BUILDING LOYALTY THROUGH SATISFACTION: COSTA COFFEE SELF SERVICE VENDING MACHINE

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BY

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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 _____10835_____.

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Preface

Undertaking a research study can be an exciting and challenging endeavour. This study aims to explore and examine why such a famous international coffee brand, Costa Coffee, but the actual number of users seems to be just a small portion in the Malaysia market. In doing so, I hope to contribute to the existing body of knowledge in the field and shed light on important questions that have yet to be answered. The study is using quantitative research and I have taken great care to ensure that the findings are valid, reliable, and generalizable to the large population.

Throughout this study, I have been guided by the insights and experiences of many individuals, including experts in the field, research participants, and fellow researchers. I am grateful for their contributions and would like to acknowledge their support and guidance.

I hope that this research study will be of value to researchers, future researcher and digital marketing or marketing teams in the field, and that it will help to advance our understanding of the phenomenon under investigation.

Abstract

The purpose of this empirical study is to investigate the satisfaction and loyalty of customers towards the use of Costa Coffee Self Service Vending Machine. In this research, questionnaires were adapted and the data of 300 respondents have been collected. However, after filtering, only 250 set of questionnaires are qualified to conduct the research. Data analysis was done by using SPSS software. The results from this research shown that most of the variables significant with satisfaction and loyalty, but only one independent variable namely convenience (C) does not have significant relationship on satisfaction loyalty towards the Costa Coffee Self Service Vending Machine. The results proved that convenience (C) does not indirectly affect the loyalty towards Costa Coffee Self Service Vending Machine even there is a presence of mediator variable (Satisfaction). This study makes a valuable reference contribution to the current literature on coffee retailers and also marketing teams especially for Costa Coffee by performing a set of symmetric analysis methods to assess Costa coffee lovers's expectations and responses.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

In this chapter, the research background, objectives, and problem statement are thoroughly presented to inform readers about the study's significance and the formulated hypotheses' importance.

1.1 Research background

Malaysians embraced tea as their primary beverage in the early twentieth century. Figure 1 shows that coffee culture first emerged during the colonial era, with the Hainanese Chinese founding of "kopitiams." And Malaysians frequently visit neighbourhood kopitiams for coffee in the morning or before starting work. The employees at the specific Kopitiam will assist the customers by manually writing the order on a piece of paper and serving the freshly prepared food and coffee to their table. For breakfast, older people typically order a cup of coffee made by pouring hot boiling water through a cloth filter rather than brewed and a slice of baked toast. Then, they will eat their meals while conversing with old friends.

Figure 1.1: Kopitiams in Malaysia

The coffee culture in Malaysia has seen a spurt in growth due to urbanization and busy lifestyles taking over. Young (2022) mentioned that 61% of Malaysians are

classified as frequent coffee drinkers. Malaysia was among the top 50 coffee-consuming nations (Rahim et al., 2019). Moreover, coffee consumption has successfully become ingrained in the culture of Malaysia. According to data provided by Statista, the consumption of coffee in Malaysia is expected to increase from 625,000 bags (60 kilogram bags) in 2013 to 800,000 bags in 2021. Based on a report published by the Malaysian Coffee Association, the coffee industry in the country has witnessed an impressive 10% growth in the previous year (Ling, 2021). The upswing in demand for coffee can be attributed to two main factors: the increase in the number of people belonging to the middle-class population in the country and the expansion of the café culture.

Consumer Goods & FMCG › Non-alcoholic Beverages

Total coffee consumption in Malaysia from 2013 to 2021 with a forecast for 2022

(in 1,000 60 kilogram bags)
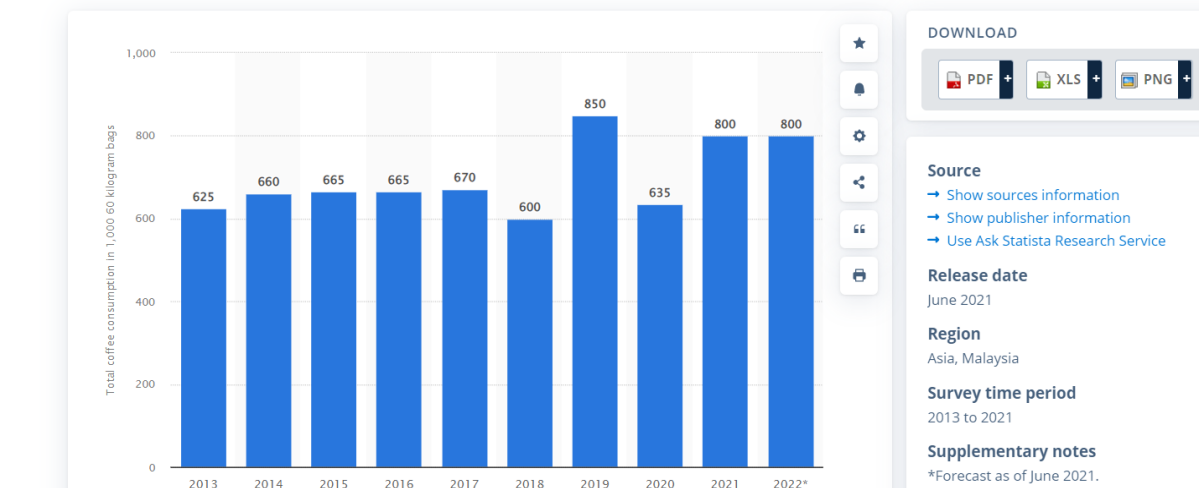
Figure 1.2 Total coffee consumption in Malaysia

In modern times, many generations are drinking brewed and roasted coffee. It is particularly well-liked among the younger consumers in Malaysia, known as millennials (Lee et al.,2018). The coffee business in Malaysia has been experiencing rapid growth and increased levels of competition in recent years (Har, n.d). As per a report published by Mordor Intelligence, the coffee market of Malaysia is poised to register a growth rate of 5.5% during the projected period spanning from 2021 to 2026 (Mordor Intelligence, 2021). For instance, a great deal of speciality coffee shops are accessible at any time and in any location. A local

modern and upgraded coffee shop called Old Town White Coffee is located at almost every turn in the region. Additionally, international coffee chains such as Starbucks, Mc Café, and The Coffee Bean & Tea Leaf have expanded their operations in the country, hosting them by setting up shop there. Instead of offering consumers a wide range of standardized and localized products to satisfy domestic demand, coffee shops provide an ideal environment for customers to socialize (Lee et al.,2018).

E-commerce, digital marketing, fintech, contractless table ordering, self-ordering system, kiosks, mobile wallets, and online meal-ordering systems have all emerged as a direct result of digitalization. Some businesses had even invested in self-service technology (SST), a cutting-edge method of providing customers with benefits, including reduced wait times and more flexible scheduling. This trend includes self-service check-in kiosks at airports, hotel check-in/out machines, internet reservations, and automated teller machines. As SST advances, it will be able to aid businesses in reducing costs like labour costs, which will boost productivity and profitability, as reflected in the company's financial statements (Safaeimanesh et al., 2021). Several coffee franchises have implemented self-service technology (SST), such as the coffee vending machine, to make it easier for customers to buy their products.

For reference, Costa Coffee has been introducing barista-quality self-service coffee in Malaysia since 2017 (Nurafiqah, 2021). This vending machine is an extension of Costa Coffee. These self-serve coffee machines are now available at Shell stations, Petron stations, and 99 Speedmart across Malaysia (Fuser. , n.d.), where customers can obtain cups of hot or cold beverages like black/white Americano, Cappucino, Latte, Flat White, Mocha, chocolate drinks or milk easily (Shell Malaysia. , n.d.).Although this can bring many advantages to the consumer, using self-serving coffee machines needs to be fully interactive and can cooperate with customers' needs later.

Figure 1.3 : The Costa Coffee and the self service coffee vending machine

1.2 Problem statement

Previous studies have examined the consumption of coffee in Malaysia, including roasted ground and instant coffee, using a sample of twelve different brands from various countries (Mayeen Uddin et al., 2020). Other research has focused on identifying the factors influencing consumers' purchase intentions of coffee drinks in coffeehouses in Malaysia, such as price, brand image, perceived quality, and health consciousness (Rahim et al., 2019). However, customer preferences, behaviours, and tastes can change over time. Therefore, management teams must stay current with the latest market trends and conduct market research to understand customers' needs to remain competitive.

Despite technological advancements in the coffee industry, Costa Coffee's self-service kiosks have provided customers a more efficient, user-friendly, and convenient way to purchase coffee. However, the lovers of Costa Coffee are just a small portion. The reason is that this Costa Coffee can only be found in vending machine method, and there are majoring to be placed at R & R, petrol stations, 99 Speed Mart and MIX stores. Some Costa Coffee vending machines, like the one at 99 Speed Mart in Bandar Sungai Long, have stopped operating (Figure 1.4). Costa Coffee needs to understand the factors contributing to its lower market share in

Malaysia and explore ways to improve its brand awareness and accessibility to potential customers. In-depth research can provide insight into customer preferences and behaviours and help identify marketing strategies to enhance customer loyalty and improve brand image. By doing so, Costa Coffee can expand its business in Malaysia and compete effectively in the coffee industry.

Figure 1.4: Costa Coffee Self Service Vending Machine in 99 Speed Mart, Bandar Sungai Long (the shop lot near UTAR Sg Long Campuses) photo taken on 9 December 2022

1.3 Research question

Based on the problem statement presented, the following research question has emerged for this study:

1. What are the variables that affect the satisfaction of customers towards Costa Coffee's self-service vending machine?
2. How would satisfaction as a mediator affect customer loyalty towards Costa Coffee's self-service vending machine?

1.4 Research objective

RO1: To discover the variables affecting customers' satisfaction towards Costa Coffee's self-service vending machine.

RO2: To examine satisfaction as a mediator affecting customer loyalty towards Costa Coffee's self-service vending machine.

1.5 Scope of study

The scope of this research paper encompasses independent variables, mediator variables, dependent variables, and the coffee industry. The independent variables in this study include functionality, enjoyment, security, design, and convenience. The dependent variable is customer loyalty, while the mediator variable used in the research is customer satisfaction. However, since the coffee industry is extensive, this paper will focus specifically on the Costa Coffee self-service vending machine.

1.6 Research significant

The proliferation of wireless devices and the prevalence of a virtual world have forced many individuals and firms to embrace technology. This research paper aims to examine how customers' behaviour is influenced by the advancement of technology, specifically, the Costa Coffee self-service kiosk, which is supported by artificial intelligence (AI) in the Malaysian market. The significance of this study is underscored by the increasing use of self-ordering kiosks in Malaysia (Myers, 2022), which could impact Costa's brand performance. Moreover, this study could provide a better understanding and know the performance of the business extension. Also, help to provide information about the demographic of Costa Coffee lovers. Despite this, this study could also be a reference for Costa Coffee to know customers' behaviours and strategies for marketing to compete in the market.

1.7 Conclusion

The current chapter identifies the factors influencing customer satisfaction and loyalty towards the Costa Coffee Self-Service Vending Machine. The following chapter will review previous studies and research to understand better the determinants of customer satisfaction and loyalty towards the Costa Coffee Self-Service Vending Machine in Malaysia.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter will comprehensively explain the literature review conducted for this study. The research focuses on one dependent variable, loyalty, one mediator variable, satisfaction, and five independent variables, namely convenience, design, security, functionality, and enjoyment.

