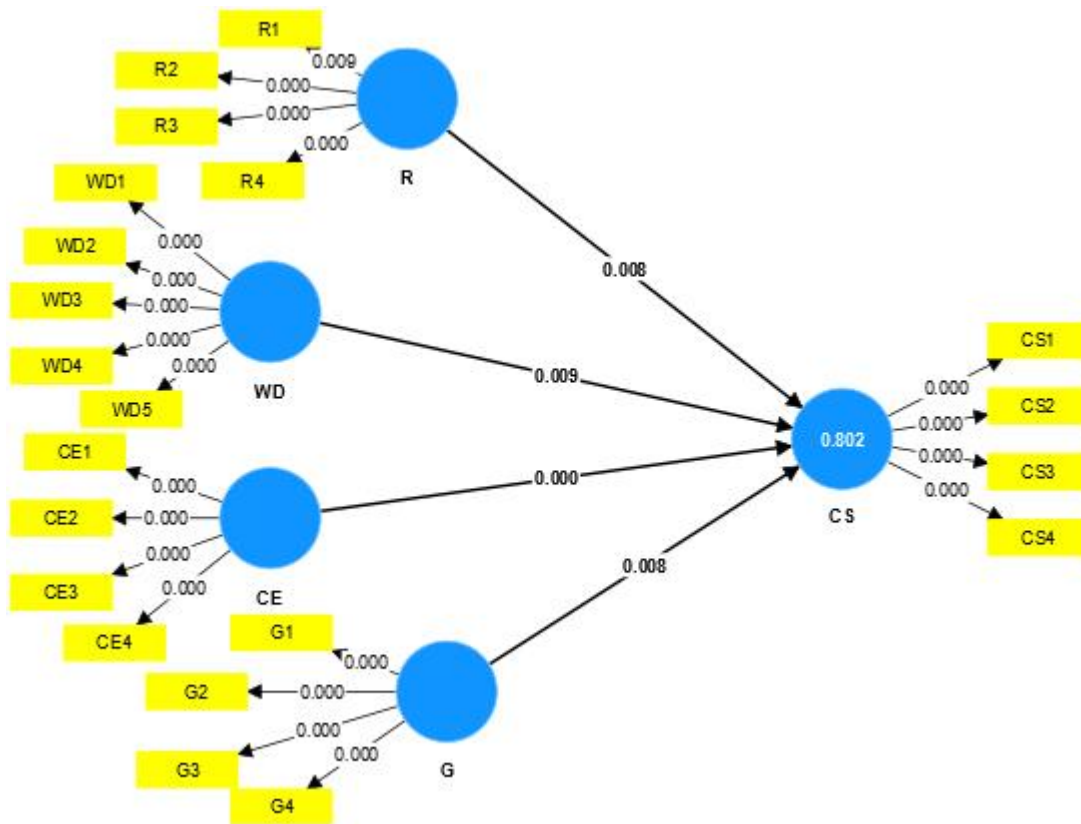
	F-square
CE -> CS	0.179
G -> CS	0.038
R -> CS	0.047
WD -> CS	0.04

Source: Developed for the research

The effect size, which is also called F-square, represents the impact of the designated exogenous framework on the endogenous structure. The values of F-square 0.02, 0.15, and 0.35 indicate small, medium, and large effects. In table 4.10, there is a small effect from WD and medium effect from CE, G, and R.

### 4.3.4 Path Coefficient

In this study, we utilized PLS-SEM to delve into the path coefficients, aiming for a more thorough understanding of the structural model relationships. The unveiling of statistically significant results for the model occurred subsequent to the execution of the "bootstrapping" step.