2.1 Underlying theories

This study uses the stimulus organism response model (SOR) in the underlying theory. The stimulus for this study is the left-hand side, followed by the organism at the middle site and the response at the right-hand side.
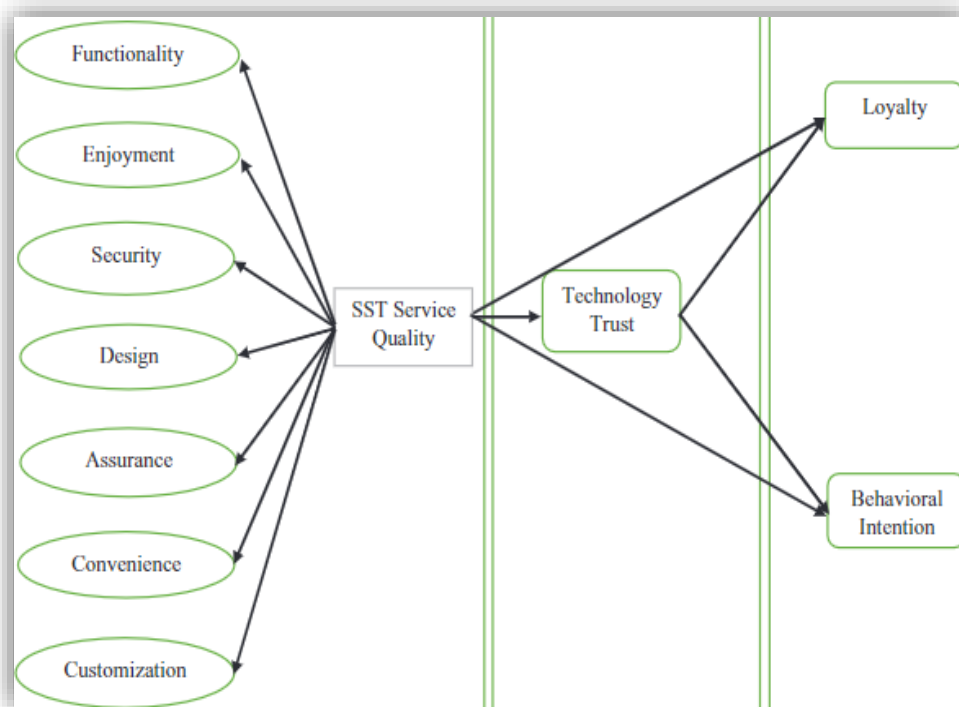
Source : Ul Hassan, M., Iqbal, M. S., & Habibah, U. (2020). Self-service technology service quality: Building loyalty and intention through technology trust in Pakistani service sector. *Sage Open*, *10*(2), 2158244020924412.

2.1.1 SOR model

The objective of this research study is to explore the loyalty and satisfaction levels of users of the self-service vending machine at Costa Coffee. To accomplish this, the stimulus organism response (SOR) model will be used. The SOR model was initially proposed by Albert Mehrabian and James A. Russel in 1974 to analyze consumer behavior (Kishore, 2021). This model is built upon behaviorism's S-R model, which evolved as a response to changes in an individual's psychological state or behavior. The model posits that a physical stimulus is followed by external stimuli received through the senses. These stimuli are processed by the neurological system, leading to a final decision or action. The simplified output of this process is known as the SOR model (Kishore, 2021).

According to past scholars, Liu and Zheng (2019), the SOR model is one of the fundamental models of current cognitive psychology, which explains the predictive impact of contextual factors on consumers' emotional responses and subsequent behaviors. As a result, it is critical in attempting to resolve human behavior problems. The environmental stimuli that are expected to elicit either approach or avoidance as behavioral responses (R) in this paradigm are referred to as (S). In contrast, organism (O) refers to the internal states of perception, feeling, and thought.

There are two main reasons why the SOR model should be utilized for this study. Firstly, many past studies on consumer behavior have extensively used the SOR model. In recent years, several characteristics that contribute to the growth of the online retail industry have been identified by local and international academics. These characteristics mostly include product quality and value, website quality and information content, online store environment, image and brand. As an example, Moon, Lho, and Han (2021) explored how the quality of the self-check-in kiosk impacts passenger happiness and loyalty. Past scholars, namely Kim, Lee, and Jung, used an extended version of the SOR model to investigate consumer behavior in the context of virtual reality tourism.

Secondly, given the significance of environmental cues in influencing consumer behavior, the SOR model provides a condensed and structured framework for examining the effects of environmental stimuli on consumers' cognitive or emotional responses and their satisfaction and loyalty towards the Costa Coffee self-service vending machine. This is crucial because environmental stimuli have been found to have a significant impact on consumer behavior.

2.2 Review of variables

In this study, we will examine three variables: dependent, mediator, and independent. The variable of interest in this study, the dependent variable, is loyalty. Acting as a mediator is satisfaction, which is expected to affect loyalty. The independent variables are security, design, functionality, convenience, and enjoyment. These variables are expected to have a direct impact on satisfaction and an indirect impact on loyalty through satisfaction.

Dependent variable

2.2.1 Loyalty

Researchers Aldaihani and Ali have highlighted the significance of customer loyalty for businesses. They argue that a company's ability to adapt to changes in customer behaviour and provide high-quality service is crucial for acquiring customers. Therefore, to contribute directly to business growth and profitability, businesses must focus on fostering customer loyalty. *Customer loyalty* can be defined as the commitment of customers to repeatedly purchase a product or service and spread positive word-of-mouth about it. While Duffy (2003) emphasizes the importance of retaining as many customers as possible, Aldaihani and Ali (2019) differentiate between two types of loyalty: attitudinal and behavioural. Attitudinal loyalty pertains to the customer's attachment to a product or service and willingness to defend and promote it to others. Behavioural loyalty refers to the customer's

strong commitment to purchasing a product or service, even when alternatives are available. However, in the real world, customers may switch their preferences to another brand or product if a better option with superior features and a more affordable price is offered.

Mediator variable

2.2.2 Satisfaction

The marketing industry has conducted significant research on customer satisfaction, which has become a top priority for businesses. According to Lin (2003), consumer satisfaction is determined by how the consumer evaluates a product or service compared to their expectations. High consumer satisfaction is achieved when the product or service meets or exceeds the customer's expectations. By improving customer satisfaction, businesses can enhance their retention rate, generate positive word-of-mouth, and increase profits (Zeithaml, 2000). Additionally, research by Chang, Chou, and Lo (2014) suggests that customer satisfaction influences repurchase behaviour and the intention to purchase other products from the company. Customer satisfaction is also a critical metric for marketers because it helps satisfy customer needs and provides a competitive advantage (Akbari et al., 2015, as cited by Brill et al., 2019). Kotler (2003) defines satisfaction as the degree to which customers experience happiness or disappointment based on the relationship between product performance and personal perception.

Furthermore, customer satisfaction is the post-purchase judgment or evaluation of a product or service, according to Chun et al.'s (2020) research on fast-food restaurant attributes using the deserved scale. Dissatisfied customers may either do nothing or complain directly to the supplier or manufacturer and switch to an alternative supplier (White & Yanamandram, 2007). Therefore, companies must strive to satisfy their customers by targeting the right customers and offering unique value propositions. Neglecting customer needs can lead to the loss of clients and a detrimental impact on the company or organization.

<u>Independent variable</u>

2.2.3 Convenience

Early marketers had a different perspective on convenience, regarding it as the amount of time and effort required to make a purchase, as Ching et al. (2011) stated. However, Thuy (2011) defined convenience as reducing consumers' time, energy, and effort to purchase and use a product or service. Furthermore, Jones et al. (2003), as cited by Ching et al. (2011), found that customers are more likely to make repeat purchases when they perceive the service they received as easy to use. Therefore, retail businesses can differentiate themselves from competitors by making their products and services more accessible and convenient to customers. In addition to time and effort savings, there are other forms of convenience, such as ease of access, transactions, and obtaining and retaining a product. Access convenience in retail refers to how easily and quickly customers can reach the store, which depends on time flexibility, spatial convenience, and service availability. For example, access convenience is crucial for determining how easily and quickly customers can access the next Costa Coffee self-service coffee kiosk. Transaction convenience is also critical, referring to how easily and quickly customers can complete a transaction or make adjustments, such as having a user-friendly checkout process, multiple payment options, confirmation responses, fewer payment failures, and consistent pricing for online services, as noted by Changet al. (2010) and cited by Shankar et al. (2020). According to previous research, possession convenience is the ease with which consumers can obtain the product they want, which is especially vital for time-sensitive customers who require immediate access to the product.

2.2.4 Design

According to Safaeimanesh et al. (2021), the design of self-service technology is critical as it can significantly influence customers' service experience. A well-designed self-service machine can make the service easier to use and increase customer satisfaction while positively impacting the brand's perception and fostering a positive emotional connection with the company. The impact of design

on purchasing behaviour is supported by Siraj et al.'s (2020) research, which found that product design and visual aesthetics affect customers' purchasing decisions. The study concluded that investing in good design can make products or machines more appealing to customers and boost sales. Additionally, design plays a vital role in online customer experiences. Agarwal and Venkatesh's (2002) research showed that a well-designed website can increase consumer engagement and attract and retain online customers. Thus, businesses should prioritize creating an attractive, user-friendly website to enhance their online presence.

2.2.5 Security

Security involves protecting transactions and ensuring safety in technological environments. This includes measures against theft or espionage and ensuring a stable and predictable environment for individuals to pursue their goals without harm. User perception of security influences their emotional and behavioural intentions. Preventing unauthorized access to data is also a crucial aspect of security. However, some consumers hesitate to use advanced technology due to concerns about security and privacy. Previous studies have shown that security protects users against fraud and financial losses. Customers without prior experience with technology may have even more concerns about security and privacy (Ghayoumi, 2016).

2.2.6 Functionality

In addition, the functionality of a service is a critical factor that contributes to its quality and performance, with "function" deriving from the Latin word "functionem", meaning to perform a task or duty for users (Safaeimanesh et al., 2021). Previous studies have identified several aspects of functionality that are important for delivering excellent service, including accessibility, responsiveness, customization, ease of use, and efficiency (Gures et al., 2018). If a system is efficient and performs well, customers will be satisfied, leading to their intention to

use it. Furthermore, scholars have suggested that two primary factors that influence the usage of a system are functionality and usability (i.e., design) (Lu and Yeung, 1998, as cited by Leung et al., 2016). *Functionality* can be defined as the effectiveness of the transaction process, which reflects how good services or kiosks provided by a company are used (Ahn & Seo, 2018). The functionality of a system indicates the degree to which it performs as intended and satisfies the desires of its users (Bertot et al., 2006). Zeng's study suggested that functionality also refers to the availability of a wide range of services provided by a particular self-service technology (SST) and the information provided about those services. Customers use SSTs to locate the desired functions (Zeng, 2016). Given the situation, if the Costa coffee self-service vending machine operates smoothly and can meet customers' needs, they will feel satisfied and love it.

2.2.7 Enjoyment

According to Safaeimanesh et al. (2021), customers who derive pleasure from technology-based self-service are more inclined to utilize it. The meaning of enjoyment is sometimes used interchangeably with happiness, pleasure, flow, usefulness, or usability, as elucidated by Aleck et al. (2008). Furthermore, enjoyment is considered a fundamental element of any entertainment experience, as highlighted by Casalo et al. (2017). When customers are content with the pleasure and enjoyment they receive from a firm's services, they are likelier to continue using them. Moreover, prior research has found that people prompted by intrinsic motivations such as interest and enjoyment are more likely to continue engaging in the behaviour in the future. As stated by Wu and Liu (2007) and Childers et al. (2001), respectively, enjoyment is the degree to which a user perceives satisfaction in their experience with a service. Additionally, enjoyment can be viewed as a hedonic aspect of value that emphasizes how consumers feel and behave due to emotional and multisensory factors (Cai and Xu, 2011, cited in Johnson et al., 2015). Despite this, Kim et al. (2013) discovered that enjoyment is an intrinsic motivator that directly influences a customer's decision to utilize a system or service.

2.3 Proposed research framework
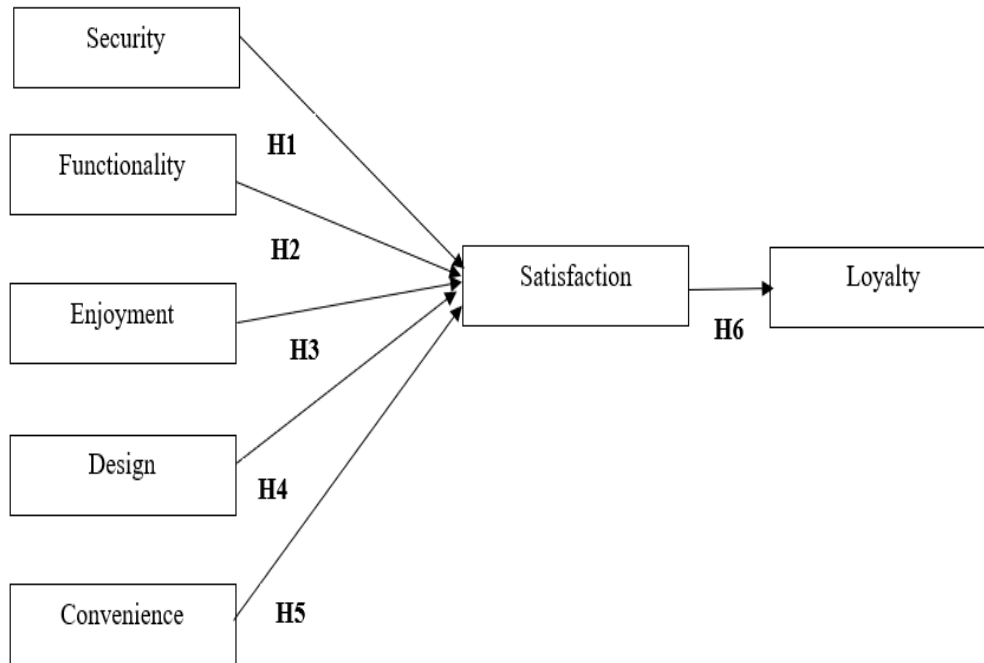
Source: Developed for research

The research framework depicted in the figure above will be used to guide the proposed study on building customer loyalty through satisfaction with Costa Coffee self-service kiosks in Malaysia. The framework consists of stimuli on the left side, the organism in the middle, and responses on the right. This framework is adapted from Ul Hassan et al.'s (2020) study. We have developed six hypotheses for this study in line with previous empirical research.

2.4 Hypothesis development

Based on past empirical studies, this leads to the creation of the hypothesis's development in this research. Six hypotheses were proposed, and the relationship among the variables is shown as follows.

2.4.1 Security and its relationship with satisfaction

Ensuring security and privacy for customers when interacting with technology, especially during transactions, is crucial for achieving service quality and customer satisfaction in self-service technologies (SSTs). This topic has been widely discussed in various industries, including banking, telematics services, and hotel reservations (Safaeimanesh et al., 2021). According to Soodan et al. (2020), privacy and security are the most critical factors that influence the use of e-wallets. Recent research on customer satisfaction with digital wallet services in Malaysia has suggested that security-related factors significantly influence satisfaction levels (Muhtasim et al., 2022). Similarly, Barusman (2019) found that the security variable has a direct positive impact on customer satisfaction on online shopping websites. However, Vetrivel, Rajini, et al. (2020) showed that security is not a significant predictor of customer satisfaction with internet banking services in the Indian context. Conversely, the study conducted by Khatoon et al. (2020) on the Qatar banking sector found a significant positive association between security and customer satisfaction. Based on these findings, it can be hypothesized that the relationship between security and customer satisfaction in technology-based self-service, especially during transactions, is a critical aspect of service quality.

Hypothesis 1 (H1): There is a significant relationship between security (SE) and satisfaction (S).

2.4.2 Functionality and its relationship with satisfaction

Gures et al. (2018) conducted a study on the use of self-service technology (SST) by Y-Generation customers in airline services, which showed that customer satisfaction increased when SST functionality was utilized and operated smoothly. Similarly, Kourtesopoulou et al. (2019) found that functionality was the most significant factor in predicting consumer satisfaction, while Othman et al. (2020) noted that customer satisfaction was strongly influenced by the smooth functioning of SSTs, citing ATMs as an example of glitch-free service being critical to ensure

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customer satisfaction. Building on this, Lian (2018) discovered that a seamless and error-free SST system could enhance customer satisfaction. Additionally, Ahn et al. (2019) found in their study on the tourism industry that functionality was a direct precursor to customer satisfaction. Thus, based on these findings, the hypothesis was formulated that SST functionality has a positive effect on customer satisfaction.

Hypothesis 2 (H2): There is a significant relationship between functionality (F) and satisfaction (S).

2.4.3 Enjoyment and its relationship with satisfaction

The idea of enjoyment has been extensively discussed and analyzed in various situations and from different points of view. El-Said and Al Hajri conducted a study on customer satisfaction with robot service restaurants during the COVID-19 pandemic, and their findings indicated that enjoyable experiences had a favorable effect on word-of-mouth recommendations. Put differently, satisfied customers were more likely to share their positive experiences with others, such as family and friends (El-Said & Al Hajri, 2022). Shin et al. (2020) also discovered that enjoyment significantly influenced satisfaction with peer-to-peer accommodations in the hospitality and tourism industry. Additionally, Laosuraphon and Nuangjamnong (2022) conducted a study on the factors affecting customer satisfaction, trust, and repurchase intention towards online streaming shopping in Bangkok, which showed that enjoyment had a considerable impact on customer satisfaction. The study recommended that live streamers provide entertaining and engaging live streams to create customer satisfaction. Based on these findings, the hypothesis was formulated that enjoyable experiences positively affect customer satisfaction.

Hypothesis 3 (H3): There is a significant relationship between enjoyment (E) and satisfaction (S).

2.4.4 Design and its relationship with satisfaction

In a previous study by Ku et al. (2013) that focused on self-service technology (SST) usage behavior in Taiwan airports, it was found that passengers tend to prefer visually attractive SSTs. A more recent study by Park, Lehto, and Lehto (2021) examined self-service technology kiosk design for restaurants and highlighted the importance of consistent design between customers and managers to ensure customer satisfaction. Customers consider design to be an essential attribute when using SST services, but there appears to be a significant gap in management perspectives. Meanwhile, Choi et al. (2018) explored the relationship between design and customer satisfaction and engagement in high-end hotels. Their research revealed that design significantly affected customer satisfaction and their willingness to recommend the hotel to others. Specifically, customers were more likely to recommend a hotel if they were pleased with the design of the rooms and social areas. Taking these findings into consideration, the hypothesis was formulated that design has a notable impact on customer satisfaction.

Hypothesis 4 (H4): There is a significant relationship between design (D) and satisfaction (S).

2.4.5 Convenience and its relationship with satisfaction

The positive effect of convenience on customer satisfaction has been empirically confirmed by Othman et al. (2020) in their study. Jiaying et al. (2021) found a significant relationship between convenience and satisfaction in the hotel industry, while Alwi et al. (2019) established a strong correlation between convenience and satisfaction with fintech mobile payment services in Malaysia. Similarly, Hong et al. (2019) highlighted the positive impact of convenience on customer satisfaction in fresh e-commerce logistics. Research on consumer perceptions of IoT-based smart parcel locker logistics in China by Tang, Chau, and others also confirmed a clear relationship between convenience and customer satisfaction (Tang, Chau, et al., 2021). Colwell et al. (2008) found that service convenience significantly

predicted overall satisfaction with Canadian personal cellular phone and internet usage, while Aagja et al. (2011) discovered a positive impact of perceived service convenience on customer satisfaction and behavioural intentions in both public and private sector banks in India. Based on these findings, the hypothesis was formulated that convenience positively impacts customer satisfaction.

Hypothesis 5 (H5): There is a significant relationship between convenience (C)and satisfaction (S).

2.4.6 Loyalty and its relationship with satisfaction

A study conducted by Lenka et al. (2009) and Kaura (2013b) on the Indian banking sector revealed that customers who are satisfied with the services of a particular provider tend to be loyal and choose the same provider repeatedly. Aslam et al. (2019) found that there is a significant relationship between customer satisfaction and customer loyalty, which supports previous research showing that customer satisfaction is crucial in creating a competitive market environment. Mehta & Tariq's (2020) research focused on how brand image and perceived service quality influence customer loyalty through customer satisfaction. They found that customer satisfaction strongly influences customer loyalty, emphasizing that satisfied customers are more likely to repurchase products or reuse services. Moreover, Wantara & Tambrin's (2019) study supported the hypothesis that customer satisfaction significantly influences customer loyalty, as customers are more likely to revisit and reuse if they are satisfied with the product or service.

Hypothesis 6 (H6): There is a significant relationship between satisfaction (S) and loyalty (L).

2.5 Conclusion

In summary, this chapter has presented an outline of the dependent variable (loyalty), mediator variable (satisfaction), and five independent variables (convenience, design, security, functionality, and enjoyment). Moreover, a proposed research framework model was established to investigate the interrelationships between each independent variable, mediator, and dependent variable. The methodology employed in this study will be elaborated in chapter 3.

CHAPTER 3: METHODOLOGY

3.0 Introduction

In chapter 3, the methodology section will provide a comprehensive explanation of the process or techniques utilized for gathering and accumulating data to analyze. The methodology of the research will be expounded in five components, which consist of research design, data collection techniques, sampling framework, research instruments, measurement of the construct, data processing, and a concise portrayal of the data analysis tools that will be implemented.

3.1 Research Design

According to previous scholars, such as Zikmund et al. (2013), the research design pertains to the blueprint that specifies the essential procedures for gathering and analyzing data in a study. Blanche et al. (2006) also stated that the research design is a strategic framework that connects the research inquiries with the execution of the study.

3.1.1 Quantitative research

Quantitative research aims to collect numerical data that can be analyzed to determine the research outcomes (Albers, 2017). Watson (2015) suggests that this approach involves measurement and assumes that the phenomena being studied can be quantified. It also enables the use of measurements to gather and scrutinize data, including identifying correlations and trends, to ensure the precision of the measurements taken. In this study, the focus is on utilizing the quantitative research method to investigate the link between the independent variables (convenience, design, security, functionality, and enjoyment), the mediator variable (satisfaction), and the dependent variable (loyalty towards using Costa Coffee's self-service vending machine).

3.2 Data Collection Method

Data collection is a crucial aspect of many studies, and this section will provide a detailed discussion of the data collection methods employed. Both primary and secondary data collection methods are recognized, but this study will solely rely on primary data to obtain the necessary data and information.

3.2.1 Primary data

The decision to focus on primary data in this study is due to the fact that primary data is firsthand and original information that can be updated, allowing researchers to gather data that can assist in resolving issues (Kabir, 2016). After careful consideration, an online questionnaire will be used to collect primary data since it is the most convenient and appropriate data collection method. Specifically, Google Forms will be employed to distribute the questionnaire to respondents via social media platforms such as WhatsApp, Instagram, Microsoft Teams, and Facebook. The online questionnaire offers several advantages, such as attracting more respondents to complete the survey in a shorter time, addressing privacy concerns, and encouraging participants to provide honest responses, ultimately leading to more accurate and reliable data.

3.3 Sampling Design

Sampling involves selecting a subset of data from a larger set, assuming that all individuals in the sample share the same characteristics such as culture and nationality (Eden, Nielsen & Verbeke, 2020). The goal of sampling is to ensure that the selected subset is representative of the entire population under investigation.

3.3.1 Target population

According to Saunders, Lewis, and Thornhill (2009), the target population refers to the complete group of population elements that are essential for the study, and data

obtained from them is analyzed to acquire the required information. This study aims to comprehend people's varying levels of satisfaction and loyalty towards the self-service vending machine. Therefore, it is important to understand the decisions made in response across all age groups. The target population for this study is users who have either used and are aware of Costa Coffee's self-service vending machine.