Source: Developed for the research

Table 4.11: Summary of Structural Model

Hypothesis	Relationship	Sample mean (M)	Standard deviation (STDEV)	P values	Result
H1	CE -> CS	0.398	0.073	0	Supported
H2	G -> CS	0.171	0.064	0.008	Supported
H3	R -> CS	0.185	0.071	0.008	Supported
H4	WD -> CS	0.206	0.078	0.009	Supported

Source: Developed for the research

Table 4.11 above showed the result for H1-H4. All of the results of the structural model are supported, which assert that reliability, web design, guarantee, and customer experience has a significant relationship with customer satisfaction. The results show that customer experience (CE=0.000,  $p < 0.001$ ) is the greatest indicator of customer satisfaction, followed by both guarantee and reliability (G&R=0.008,  $p < 0.05$ ), and web design (WD=0.009,  $p < 0.05$ ).

#### 4.4 Conclusion

In conclusion, Chapter 4 primarily delves into the descriptive analysis, summarizing the demographic data of the participants. Following this, inferential analyses, including assessments of internal consistency and reliability, convergent validity, and discriminant validity, were conducted. The evaluation of the structural model involved performing tests for collinearity, assessing R-squared and F-squared values using PLS-SEM. Ultimately, the study concludes by examining path coefficients to explore the mutual support between dependent and independent variables.

## **Chapter 5: Discussions, Conclusions, and Implications**

### **5.0 Introduction**

This is the last chapter of the research designed to examine the factors affecting customer satisfaction in e-commerce. It offers a discussion of major findings, implications, research limitations, and limitations.

### **5.1 Discussion of Major Findings**

The research carried out CFA on the conceptual model and established that the construct reliability was established since the Cronbach alpha was greater than 0.70, and that the AVE were all greater than 0.50, an indication that more than half of the variance was due to underlying construct and not because of measurement error. Although the construct had an AVE greater than 0.50, the Fornell-Larker criterion deduced some issues of low discriminant which were associated with conceptual overlap or cross-loading.

The structural model assessment indicates that there is a low issue of collinearity since the VIF coefficient was less than 5.0. The coefficient of determination (Adj. R-squared = 0.798) deduced that the model accounts for 79.8%, showing significant explanatory capability of the results. Further, the effect of CE was moderate on the CS, whereas that of WD, G and R had a low effect. This observation raises the dependability of the fitted model in predicting customer satisfaction in e-commerce.

The assessment of the path coefficients indicates that there was sufficient evidence to support that reliability, web design, customer experience, and guarantee/safety were all significant predictors of customer satisfaction in e-commerce. In terms of the effect size, the customer experience was ranked as the most significant factor in influencing customer satisfaction in e-commerce, whereas reliability had the smallest but significant effect.

## 5.2 Implications of the Study

The research established that reliability had a positive and significant impact on customer satisfaction with e-commerce which implies that due to the reliability of the services satisfied customers are more likely to become repeat customers and brand advocates. That is, if an e-commerce platform consistently delivers reliable services, customers are more likely to remain loyal and make repeat purchases (Hidayat, & Anasis, 2020). Further web design was found to have the second largest effect, an indication that offering customers with positive use experience is imperative. Therefore, e-commerce should provide an intuitive navigation, a clear layout, and visually appealing design elements to enhance usability (Dianat et al., 2019). Positive user experiences lead to higher customer satisfaction.

It is important to point out that the research established that positive use experience contributed to positive use experience which increases customer satisfaction with e-commerce. This implies that there will be repeat business and customer loyalty. Satisfied customers are more likely to become repeat buyers, leading to increased customer lifetime value which has been associated with business sustainability (Pei et al., 2020). Last but not least, the guarantee/safety of the products and services was found to positively impact the customer's satisfaction with e-commerce. This has an implication that there will be reduced customer service issues, which not only enhances trust and confidence between the sellers and the buyers but also increases the conversion rate. That is, when customers feel assured that their transactions are secure and that guarantees are in place, they are more likely to trust the platform, leading to enhanced confidence in making purchases (Gajewska, 2020).