3.3.2 Sampling Frame & Sampling Location

Kolln et al. (2018) defines a sampling frame as a comprehensive list of all potential participants from which a sample can be drawn. In the case of this study, obtaining a sampling frame for Costa Coffee users would be difficult due to the large target population. Therefore, a sampling frame will not be utilized. As for the sampling location, it refers to the physical site where the study takes place. However, since the questionnaire will be disseminated through social media platforms, the geographic location of the respondents will not be specified.

3.3.3 Sampling technique

According to Hamed Taherdoost (2020), sampling techniques can be broadly classified as probability/random sampling and non-probability/non-random sampling. In this study, non-probability sampling technique is being used since there is no sampling frame available for Costa Coffee self-service vending machine users. The specific sampling technique being utilized in this study is convenience sampling, which falls under the category of non-probability sampling. Convenience sampling is often preferred as it is cost-effective and timesaving.

3.3.4 Sample size

In market research, the term "sample size" refers to the number of individuals included in a study's sample. To avoid sampling errors and biases, it is essential to use a random sampling method to determine an appropriate sample size (Taherdoost,

2017). According to Sekaran and Bougie (2013), a sample size of 30 to 500 respondents is considered ideal for research purposes, while McComber (2021) suggests that a sufficient number of respondents would be between 100-200. For this study, we have targeted a sample size of 250 respondents.

3.4 Research Instrument

3.4.1 Questionnaire Design

The questionnaire for this study was developed by adapting questions from various sources such as Girsang et al. (2020), Sunghyup (2010), Falahat et al. (2019), and Lin & Hsieh (2011). The questions were modified to fit the specific goals of this study and were expressed in English to ensure understanding for most participants. The questionnaire is divided into two sections, A and B. Section A aims to collect demographic profile and general information for all respondents such as their age, gender, whether they are coffee lovers, whether they heard about Costa Coffee self-service vending machines before, and whether they have used Costa Coffee self-service vending machines in 99 Speed mart or any Shell station.

Section B is divided into different parts, including loyalty, satisfaction, security, functionality, enjoyment, design, and convenience. Each part consists of 3-5 questions, for a total of 26 questions. A five-point Likert scale is used for rating the answers in Section B. Guidelines have been developed to help participants understand the questionnaire better.

3.4.2 Pilot test

To ensure the clarity and comprehensibility of questionnaire questions for respondents and to assess the validity and reliability of the questions, researchers often conduct a pilot test (Saunders et al., 2019). Table 3.1 provides the range of Cronbach's Alpha values.

Table 3.1:Cronbach's Alpha Range

Coefficient Alpha Value, α	Strength of Association
Less than 0.60	Poor reliability
0.60 to 0.70	Fair reliability
0.70 to 0.80	Good reliability
0.80 to 0.95	Very good reliability

Sources From: Zikmund, W. G., Babin, B.J., Carr, J.C., & Griffin, M. (2013)

Hence, a pilot test was conducted using a sample of 30 respondents to evaluate the clarity, validity, and reliability of the questionnaire. The collected data was analyzed using the Social Science Statistical Package (SPSS). The results of the pilot test are presented in Table 3.2, which includes the construct name, Cronbach's alpha value, number of items, and the number of respondents for each construct. The findings show that all constructs have high Cronbach's alpha values, ranging from 0.844 to 0.942, indicating very good internal consistency and reliability of the questionnaire.

Table 3.2 :Pilot test result

No.	Construct	Cronbach's Alpha	Number of Items	Number of respondents
1	Convenience (C)	0.885	3	30
2	Design (D)	0.844	4	30
3	Enjoyment (E)	0.905	3	30
4	Functionality (F)	0.942	5	30
5	Security (S)	0.905	3	30
6	Satisfaction (SE)	0.867	4	30
7	Loyalty (L)	0.933	4	30

Source: Developed from the research

3.5 Construct Measurement

In this section, we will examine the source and measurement of the construct, as well as the scale used to measure it.

3.5.1 Origin and Measure of the Constructs

Table 3.3: Origin of Construct

Construct/ Variables	Sources
Satisfaction	Girsang, M. J., Hendayani, R., & Ganesan, Y. (2020, June). Can Information Security, Privacy and Satisfaction Influence The E-Commerce Consumer Trust? In *2020 8th International Conference on Information and Communication Technology (ICoICT)* (pp. 1-7). IEEE.
Loyalty	Sunghyup Sean Hyun, (2010). *Predictors of Relationship Quality and Loyalty in the Chain Restaurant Industry. Cornell Hospitality Quarterly, 51(2), 251–267.* doi:10.1177/1938965510363264
Security	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194–206.* doi:10.1016/j.jretai.2011.02.006 Falahat, M., Lee, Y. Y., Foo, Y. C., & Chia, C. E. (2019). A model for consumer trust in e-commerce. *Asian Academy of Management Journal*, *24*(2), 93-109.
Functionality	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of*

	SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206. doi:10.1016/j.jretai.2011.02.006
Enjoyment	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206.* doi:10.1016/j.jretai.2011.02.006
Design	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206.* doi:10.1016/j.jretai.2011.02.006
Convenience	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206.* doi:10.1016/j.jretai.2011.02.006

Source: Develop for research

3.5.2 Scale Measurement

In this study, only nominal and interval scales will be utilized, out of the four measurement scales that exist, namely ordinal, ratio, nominal, and interval.

3.5.2.1 Nominal scale

A nominal scale is a measurement scale used to categorize situations or things into distinct groups. Predictors are defined as the probability of predicting the nominal category of an individual selected from a population given categorical, which is the nominal scale for independent variable characteristics (Messenger, 1972). For Part A, the nominal scale will be used to determine the demographics of the respondents.

The age groups will be categorized as 18-23 years old, 24-30 years old, 31-40 years old, 41-50 years old, and 50 years old and above. The gender of the respondents will be classified as female and male.

3.5.2.2 Interval Scale

The interval scale is a type of quantitative measuring scale that assigns meaning to the distance between two values that are always equal (Saunders & Lewis, 2012). This scale was used to measure the items in section B of the questionnaire, including the independent variables of convenience, design, security, functionality, and enjoyment, as well as the mediator variable of satisfaction and the dependent variable of loyalty. The 5-point Likert scale is used on this interval scale to determine the level of agreement or disagreement with the statements in the questionnaire, ranging from 1 (strongly disagree) to 5 (strongly agree).

3.6 Data Processing

Once the questionnaires have been completed, the collected data goes through a sequence of procedures before undergoing further analysis. These steps are designed to identify valid questionnaires that meet the study's criteria and exclude incomplete or irrelevant ones. The objective is to guarantee that only pertinent and precise data is utilized in the analysis.

3.6.1 Data Checking

Data checking is a crucial process to ensure the accuracy of collected data. It involves verifying and correcting any errors or inconsistencies in the data. To ensure that the questionnaire is accurate, complete, and easy to understand, data verification should be done before distribution. The final year project supervisor, Dr. Seah Choon Sen, has reviewed the questionnaire for accuracy and completeness to ensure that respondents can understand and answer it appropriately.

3.6.2 Data Editing

The act of amending data involves using checks to identify grammar, inaccuracies, or error information. A little bit mistakes and errors have been identified after reviewing the questionnaire. Thus, we need to do data editing to correct it.

3.6.3 Data Coding

Data coding is the process of assigning a numerical value to represent a specific characteristic. Statistical Project of Social Science (SPSS) data analysis software requires numerical data as an input for analysis. For instance, the gender of survey respondents can be coded as 1 for females and 2 for males. Additionally, in other questions that contain Likert scales, we can interpret one as strongly disagree, two as disagree, three as neutral, four as agree, and five as strongly agree.

3.6.4 Data Transcribing

The conversion of coded data into a form that can be analyzed using statistical software, such as SPSS, is known as data transcription. This process is crucial in research since it enables the precise analysis of data and the interpretation of outcomes (Maholtra, 2010 & Stuckey, 2014).

3.7 Data Analysis Tool

Data analysis is a crucial step that entails converting, scrutinizing, and creating a manageable volume of data. Our research employs various analytical techniques such as descriptive analysis, reliability analysis, Pearson correlation coefficient,

multiple linear regression, and Sobel test, which are evaluated using the Social Science Statistical Software Package (SPSS). Previous research by Riazi (2016) suggests that utilizing SPSS as a tool for data analysis reduces unnecessary workload and enhances the reliability of data analysis for researchers.

3.7.1 Descriptive analysis

As per Zikmund et al. (2013), descriptive analysis is a method used to transform data into a format that can describe features such as central tendency, distribution, and variability. It is particularly valuable when the researcher needs to summarize a large amount of data. Descriptive analysis is the most straightforward way of representing data in numerical and graphical formats, including charts, graphs, and tables (Munoz & Civille, 1992). In this study, pie charts were employed to present the data obtained from Section A, which is expressed as the percentage and frequency of respondents.

3.7.2 Reliability Analysis

Reliability analysis is a valuable tool for researchers to assess the consistency and stability of data, as well as to investigate the relationship between different items on a scale (Stephanie, 2017). The Cronbach's Alpha coefficient value is commonly used to determine the degree of interrelatedness among a group of items (Tavakol & Dennick, 2011). A high Coefficient Alpha value indicates greater reliability of the variables being measured (Santos, 1999). Researchers can refer to the table below to interpret the levels of Cronbach's Alpha:

Table 3.4: Cronbach's Alpha Range

Coefficient Alpha value, α	Strength
Lower than (<) 0.6	Poor Reliability
0.6 - 0.7	Fair Reliability
0.7 - 0.8	Good Reliability

0.8 - 0.9	Very good Reliability

Sources from: Zikmund, Babin et al (2013).

3.7.3 Pearson Correlation Coefficient Analysis

Correlation analysis is a statistical technique that measures the strength of the association between two variables, namely dependent and independent (Ranganathan et al., 2019). While the primary objective of correlation analysis is to evaluate the relationship's strength between two variables, other factors may also influence its use. In this study, data on the level of agreement of respondents with questionnaire items was collected on an interval scale. Therefore, a Pearson correlation analysis was employed, as it can quickly determine the strength of the relationship between the variables. The Pearson correlation analysis produced results ranging from +1.0 to -1.0, where the sign indicates whether the strength of the association is increasing or decreasing, and the coefficient indicates the degree to which the relationship between the dependent and independent variables changes. The table below provides the general rule for interpreting the Pearson Correlation Coefficient.

Table 3.5: Rule of Thumb for Person Correlation Coefficient

Size of correlation	Strength of the association
± 0.91 to ± 1.00	Very High Positive/ Negative Correlation
± 0.71 to ± 9.90	High Positive/ Negative Correlation
± 0.41 to ± 0.70	Moderate Positive/ Negative Correlation
± 0.21 to ± 0.40	Low Positive/ Negative Correlation
± 0.00 to ± 0.20	Negligible Correlation

Source from: Hair, J. F et al (2007).

3.7.4 Multiple Linear Regression

Multiple regression is a statistical approach that allows researchers to examine the relationship between dependent and independent variables. By analyzing the results of multiple regression analysis, researchers can determine whether there is a positive or negative association between the variables of interest. In this study, a confidence level of 95 percent is established, which means that if the p-value is less than 0.05, the hypothesis will be accepted, indicating a positive correlation between independent and dependent variables. The formula for multiple regression analysis is presented below:

$$Y = a + b_1 X_1 + b_2 X_3 + \ldots + b_n X_n$$

Y = Dependent variable

X = Independent variables

b = Regression Constants Value

a = Beta Regression Coefficient Value

3.7.5 Sobel Test

The current research stands out from other studies because it incorporates a mediator variable. To evaluate the mediator variable, the Sobel test will be employed. The Sobel test is a statistical method employed in mediation analysis to determine the significance of the indirect effect of an independent variable on a dependent variable through a mediator variable. The Sobel test computes a z-score and p-value to evaluate the statistical significance of the indirect effect. It determines whether the mediator variable partially or fully explains the relationship between the independent variable and the dependent variable.

According to the rule of thumb, **a p-value greater than 0.05 and a z-value less than 1.96 imply that the hypothesis should be rejected, while a p-value less than 0.05 and a z-value greater than 1.96 imply that the hypothesis should be**

accepted. The regression coefficients and standard errors for the independent variable and mediator variable are utilized to calculate the Sobel test.

In a previous study, Bockting et al. (2013) employed the Sobel test to analyze the mediating effects of self-compassion in reducing psychological distress among transgender individuals. The results revealed that self-compassion significantly mediated the relationship between social support and psychological distress. The Sobel test is a useful tool for detecting significant mediation effects and understanding the fundamental relationships between variables.

Figure 3.1 :Sobel test
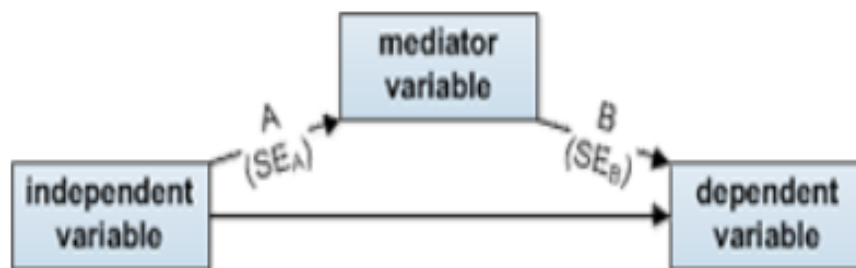
3.8 Conclusion

Chapter 3 describes the research methodology used in this study, including the distribution of questionnaires and the use of SPSS software to analyze the collected data. The chapter also explains the measurement scales used in the questionnaire and the pilot test conducted to assess the validity and reliability of the questionnaire. Moving forward, chapter 4 will present the statistical analysis results, followed by a discussion, interpretation, and conclusion of the hypotheses.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

There is **300 set of questionnaires had been collected** from respondents through Google Forms, and **only 250 is qualified** and can be used to proceed after the date filtering. We filter out those who are not suitable to be the respondent by using filtering question "Have you used Costa Coffee self- service vending machine in 99 Speed Mart or any Shell station? And the 250 respondents are those respondents that I need for the research.

4.1 Descriptive Analysis

The descriptive method will be employed to analyze the information obtained from questionnaire Section A in this research. This approach will enable the findings to be presented in a clear and transparent manner, with tables, graphs, charts, and illustrations used to support the results. The study will involve 250 eligible participants, with N=250 representing the sample size.

4.1.1 Respondent Demographic Profile

The responders answered a few questions about their demographics. Gender, age, and general information like have you heard about Costa Coffee's self-service vending machine before. Are you a coffee lover, and have you used Costa Coffee's self-service vending machine in 99 Speed Mart or any shell station before?

4.1.1.1 Gender (N =250)

Table 4.1: Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	**Female**	138	55.2	55.2	55.2
	Male	112	44.8	44.8	100.0
	Total	250	100.0	100.0	

Source: Developed for research

Figure 4.1: Gender
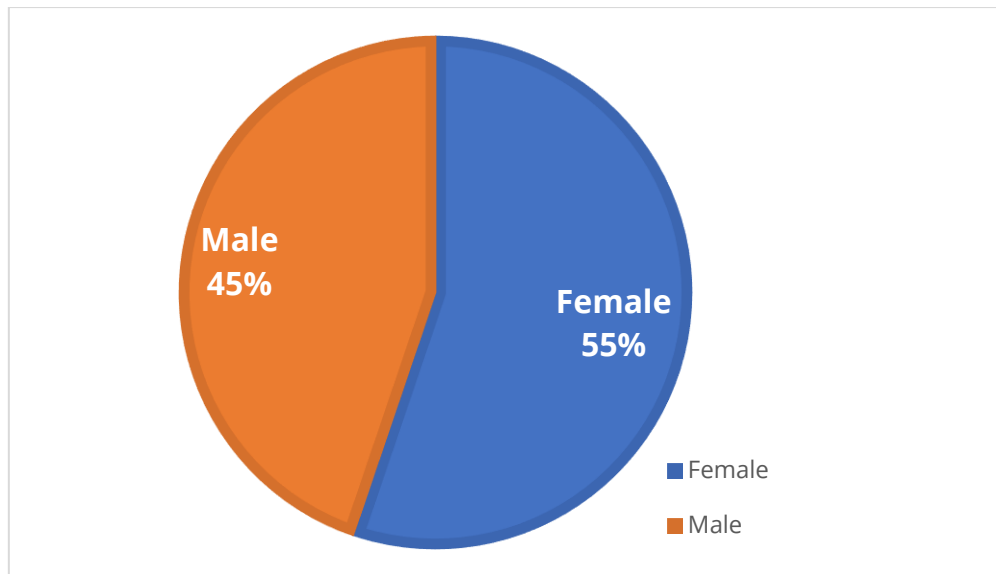
Source: Developed for research

Based on the data presented in Table and Figure 4.1, it is apparent that most of the participants in the survey were female, constituting 138 respondents or 55% of the total sample size. On the other hand, male respondents made up 112 or 45% of the total sample. It is noteworthy that the survey had a total sample size of 250 respondents.

4.1.1.2 Age (N =250)

Table 4.2: Age

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**18 to 23 years old**	112	44.8	44.8	44.8
	24 to 30 years old	63	25.2	25.2	70.0
	31 to 40 years old	34	13.6	13.6	83.6
	41 to 50 years old	17	6.8	6.8	90.4
	50 years old and above	24	9.6	9.6	100.0
	Total	250	100.0	100.0	

Source: Developed for research

Figure 4.2: Age

Source: Developed for research

The majority of respondents, comprising 45% of the total sample size or 112 individuals, are aged between 18 to 23. The age bracket of 24 to 30 years old is represented by 63 respondents (25%), while 34 respondents (13%) fall in the age range of 31 to 40. Those aged between 41 and 50 make up only 7% or 17 respondents. On the other hand, 10% or 24 respondents are 50 years old and above. Overall, the sample size for the research comprised 208 respondents.

4.1.2 General Information

4.1.2.1 Are you a coffee lover? (N =250)

Table 4.3: Are you a coffee lover?

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
	No	38	15.2	15.2	15.2

Valid	**Yes**	212	84.8	84.8	100.0
	Total	250	100.0	100.0	

Source: Developed for research

Figure 4.3: Are you a coffee lover?
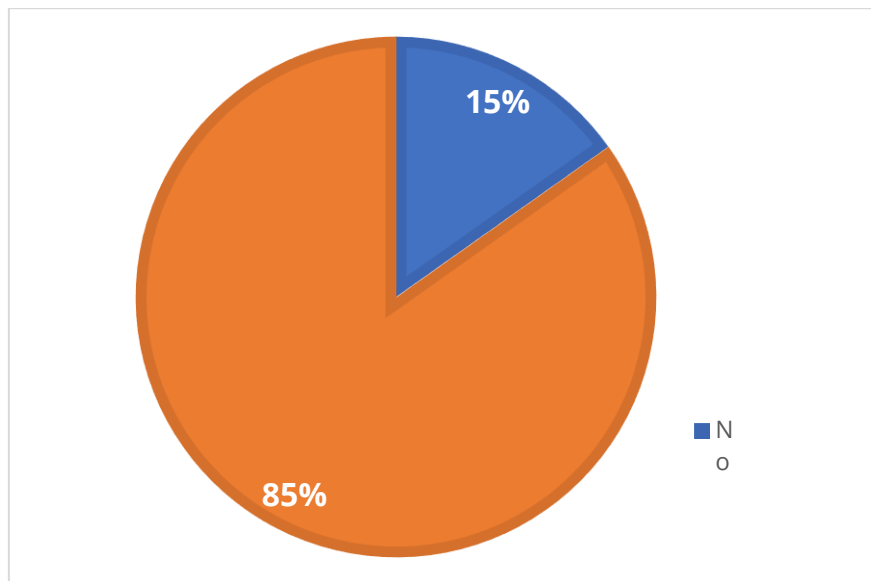
Source: Developed for research

According to the data presented in Table 4.3 and Figure 4.3, out of the total of 250 respondents, 85% or 212 respondents are coffee lovers, and 15% or 38 respondents are not.

4.1.2.2 Have you heard about Costa Coffee's self-service vending machine before? (N =250)

Table 4.4: Have you heard about Costa Coffee's self-service vending machine before?

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**No**	3	1.2	1.2	1.2
	Yes	247	98.8	98.8	100.0
	Total	250	100.0	100.0	

Source: Developed for research

Figure 4.4: Have you heard about Costa Coffee's self-service vending machine before?
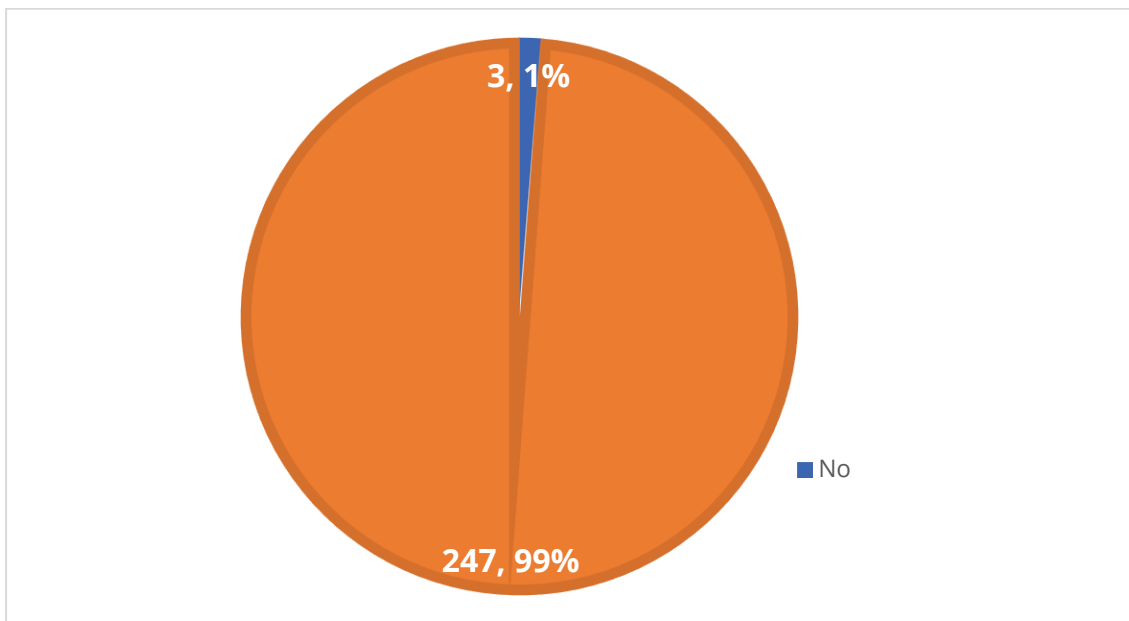
Source: Developed for research

According to the information presented in Table 4.4 and Figure 4.4, almost all the respondents, 99% or 247 individuals, have prior knowledge of Costa Coffee's self-service vending machine. Only a small percentage of the respondents, 1% or three individuals, reported not being familiar with it.

4.1.2.3 Have you used Costa Coffee self- service vending machine in 99 Speed Mart or any Shell station?

Table 4.5: Have you used Costa Coffee self- service vending machine in 99 Speed Mart or any Shell station?