In summary, the significant effect of reliability, web design, customer experience, and guarantees/safety on customer satisfaction underscores the importance of prioritizing security in e-commerce, customer feelings and perception, smooth transaction and interactive platforms and reliability of the services. This would boost customer

satisfaction. Further, if the business can demonstrate that it takes customer interests, preferences and needs seriously and provides clear guarantees, it may attract customers to their online shopping decisions. This serves as a competitive advantage.

### **5.3 Limitations of the Study**

The first study limitation was the target population which was limited to online shoppers in Klang valley. Although this population shows diversity in buying behaviour, preferences, and experience, the research findings are only applicable to this population and cannot be generalized to all Malaysian online buyers. In addition, the researcher could include a few people from different geographical regions, to assess whether tie buying behaviour differs from those of Malaysians. This was cross-sectional research which did not have a control group.

### **5.4 Recommendations for Future Research**

It is important to point out that future research should first enhance the sampling approach used which could focus on all the online shoppers in Malaysia. The researcher could use random sampling which increases the representatives of the sample data. In addition, the use of all Malaysian online shoppers would increase the research results dependability, and accuracy. Further, there is low discriminant, which needs to be addressed in future research by adopting or developing a valid and reliable measurement tool. This is important as it not only helps improve results, dependability, and validity. Last but not least, the researcher could modify the conceptual framework and add some factors into the model such as customer loyalty, and price influence among others. Also, the researcher could make the customer experience a mediator factor and run the SEM.

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**APPENDIX A****Appendix A: Construct Measurement**

<b>Construct</b>	<b>Measurement items</b>	<b>Source</b>
Customers Satisfaction (DV)	<ol style="list-style-type: none"> <li>1. I trust the services provided by this brand.</li> <li>2. This brand is safe to accommodate.</li> <li>3. The management of this brand always try to create value added services for customers.</li> <li>4. I receive special offers that suit my needs from this brand.</li> </ol>	Nobar & Rostamzadeh (2018).
Reliability (IV)	<ol style="list-style-type: none"> <li>1. I receive the exact item I ordered from this site.</li> <li>2. Products are delivered on quality referrals on the site.</li> <li>3. The ability to perform the promised service dependably and accurately.</li> <li>4. Customer service does not need reservation.</li> </ol>	Giao, 2020; Gawejska et al., 2019
Web Design (IV)	<ol style="list-style-type: none"> <li>1. The website provides enough information.</li> <li>2. This site does not take me much time to trade.</li> <li>3. Quickly and easily complete a web-based transaction.</li> <li>4. The site has a good product catalog.</li> <li>5. The level of personalization of this site is appropriate.</li> </ol>	Giao, 2020
Customer experience (IV)	<ol style="list-style-type: none"> <li>1. Customer service personnel are knowledgeable.</li> <li>2. If initially personnel were not able to answer my queries, they immediately start finding answers and get back to me promptly.</li> <li>3. I am satisfied with provided services by this brand</li> <li>4. I will expand using the services offered by this brand.</li> </ol>	Nobar & Rostamzadeh (2018).
Guarantee/ Safety (IV)	<ol style="list-style-type: none"> <li>1. I feel that my personal information is protected at this site.</li> <li>2. I feel safe making transactions on this site.</li> <li>3. Full site security and privacy.</li> <li>4. The knowledge and courtesy of employees and their ability to convey trust and confidence.</li> </ol>	Gawejska et al., 2019; Giao, 2020



Appendix B: Survey Questionnaire



UNIVERSITI TUNKU ABDUL RAHMAN

Faculty of Accountancy and Management

BACHELOR OF INTERNATIONAL BUSINESS  
(HONS) FINAL YEAR PROJECT

SURVEY QUESTIONNAIRE

Dear Respondent,

Dear respondents, my name is Casandra Pua Kei Ying, a final year undergraduate student of the Bachelor of International Business (Honors) from Faculty of Accountancy and Management (FAM) in Universiti Tunku Abdul Rahman (UTAR) Sungai Long Campus. I am currently surveying for my Final Year Project (FYP). The aim of the research questionnaire is to study the factors affecting customer satisfaction in e-commerce.