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	**No**	50	16.7	16.7	16.7
	Yes	250	83.3	83.3	100.0
	Total	300	100.0	100.0	

Source: Developed for research

Figure 4.5: Have you used Costa Coffee self- service vending machine in 99 Speed Mart or any Shell station?
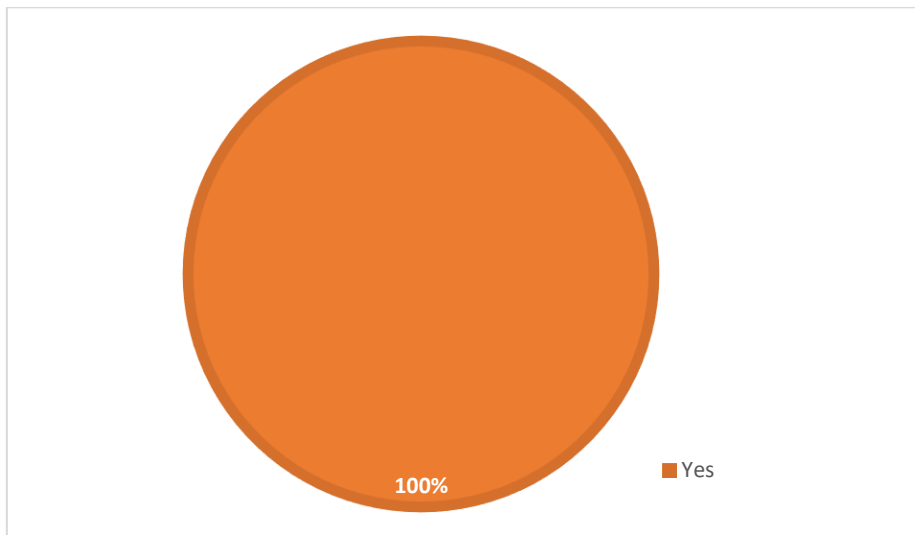
Source: Developed for research

This is a screening question, and after applying the screening criteria, the remaining respondents were deemed eligible and included in the study. As indicated in Table 4.5 and Figure 4.5, all 250 respondents who met the screening criteria reported

having used Costa Coffee's self-service vending machine either in 99 Speed Mart or at any Shell station. Therefore, the study's analysis was based on a sample size of 250 participants.

4.2 Reliability Test

Table 4.6: Summary of Reliability Test

No.	Construct	Cronbach's Alpha	N of Items	Strength of Association
1	**Loyalty (L)**	0.878	4	Very good reliability
2	**Satisfaction (S)**	0.828	4	Very good reliability
3	**Security (SE)**	0.835	3	Very good reliability
4	**Functionality (F)**	0.862	5	Very good reliability
5	**Enjoyment (E)**	0.811	3	Very good reliability
6	**Design (D)**	0.844	4	Very good reliability
7	**Convenience(C)**	0.773	3	Good reliability

Source: Developed for research

The data from Table 4.6 suggests that all variables have alpha coefficients that exceed 0.7, indicating that they are reliable. Specifically, Loyalty (L) has an alpha coefficient of 0.878, which is a sign of excellent reliability. Functionality (F), Design (D), Security (SE), Satisfaction (S), and Enjoyment (E) also have high reliability, as their alpha coefficients range between 0.811 and 0.862.

Convenience(C) has the lowest alpha coefficient at 0.773, which still falls into the excellent reliability category. Based on these results, it is reasonable to conclude that the findings of the research are accurate.

4.3 Pearson Correlation Coefficient Analysis

Table 4.7 : Pearson Correlation

Correlations

		Se	F	E	D	C	S	L
Se	Pearson Correlation	1	.792**	.671**	.700**	.571**	.713**	.664**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
F	Pearson Correlation	.792**	1	.723**	.717**	.629**	.758**	.691**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
E	Pearson Correlation	.671**	.723**	1	.769**	.697**	.758**	.733**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
D	Pearson Correlation	.700**	.717**	.769**	1	.587**	.771**	.704**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001
	N	250	250	250	250	250	250	250
C	Pearson Correlation	.571**	.629**	.697**	.587**	1	.622**	.618**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001
	N	250	250	250	250	250	250	250
S	Pearson Correlation	.713**	.758**	.758**	.771**	.622**	1	.714**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001
	N	250	250	250	250	250	250	250
L	Pearson Correlation	.664**	.691**	.733**	.704**	.618**	.714**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
	N	250	250	250	250	250	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for research

Based on Table 4.7, there is a positive correlation between the independent variables Security (SE), Functionality (F), Enjoyment (E), Design (D), and Convenience (C) and the dependent variables Satisfaction (S) and Loyalty (L), with correlation coefficients of 0.664, 0.691, 0.733, 0.704, 0.618, and 0.714, respectively.

The p-values for these correlations are less than the significance level of 0.001 (2-tailed), indicating that the correlations are statistically significant and exist in the population.

4.4 Multiple Linear Regression

Due to the reason that there is a presence of mediator variables, and because we are using the SPSS, thus it has required us to run two times of multiple linear regression. The first time is testing on the independent variable and mediator variable. So, in this case, the mediator variable, satisfaction (S) will act as a dependent variable (DV).

And moving on to the second time, we will run by using the mediator variable and dependent variable. Therefore, in this case, the mediator variable, satisfaction (S) will act as the independent variable.

Table 4.8: Multiple Linear Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845[a]	.714	.708	.32190

a. Predictors: (Constant), C, Se, D, E, F

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.023	5	12.605	121.641	<.001[b]
	Residual	25.284	244	.104		
	Total	88.307	249			

a. Dependent Variable: S

b. Predictors: (Constant), C, Se, D, E, F

Source: Developed for research

According to the table, with independent variables C, SE, D, E, and F and a dependent variable S, the R square score is 0.714, indicating that these independent variables account for 71.4% of the variations in S. The ANOVA table also shows that the F-value of the research is 121.641, and the p-value is less than 0.001. This suggests that one independent variable is strongly related to the dependent variable, enhancing the research's significance and accuracy, and validating the research model.

Table 4.9 : Multiple Linear Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714^a	.510	.508	.49843

a. Predictors: (Constant), S

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.208	1	64.208	258.452	<.001^b
	Residual	61.611	248	.248		
	Total	125.819	249			

a. Dependent Variable: L

b. Predictors: (Constant), S

Source: Developed for research

According to the table, with independent variable S and dependent variable L, the R square score is 0.510, indicating that S accounts for 51% of the variations in L. The ANOVA table also shows an F-value of 258.452 for the research, with a p-value of less than 0.001. This suggests that one independent variable is significantly related to the dependent variable, enhancing the research's significance and accuracy, and validating the research model.

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Table 4.10: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.348	.172		2.028	.044
	Se	.108	.052	.124	2.088	.038
	F	.243	.064	.241	3.769	<.001
	E	.208	.059	.222	3.512	<.001
	D	.297	.058	.302	5.109	<.001
	C	.070	.051	.068	1.371	.172

a. Dependent Variable: S

Source: Developed for research

According to Table 4.10, four independent variables, namely security, functionality, enjoyment, and design, are significantly related to the dependent variable as their p-values are less than 0.05, with values of 0.038, <0.001, <0.001, and <0.001, respectively. However, one independent variable, convenience, has a p-value higher than 0.05, with a value of 0.172, indicating that it does not have a significant relationship with the dependent variable.

Table 4.11: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.511	.230		2.224	.027
	S	.853	.053	.714	16.076	<.001

a. Dependent Variable: L

Source: Developed for research

Table 4.11 suggests that the mediator variables are significantly related to the dependent variable, with the p-value of satisfaction being less than 0.05 and a value of <0.001.

4.5 Sobel Test

Table 4.12: Z-value and p-value for Security (SE)

Input:		Test statistic:	Std. Error:	p-value:
a 0.108	Sobel test:	2.05984254	0.04472381	0.0394136
b 0.853	Aroian test:	2.05594267	0.04480864	0.03978804
s_a 0.052	Goodman test:	2.06376468	0.04463881	0.03904003
s_b 0.053	Reset all		Calculate	

Source: Developed for research

The coefficient of regression between SE (independent variable) and S (mediator) is 0.108, with a standard error of 0.052. Similarly, the coefficient of regression between S (mediator) and L (dependent variable) is 0.853, with a standard error of 0.053. These findings suggest that the **p-value** is less than 0.05, indicating that there is a statistically significant indirect effect between SE and L through S. Moreover, the **z score** is 2.059, which is greater than 1.96, indicating that the mediator variable S is significantly mediating the relationship between SE and L.

Table 4.13: Z-value and p-value for Functionality (F)

Input:		Test statistic:	Std. Error:	p-value:
a 0.243	Sobel test:	3.69543221	0.0560906	0.00021951
b 0.853	Aroian test:	3.68869349	0.05619307	0.00022541
s_a 0.064	Goodman test:	3.702208	0.05598794	0.00021373
s_b 0.053	Reset all		Calculate	

Source: Developed for research

The coefficient of regression between F (independent variable) and S (mediator) is 0.243, with a standard error of 0.064. On the other hand, the coefficient of regression between S (mediator) and L (dependent variable) is 0.853, with a standard error of 0.053. The **p-value** being less than 0.05 suggests that there is a statistically significant indirect effect between F and L through S. Furthermore, the **z score** being 3.695, which is greater than 1.96, indicates that the mediator variable S significantly mediates the relationship between F and L.

Table 4.14: Z-value and p-value for Enjoyment (E)

Input:		Test statistic:	Std. Error:	p-value:
a 0.208	Sobel test:	3.44377253	0.05152024	0.00057366
b 0.853	Aroian test:	3.43744686	0.05161505	0.00058723
s_a 0.059	Goodman test:	3.45013325	0.05142526	0.00056031
s_b 0.053	Reset all	Calculate		

Source: Developed for research

The coefficient of regression between E (independent variable) and S (mediator) is 0.208, with a standard error of 0.059. Similarly, the coefficient of regression between S (mediator) and L (dependent variable) is 0.853, with a standard error of 0.053. Based on the results, the **p-value** is less than 0.05, indicating a statistically significant indirect effect between E and L through S. Additionally, the **z score** of 3.443 is greater than 1.96, which suggests that the mediator variable S significantly mediates the relationship between E and L.

Table 4.15: Z-value and p-value for Design (D)

Input:		Test statistic:	Std. Error:	p-value:
a 0.297	Sobel test:	4.87965791	0.05191778	0.00000106
b 0.853	Aroian test:	4.87112701	0.0520087	0.00000111
s_a 0.058	Goodman test:	4.88823379	0.05182669	0.00000102
s_b 0.053	Reset all	Calculate		

Source: Developed for research

The coefficient of regression between D (independent variable) and S (mediator) is 0.297, with a standard error of 0.058. Additionally, the coefficient of regression between S (mediator) and L (dependent variable) is 0.853, with a standard error of 0.053. The **p-value** being less than 0.05 suggests a statistically significant indirect effect between D and L through S. Furthermore, the **z score** of 4.879 is greater than 1.96, indicating that the mediator variable S significantly mediates the relationship between D and L.

Table 4.16: Z-value and p-value for Convenience (C)

Input:		Test statistic:	Std. Error:	p-value:
a 0.070	Sobel test:	1.36758485	0.04366091	0.17144206
b 0.853	Aroian test:	1.36497158	0.0437445	0.17226198
s_a 0.051	Goodman test:	1.37021319	0.04357716	0.17062036
s_b 0.053	Reset all	Calculate		

Source: Developed for research

The coefficient of regression between C (independent variable) and S (mediator) is 0.070, with a standard error of 0.051. Additionally, the coefficient of regression between S (mediator) and L (dependent variable) is 0.853, with a standard error of 0.053. The **p-value** being more than 0.05 suggests that there is no statistically significant indirect effect between C and L through S. Moreover, the **z score** of

1.367 is lower than 1.96, which indicates that the mediator variable S does not significantly mediate the relationship between C and L.

4.6 Testing of Hypotheses

Hypothesis 1

The research hypothesis (H1) proposes that there is a positive correlation between security and satisfaction, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the security variable has a significant value of 0.038, which is well below the significance level of 0.05. This result indicates that H0 is rejected, and we can conclude that there is a significant relationship between security and satisfaction. Therefore, we can accept the research hypothesis (H1) at a 95% confidence level.

Hypothesis 2

The research hypothesis (H2) proposes that there is a positive correlation between functionality and satisfaction, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the functionality variable has a significant value of less than 0.001, which is well below the significance level of 0.05. This result indicates that H0 is rejected, and we can conclude that there is a

significant relationship between functionality and satisfaction. Therefore, we can accept the research hypothesis (H2) at a 95% confidence level.