This questionnaire consists of three sections which are Section A, Section B and Section C. I would appreciate it if you could spend approximately 10 minutes of your valuable time answering the questionnaire. Your valuable information will provide me with a deeper insight into the study topic and hopefully, it will bring advantage to me. Kindly be assured that we have the responsibility to protect all the information and data collected under the Personal Data Protection Act 2010 (PDPA) and are always ensure that this information will be used for study purposes only and will be kept private and confidential.

If you have any enquiries or concerns about the research study, please do not hesitate to drop an email at Casandra Pua Kei Ying ([casandrapua@1utar.my](mailto:casandrapua@1utar.my)). Your involvement and contributions in this research will be greatly appreciated.

## **Personal Data Protection Notice**

Please be informed that in accordance with Personal Data Protection Act 2010 (“PDPA”) which came into force on 15 November 2013, Universiti Tunku Abdul Rahman (“UTAR”) is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. Personal data refers to any information which may directly or indirectly identify a person which could include sensitive personal data and expression of opinion. Among others it includes:

- a) Name
- b) Identity card
- c) Place of Birth
- d) Address
- e) Education History
- f) Employment History
- g) Medical History
- h) Blood type
- i) Race
- j) Religion
- k) Photo
- l) Personal Information and Associated Research Data

2. The purposes for which your personal data may be used are inclusive but not limited to:

- a) For assessment of any application to UTAR
- b) For processing any benefits and services
- c) For communication purposes
- d) For advertorial and news
- e) For general administration and record purposes
- f) For enhancing the value of education
- g) For educational and related purposes consequential to UTAR

- h) For replying any responds to complaints and enquiries
- i) For the purpose of our corporate governance
- j) For the purposes of conducting research/ collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

4. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

5. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

6. By submitting or providing your personal data to UTAR, you had consented and agreed for your personal data to be used in accordance to the terms and conditions in the Notice and our relevant policy.

7. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

8. You may access and update your personal data by writing to me at [casandrapua@lutar.my](mailto:casandrapua@lutar.my)

## Section A: Demographic Profile

(Please choose ONE of the answers below and tick on the appropriate answer.)

1.Age of respondent

- 18-25
- 26-35
- 36-45
- 46-55
- 56 and above

2.Gender

- Male
- Female

3.Level of education

- Advanced diploma
- Bachelor's degree
- Master's degree
- PhD

4.Marital status

- Single
- Married
- Divorced

**Section B:**

Please rate the following on a scale from one to five (1= Strongly Disagree (SD), 2= Disagree (D), 3= Neutral (N), 4=Agree (A), 5= Strongly Agree (SA))

**1. Reliability**

Reliability	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1. I received the exact item I ordered from this site.	1	2	3	4	5
2. Products are delivered on quality referrals on the site.	1	2	3	4	5
3. The ability to perform the promised service dependably and accurately.	1	2	3	4	5
4. Customer service does not need reservation.	1	2	3	4	5

**2. Web Design**

Web Design	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1. The website provides enough information.	1	2	3	4	5
2. This site does not take me much time to trade.	1	2	3	4	5
3. Quickly and easily complete a web-based transaction.	1	2	3	4	5
4. This site has a good product catalog.	1	2	3	4	5
5. The level of personalization of this site is appropriate.	1	2	3	4	5

### 3. Customer Experience

Customer Experience	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1. Customer service personnel are knowledgeable.	1	2	3	4	5
2. If initially personnel were not able to answer my queries, they immediately start finding answers and get back to me promptly.	1	2	3	4	5
3. I am satisfied with the services provided by this brand.	1	2	3	4	5
4. I will expand using services offered by this brand.	1	2	3	4	5

### 4. Guarantee/ Safety

Guarantee/ Safety	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1. I feel that my personal information is protected at this site.	1	2	3	4	5
2. I feel safe making transactions on this site.	1	2	3	4	5
3. Full site security and privacy.	1	2	3	4	5
4. The knowledge and courtesy of employees and their ability to convey trust and confidence.	1	2	3	4	5



**Section C:**

**1. Customer satisfaction**

Customer Satisfaction	<b>SD</b>	<b>D</b>	<b>N</b>	<b>A</b>	<b>SA</b>
1. I trust the services provided by this brand.	1	2	3	4	5
2. This brand is safe to accommodate.	1	2	3	4	5
3. The management of this brand always try to create value added services for customers.	1	2	3	4	5
4. I received special offers that suit my needs from this brand.	1	2	3	4	5

All the information is treated as “Private and Confidential”

Thank you very much for your participation in this survey. Your time and opinions are deeply appreciated.



Re: U/SERC/272/2023

17 October 2023

Dr Fitriya Binti Abdul Rahim  
Head, Department of International Business  
Faculty of Accountancy and Management  
Universiti Tunku Abdul Rahman  
Jalan Sungai Long  
Bandar Sungai Long  
43000 Kajang, Selangor

Dear Dr Fitriya,

### Ethical Approval For Research Project/Protocol

We refer to your application for ethical approval for your students' research project from Bachelor of International Business (Honours) programme enrolled in course UKMZ3016. We are pleased to inform you that the application has been approved under Expedited Review.

The details of the research projects are as follows:

No.	Research Title	Student's Name	Supervisor's Name	Approval Validity
1.	A Comparative Study: Exploring Food Security in Malaysia and Singapore	Liow Jia Ying	Dr Angelina Anne Fernandez	17 October 2023 – 16 October 2024
2.	Factor Affecting Customers Satisfaction in e-commerce	Casandra Pua Kei Ying	Ms Annie Yong Ing Ing	
3.	Savouring Malacca: Exploring the Factors Influence Travellers' Intention Toward Malacca Local Delicacies	Chai Wei Lun	Ms Tai Lit Cheng	
4.	Measuring the Impact of Artificial Intelligence (AI) Applications in Online Customer Service	Rachel Ong Pei Lyn	Dr Farah Waheeda Binti Jalaludin	
5.	The Awareness Towards AI Adoption in Personal Financial Planning Among the Higher Institutions' Undergraduates in Klang Valley, Malaysia	Lim Kean Chuan	Mr Raymond Ling Leh Bin	
6.	Online Purchase Intention Among Generation Z	Soong Vai Ven	Dr Sia Bee Chuan	
7.	The Impact of Digital Marketing on Consumer Buying Behavior	Loo Jia Jun	Dr Ooi Bee Chen	
8.	Factors Influencing Logistic Outsourcing Practices by E-platform Sellers in Malaysia	Fong Chao Shen	Ms Ung Leng Yean	
9.	The Impact of Strategic Management Towards Corporate Performance – A Case for Malaysian Companies	Ng Kah Lok	Dr Foo Meow Yee	
10.	The Factors that Influences Micro Women Entrepreneurs to Adopt Digital Platform Based Business	Tan Han Bing	Pn Ezatul Emilia Binti Muhammad Arif	
11.	Factors Affecting Entrepreneurship Intentions Among Students	Kunadharshaan Kunabalan	Dr Komathi a/p Munusamy	



The conduct of this research is subject to the following:

- (1) The participants' informed consent be obtained prior to the commencement of the research;
- (2) Confidentiality of participants' personal data must be maintained; and
- (3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.
- (4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,



**Professor Ts Dr Faidz bin Abd Rahman**

Chairman

UTAR Scientific and Ethical Review Committee

c.c     Dean, Faculty of Accountancy and Management  
          Director, Institute of Postgraduate Studies and Research