Hypothesis 3

The research hypothesis (H3) proposes that there is a positive correlation between enjoyment and satisfaction, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the enjoyment variable has a significant value of less than 0.001, which is well below the significance level of 0.05. This result indicates that H0 is rejected, and we can conclude that there is a significant relationship between enjoyment and satisfaction. Therefore, we can accept the research hypothesis (H3) at a 95% confidence level.

Hypothesis 4

The research hypothesis (H4) proposes that there is a positive correlation between design and satisfaction, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the design variable has a significant value of less than 0.001, which is well below the significance level of 0.05. This result indicates that H0 is rejected, and we can conclude that there is a significant relationship between design and satisfaction. Therefore, we can accept the research hypothesis (H4) at a 95% confidence level.

Hypothesis 5

The research hypothesis (H5) proposes that there is a positive correlation between convenience and satisfaction, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the convenience variable has a significant value of 0.172, which is above the significance level of 0.05. This result indicates that H0 is accepted, and we can conclude that there is no significant relationship between convenience and satisfaction. Therefore, we reject the research hypothesis (H5) at a 95% confidence level.

Hypothesis 6

The research hypothesis (H6) proposes that there is a positive correlation between satisfaction and loyalty, whereas the null hypothesis (H0) assumes no significant relationship between these variables. The significance level is set at 0.05, meaning that if the p-value is less than 0.05, the null hypothesis is rejected in favor of the alternative hypothesis.

The statistical analysis of the data shows that the satisfaction variable has a significant value of less than 0.001, which is well below the significance level of 0.05. This result indicates that H0 is rejected, and we can conclude that there is a significant relationship between loyalty and satisfaction. Therefore, we can accept the research hypothesis (H6) at a 95% confidence level.

4.7 Conclusion

In summary, the data collected for the study was analyzed thoroughly using SPSS software, which helped to produce valuable and informative outcomes. Tables were

used to present the demographic information of the participants, giving a concise overview of the sample population. The chapter covered a detailed analysis of the data, including descriptive analysis, reliability test, Pearson correlation coefficient analysis, multiple regression analysis, Sobel test, and hypothesis testing. Collectively, the analyses conducted in this chapter offer a comprehensive insight into the interrelationships among the variables, leading to significant conclusions drawn from the study's findings.

CHAPTER 5: DISCUSSION, IMPLICATION AND CONCLUSION

5.0 Introduction

Chapter 5 will comprise a comprehensive discussion of the statistical analyses conducted in the previous chapter (Chapter 4). Additionally, the chapter will also address the implications, limitations, and recommendations associated with the study.

5.1 Discussion on Major Findings

In summary, out of the six hypotheses studied, only one hypothesis, namely Hypothesis 5 (H5), was not supported. This hypothesis suggested a relationship between convenience and satisfaction.

Table 5.1: Summary of the Results of Hypotheses Testing

Hypotheses	Value Scored	Decision
H1: There is a relationship between security and satisfaction.	0.038 p less than (<) 0.05	Supported
H2: There is a relationship between functionality and satisfaction.	<0.001 p less than (<) 0.05	Supported
H3: There is a relationship between enjoyment and satisfaction.	<0.001 p less than (<) 0.05	Supported
H4: There is a relationship between design and satisfaction.	<0.001 p less than (<) 0.05	Supported

H5: There is a relationship between convenience and satisfaction.	**0.172** **p more than (>) 0.05**	**Not Supported**
H6: There is a relationship between satisfaction and loyalty.	<0.001 p less than (<) 0.05	Supported

Source: Developed for research

Here is the result for Sobel test, previously in multiple linear regression, we have already noted that the relationship between convenience (C) and satisfaction (S)is not supported. After that even in Sobel test, the same construct which is convenience (C) and loyalty (L) is not supported even there is a mediator, satisfaction (S).

Table 5.2: Summary of the Results of Sobel Test

Indirect effect	**P value**	**Z value**	**Decision**
Between security (SE) and loyalty (L) via satisfaction (S)	0.0394 p less than (<) 0.05	2.059 (z >1.96)	Supported
Between functionality (F) and loyalty (L) via satisfaction (S)	0.0002 p less than (<) 0.05	3.695 (z >1.96)	Supported
Between enjoyment (E) and loyalty (L) via satisfaction (S)	0.0005 p less than (<) 0.05	3.443 (z >1.96)	Supported

Between design (D) and loyalty (L) via satisfaction (S)	0.0000 p less than (<) 0.05	4.879 (z >1.96)	Supported
Between convenience (C) and loyalty (L) via satisfaction (S)	**0.1714** p more than (>) 0.05	**1.367** **(z < 1.96)**	**Not Supported**

Source: Developed for research

5.1.1 Findings on Hypotheses

H1: There is a significant relationship between security and satisfaction

Based on the findings, there appears to be a correlation between security and customer satisfaction with the Costa Coffee Self Service Vending Machine, with a significant value of 0.038. This outcome is consistent with prior research, such as Kaur et al. (2019), who found that users' perceptions of security had a noteworthy impact on their satisfaction with self-service kiosks in retail. Individuals who perceived the kiosk as secure reported greater satisfaction with the technology. Similarly, Park et al. (2019) studied the link between security, usability, and satisfaction in a self-service kiosk context in a restaurant setting, and they found that perceived security had a significant influence on satisfaction.

In addition, the Sobel test analysis revealed an indirect impact between security and loyalty via satisfaction. This finding aligns with the work of Yang et al. (2019), who asked participants to rate their perceptions of security, satisfaction, and loyalty while using a coffee kiosk. The results indicated that perceived security had a substantial positive effect on satisfaction and loyalty, and that satisfaction partially mediated the relationship between security and loyalty.

H2: There is a significant relationship between functionality and satisfaction

The results indicate that there is a noteworthy relationship between functionality and satisfaction with the Costa Coffee Self Service Vending Machine, with a significant value of <0.001. In a recent study by Ryu, Park, and Lee (2020), the authors examined the impact of functionality of self-service technology on consumer satisfaction in a mobile restaurant context. The findings suggest that functionality has a significant effect on customer satisfaction with self-service technology. A well-designed and functional self-service technology can improve customer satisfaction by providing a convenient and efficient ordering process.

Additionally, the Sobel test analysis revealed an indirect impact between functionality and loyalty via satisfaction. This outcome is consistent with a recent study by Chen et al. (2019), which explored the factors that influence customer satisfaction and loyalty in online self-service banking. The research shows that functionality has a significant impact on customer satisfaction with self-service technology, which in turn affects customer loyalty.

H3: There is a significant relationship between enjoyment and satisfaction

The findings indicate that there is a significant relationship between enjoyment and satisfaction with the Costa Coffee Self Service Vending Machine, with a significant value of <0.001. Various studies have demonstrated that enjoyment has a positive impact on satisfaction in the context of kiosk/self-service technology. For example, Kwon and Lee (2014) investigated the association between enjoyment and satisfaction with self-service kiosks in the fast-food sector. Their findings suggest that enjoyment has a positive effect on satisfaction, which, in turn, increases the likelihood of revisiting the establishment and recommending it to others.

Additionally, Park and Kim (2018) conducted a study on the impact of enjoyment and satisfaction on loyalty to self-service kiosks in the fast-food industry. The

authors found that satisfaction fully mediated the relationship between enjoyment and loyalty, indicating that a positive experience with the kiosk leads to higher satisfaction, which, in turn, increases customer loyalty.

H4: There is a significant relationship between design and satisfaction

Based on the results obtained, the design factor was found to be highly significant (p-value < 0.001), indicating a significant relationship between the design of the Costa Coffee Self Service Vending Machine and customer satisfaction. Previous research conducted by Zhuang and Leng (2018) in a fast-food restaurant investigated the impact of kiosk design on customer satisfaction, where they assessed customer satisfaction based on food quality, service speed, and overall experience. The results revealed that the kiosk interface design had a significant impact on customer satisfaction, with visually appealing designs leading to more positive experiences compared to less attractive ones.

In another study conducted by Lin and Chen (2018), the use of a well-designed kiosk interface in a convenience store was found to enhance customer satisfaction and promote customer loyalty.

H5: There is no significant relationship between convenience and satisfaction

The results indicate that convenience is not significantly related to satisfaction with the Costa Coffee Self Service Vending Machine, as its value of 0.172 is greater than 0.05. This finding is different from some previous studies. For instance, Reynaldo, Suprapto, and Jani (2020) conducted a study on service convenience, service quality, and customer satisfaction in shipping expeditions and found no significant relationship between convenience and satisfaction. However, the relationship between convenience and satisfaction may vary depending on individual differences such as personality or customer preferences. Some customers may prefer to walk in and interact with a human employee, even if it takes longer to

complete a transaction, to enjoy the aroma of freshly brewed coffee. On the other hand, some may prioritize speed and convenience over other factors.

Additionally, some studies suggest that satisfaction may not act as a mediator between convenience and loyalty towards self-service kiosks. For example, Jun, Park, and Kim (2019) found that satisfaction did not mediate the relationship between convenience and loyalty towards self-service kiosks.

H6: There is a significant relationship between satisfaction and loyalty

Based on the results, there is a significant correlation between satisfaction and loyalty towards the Costa Coffee Self Service Vending Machine, as indicated by a value of <0.001. A previous study conducted by Khan and Rahman (2021) explored the relationship between customer satisfaction and loyalty towards self-service technologies in the banking sector. The study revealed that satisfaction had a positive impact on both attitudinal and behavioural loyalty towards self-service technologies like mobile banking and ATMs. Another study conducted by Al-Emran et al. (2021) found that customer satisfaction with self-service technology in coffee kiosks had a positive effect on their loyalty to the brand. The research showed that customers who were pleased with their self-service experience were more likely to revisit the kiosk and use the self-service technology again.

5.2 Implications of the study

In this study, we are contributing to theoretical field and managerial implications. Therefore, in the future both researcher and manager can make better decision regarding this.

5.2.1 Theoretical Implications

The purpose of this study is to investigate the factors that impact customer satisfaction and loyalty towards the Costa Coffee Self Service Vending Machine using the expanded SOR model as the conceptual framework. The independent variables analyzed in the study include security, functionality, enjoyment, design, and convenience, while the dependent variable is loyalty, which is mediated by satisfaction. The SOR model is a useful tool for understanding how environmental stimuli affect consumers' emotional and cognitive responses, leading to loyalty and satisfaction with self-service coffee kiosks.

The research hypotheses are either confirmed or refuted based on the results. If the outcomes align with the study's theory, then the hypothesis is considered confirmed. This study is particularly valuable and informative for the food and beverage industry, particularly the coffee sector, as companies can use the findings to develop innovative products that meet consumers' needs. The information provided in this study, along with supporting evidence, could help companies make better decisions and accurately forecast consumers' future requirements.

5.2.2 Managerial Implications

The findings of our report have implications for various stakeholders, including Costa Coffee marketers. The self-service vending machine provides marketers with an opportunity to develop new marketing strategies. By analyzing customer behavior, preferences, and purchase patterns, marketers can gain valuable insights that can be used to create targeted marketing campaigns and promotions that appeal to specific customer segments.

Additionally, the marketing team at Costa Coffee could consider creating tutorial videos on how to use the Costa Coffee Self-Service Vending Machine in English, Malay, and Chinese versions for customers in Malaysia. This would ensure that each market segment can understand the instructions, thereby increasing their confidence in using the vending machine. This is particularly important for first-

time users who may be hesitant to use the machine without proper guidance. Providing clear and concise instructions in different languages would enhance customer satisfaction and loyalty towards the brand.

5.3 The Study's Limitations

There are several limitations found in this research study. Firstly, the one potential drawback of the current research is this quantitative research might fail to capture the feeling of customers, also the closed ended questions is utilized in the study. Besides, single language is used in the questionnaire. Different individuals have different level in English language proficiency. As a result, this may limit respondents' understanding of the question and consequently affect the accuracy of the response. Therefore, some of the respondents needed to have understood to answer the questionnaire, especially the people who lack in English level. It causes a loss in the significant number of respondents.

Instead of that, there is a time constraint to gather the data. It is a drawback caused by a lower response rate. To increase the number of people who fill out the survey questionnaire in the time available and meet the desired sample size for my research, I sent and posted on WeChat, Microsoft Teams, Instagram and WhatsApp; unfortunately, some people did not fill out the questionnaire probably because people are on the go they are busy with other things or they are rejected to fill up too many set of questionnaire. Thus, gathering enough responses to perform the research with more accurate data is the time limit. And because of that, at the end only 300 set of questionnaires have successfully been collected. Unfortunately, after data filtering, only 250 set of questionnaires are qualified and is able to use for this research study. Apart from that, the lack of other variables is also one of the limitations to be addressed. No other additional independent variables were added to this research.

5.4 Recommendation for Future Research

Based on the limitations of this study, there are several recommendations for future researchers studying the coffee industry to yield better results and reduce limitations. First, it is suggested that in future, the researcher can consider using the qualitative research method such as interviews in conducting the research. It is because the customers can freely express their feelings or thoughts, while the researcher is able to gain a deeper understanding of the customers. Besides that, multiple language can be considered to apply in the questionnaire in the future. For reference, Chinese and Bahasa Malaysia are the preferred languages to be included in the survey questionnaire. As a result, the respondents may find it easier to understand and complete the survey questions.

Moving on, it is suggested that in future, we can longer the time period to conduct research, so that the researcher can have more time to collect the data and probably more and large sample size is able to collect. As what mentioned earlier, because of time constraint, only 300 set of questionnaires have been collected. But only 250 set of questionnaires are qualified and can use for this research study. In addition, it is recommended that future researchers can consider add on other independent variables that could affect the mediator and dependent variables. For example, quality, assurance, and customization could be independent variables that can be done for better research in future.

5.5 Conclusion

The purpose of this research is to identify the factors that impact customer loyalty towards the Costa Coffee Self-Service Vending Machine in Malaysia, with satisfaction serving as a mediating variable. The study identified five variables - security, functionality, enjoyment, design, and convenience - that affect satisfaction based on a review of relevant literature in chapter 2. The methodology employed in the study is explained in chapter 3, and the results are presented in chapter 4, indicating that all the independent variables, except for convenience, have a

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significant correlation with the dependent variable. This finding is consistent with previous research on the subject, and the results can be used as a reference for self-service technology retailers, customers, and researchers for future studies.

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APPENDIX

Questionnaire

Section B: Likert Scale Question   ⌄ ⋮

Based on your experiences, please indicate how strongly agree or disagree to the statement below based on the scale from 1 to 5 with (1) being strongly disagree and being strongly agree.

Loyalty
说明（可选）

1. I will say positive things about the Costa Coffee self service vending machine to other people. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

2. I will recommend the Costa Coffee self service vending machine to someone who seeks my advice. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

3. I will encourage friend and relatives to use Costa Coffee self service vending machine. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Reliability test

Scale: Loyalty

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.933	4

Scale: Satisfaction

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.867	4

Scale: Security

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.905	3

Scale: Functionality

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.942	5

Scale: Enjoyment

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.905	3

Scale: Design

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded^a	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.844	4

Scale: Convenience

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.885	3

Descriptive Analysis

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	138	55.2	55.2	55.2
	Male	112	44.8	44.8	100.0
	Total	250	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 to 23 years old	112	44.8	44.8	44.8
	24 to 30 years old	63	25.2	25.2	70.0
	31 to 40 years old	34	13.6	13.6	83.6
	41 to 50 years old	17	6.8	6.8	90.4
	50 years old and above	24	9.6	9.6	100.0
	Total	250	100.0	100.0	

Are you a coffee lover ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	38	15.2	15.2	15.2
	Yes	212	84.8	84.8	100.0
	Total	250	100.0	100.0	

Have you heard about Costa Coffee's self-service vending machine before?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	3	1.2	1.2	1.2
	Yes	247	98.8	98.8	100.0
	Total	250	100.0	100.0	

Have you used Costa Coffee self- service vending machine in 99 Speedmart or any Shell station?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	50	16.7	16.7	16.7
	Yes	250	83.3	83.3	100.0
	Total	300	100.0	100.0	

Reliability test

Scale: Loyalty

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.878	4

81

Scale: Satisfaction

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.828	4

Scale: Security

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.835	3

Scale: Functionality

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.862	5

Scale: Enjoyment

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.811	3

Scale: Design

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.844	4

Scale: Convenience

Case Processing Summary

		N	%
Cases	Valid	250	100.0
	Excluded[a]	0	.0
	Total	250	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.773	3

84

Pearson Correlation Coefficient Analysis

Correlations

		Se	F	E	D	C	S	L
Se	Pearson Correlation	1	.792**	.671**	.700**	.571**	.713**	.664**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
F	Pearson Correlation	.792**	1	.723**	.717**	.629**	.758**	.691**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
E	Pearson Correlation	.671**	.723**	1	.769**	.697**	.758**	.733**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001
	N	250	250	250	250	250	250	250
D	Pearson Correlation	.700**	.717**	.769**	1	.587**	.771**	.704**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001
	N	250	250	250	250	250	250	250
C	Pearson Correlation	.571**	.629**	.697**	.587**	1	.622**	.618**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001
	N	250	250	250	250	250	250	250
S	Pearson Correlation	.713**	.758**	.758**	.771**	.622**	1	.714**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001
	N	250	250	250	250	250	250	250
L	Pearson Correlation	.664**	.691**	.733**	.704**	.618**	.714**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	
	N	250	250	250	250	250	250	250

**. Correlation is significant at the 0.01 level (2-tailed).

Multiple Linear Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.845[a]	.714	.708	.32190

a. Predictors: (Constant), C, Se, D, E, F

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.023	5	12.605	121.641	<.001[b]
	Residual	25.284	244	.104		
	Total	88.307	249			

a. Dependent Variable: S

b. Predictors: (Constant), C, Se, D, E, F

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.714[a]	.510	.508	.49843

a. Predictors: (Constant), S

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.208	1	64.208	258.452	<.001[b]
	Residual	61.611	248	.248		
	Total	125.819	249			

a. Dependent Variable: L

b. Predictors: (Constant), S

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.348	.172		2.028	.044
	Se	.108	.052	.124	2.088	.038
	F	.243	.064	.241	3.769	<.001
	E	.208	.059	.222	3.512	<.001
	D	.297	.058	.302	5.109	<.001
	C	.070	.051	.068	1.371	.172

a. Dependent Variable: S

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.511	.230		2.224	.027
	S	.853	.053	.714	16.076	<.001

a. Dependent Variable: L

Sobel test

Security

Input:		Test statistic:	Std. Error:	p-value:
a	0.108	Sobel test: 2.05984254	0.04472381	0.0394136
b	0.853	Aroian test: 2.05594267	0.04480864	0.03978804
s_a	0.052	Goodman test: 2.06376468	0.04463881	0.03904003
s_b	0.053	Reset all	Calculate	

Functionality

Input:		Test statistic:	Std. Error:	p-value:
a	0.243	Sobel test: 3.69543221	0.0560906	0.00021951
b	0.853	Aroian test: 3.68869349	0.05619307	0.00022541
s_a	0.064	Goodman test: 3.702208	0.05598794	0.00021373
s_b	0.053	Reset all	Calculate	

Enjoyment

Input:		Test statistic:	Std. Error:	p-value:
a 0.208	Sobel test:	3.44377253	0.05152024	0.00057366
b 0.853	Aroian test:	3.43744686	0.05161505	0.00058723
s_a 0.059	Goodman test:	3.45013325	0.05142526	0.00056031
s_b 0.053	Reset all		Calculate	

Design

Input:		Test statistic:	Std. Error:	p-value:
a 0.297	Sobel test:	4.87965791	0.05191778	0.00000106
b 0.853	Aroian test:	4.87112701	0.0520087	0.00000111
s_a 0.058	Goodman test:	4.88823379	0.05182669	0.00000102
s_b 0.053	Reset all		Calculate	

Convenience

Input:		Test statistic:	Std. Error:	p-value:
a 0.070	Sobel test:	1.36758485	0.04366091	0.17144206
b 0.853	Aroian test:	1.36497158	0.0437445	0.17226198
s_a 0.051	Goodman test:	1.37021319	0.04357716	0.17062036
s_b 0.053	Reset all		Calculate	

Origin of Construct

Construct	Modified Questionnaire	Sources
Satisfaction	1. As a user, I feel satisfy with the whole Costa Coffee self service vending machine. 2. Costa Coffee self service vending machine has a fast and responsive communication	Girsang, M. J., Hendayani, R., & Ganesan, Y. (2020, June). Can Information Security, Privacy and Satisfaction Influence The E-Commerce Consumer Trust? In *2020 8th International Conference on Information and Communication Technology (ICoICT)* (pp. 1-7). IEEE.

	and response to users.	
	3. The Costa Coffee self service vending machine has no problems such as unresponsiveness, slow access and so on when used.	
	4. Costa Coffee self service vending machine has an attractive appearance.	
Loyalty	1. I will say positive things about the Costa Coffee self service vending machine to other people.	Sunghyup Sean Hyun, (2010). *Predictors of Relationship Quality and Loyalty in the Chain Restaurant Industry. Cornell Hospitality Quarterly, 51(2), 251–267.* doi:10.1177/1938965510363264
	2. I will recommend the Costa Coffee self service vending machine to someone who seeks my advice.	
	3. I will encourage friend and relatives to use Costa Coffee self service vending machine.	
	4. I will consider the Costa Coffee self service vending machine my first choice when purchase the drinks.	

Security	1. I feel safe in my transactions with the Costa Coffee self service vending machine.	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194–206.* doi:10.1016/j.jretai.2011.02.006
	2. A clear privacy policy is stated when I use the Costa Coffee self service vending machine.	
	3. I believe this Costa Coffee self service vending machine provides right product to potential customer like me.	Falahat, M., Lee, Y. Y., Foo, Y. C., & Chia, C. E. (2019). A model for consumer trust in e-commerce. *Asian Academy of Management Journal, 24(2),* 93-109.
Functionality	1. I can get my service done with Costa Coffee self service vending machine in a short time.	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194–206.* doi:10.1016/j.jretai.2011.02.006
	2. The service process of the Costa Coffee self service vending machine is clear.	
	3. I can get my service done smoothly with the Costa Coffee self service vending machine.	
	4. Using the Costa Coffee self service vending machine requires little effort.	

	5. Each service item/ function of the Costa Coffee self service vending machine is error-free.	
Enjoyment	1. The operation of the Costa Coffee self service vending machine is interesting. 2. I feel good being to use the Costa Coffee self service vending machine. 3. The Costa Coffee self service vending machine has interesting additional functions.	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206.* doi:10.1016/j.jretai.2011.02.006
Design	1. The layout of the Costa Coffee self service vending machine is aesthetically appealing. 2. The Costa Coffee self service vending machine appears to use up-to-date technology. 3. The user interface of the Costa Coffee self service vending machine has a well-organized appearance.	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194– 206.* doi:10.1016/j.jretai.2011.02.006

	4. The Costa Coffee self service vending machine is easy to use.	
Convenience	1. The Costa Coffee self service vending machine has operating hours convenient to customers.	Lin, J.-S. C., & Hsieh, P.-L. (2011). *Assessing the Self-service Technology Encounters: Development and Validation of SSTQUAL Scale. Journal of Retailing, 87(2), 194–206.* doi:10.1016/j.jretai.2011.02.006
	2. The Costa Coffee self service vending machine is available when I need to buy the drinks.	
	3. The Costa Coffee self service vending machine is accessible through various places (99 Speedmart, Shell petrol station).	

Source: Develop for research