ASSESSING USER SATISFACTION OF SMART PARKING PAYMENT SYSTEM IN SELANGOR

SITI ASLINDA BINTI MAHAT

MASTER OF SCIENCE INFORMATION TECHNOLOGY
UNIVERSITI UTARA MALAYSIA
2025

Awang Had Salleh
Graduate School
of Arts And Sciences

Universiti Utara Malaysia

PERAKUAN KERJA TESIS / DISERTASI
(Certification of thesis / dissertation)

Kami, yang bertandatangan, memperakukan bahawa
(We, the undersigned, certify that)

SITI ASLINDA MAHAT

calon untuk Ijazah **MSc.**
(candidate for the degree of)

telah mengemukakan tesis / disertasi yang bertajuk:
(has presented his/her thesis / dissertation of the following title):

"ASSESSING USER SATISFACTION OF SMART PARKING PAYMENT SYSTEM IN SELANGOR"

seperti yang tercatat di muka surat tajuk dan kulit tesis / disertasi.
(as it appears on the title page and front cover of the thesis / dissertation).

Bahawa tesis/disertasi tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan, sebagaimana yang ditunjukkan oleh calon dalam ujian lisan yang diadakan pada : ***23 April 2024.***
That the said thesis/dissertation is acceptable in form and content and displays a satisfactory knowledge of the field of study as demonstrated by the candidate through an oral examination held on: ***23 April 2024.***

Pengerusi Viva: *(Chairman for VIVA)*	**Assoc. Prof. Nor Iadah Yusop**	Tandatangan *(Signature)*
Pemeriksa Luar: *(External Examiner)*	**Assoc. Prof. Dr. Norjansalika Janom**	Tandatangan *(Signature)*
Pemeriksa Dalam: *(Internal Examiner)*	**Dr. Mohd Adan Omar**	Tandatangan *(Signature)*
Nama Penyelia/Penyelia-penyelia: *(Name of Supervisor/Supervisors)*	**Assoc. Prof. Ts. Dr. Maslinda Mohd Nadzir**	Tandatangan *(Signature)*

Tarikh:
(Date) ***23 April 2024***

Permission to Use

In presenting this thesis in fulfilment of the requirements for a postgraduate degree from Universiti Utara Malaysia, I agree that the Universiti Library may make it freely available for inspection. I further agree that permission for the copying of this thesis in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or, in their absence, by the Dean of Awang Had Salleh Graduate School of Arts and Sciences. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to Universiti Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Requests for permission to copy or to make other use of materials in this thesis, in whole or in part, should be addressed to:

Dean of Awang Had Salleh Graduate School of Arts and Sciences
UUM College of Arts and Sciences
Universiti Utara Malaysia
06010 UUM Sintok

Abstrak

Aplikasi Smart Selangor Parking (SSP) bertujuan untuk meningkatkan penerimaan digital dalam usaha Selangor untuk menjadi negeri pintar yang boleh didiami. Walau bagaimanapun, kepuasan pengguna terhadap aplikasi ini masih belum jelas, menimbulkan kebimbangan mengenai keberkesanannya dalam memupuk komuniti yang produktif dari segi ekonomi dan peka terhadap alam sekitar. Soalan kajian adalah: Apakah faktor-faktor yang memberi pengaruh signifikan terhadap kepuasan pengguna dengan aplikasi SSP? Objektif kajian ini adalah untuk mengenal pasti faktor-faktor yang mempengaruhi kepuasan pengguna dengan SSP dan untuk menentukan faktor mana yang mempunyai pengaruh paling signifikan. Analisis ini bertujuan untuk memberikan pandangan mengenai aspek yang memerlukan penambahbaikan bagi meningkatkan keberkesanan dan penerimaan aplikasi ini. Kajian ini menggunakan reka bentuk kuantitatif untuk menilai kepuasan pengguna dengan aplikasi SSP. Ia merangkumi tiga fasa: fasa definisi, fasa penerokaan, dan fasa pengesahan. Dalam fasa definisi, masalah kajian dan objektif ditetapkan. Fasa penerokaan melibatkan pengumpulan data dan penambahbaikan soalan kajian. Fasa pengesahan menguji hipotesis dengan menggunakan teknik statistik. Aktiviti pengesahan memastikan kebolehpercayaan dan kesahihan dapatan, seperti memastikan ukuran yang tepat dan menguji konsistensi kaedah pengumpulan data. Kajian mendapati bahawa kepuasan pengguna terhadap aplikasi Smart Selangor Parking paling dipengaruhi oleh kebolehan pembelajaran, yang memastikan kemudahan penggunaan dan mengurangkan gangguan. Kegunaan juga memainkan peranan penting, kerana menyediakan maklumat yang relevan meningkatkan kepuasan pengguna. Lampiran emosi, kebolehkawalan, dan kecekapan turut memberi kesan, walaupun kecekapan mempunyai impak yang paling rendah. Secara keseluruhan, kajian ini menekankan kepentingan kebolehgunaan, maklumat yang jelas, dan reka bentuk yang berfokuskan pengguna dalam meningkatkan kepuasan. Kajian ini menyumbang kepada pemahaman faktor-faktor yang mempengaruhi kepuasan pengguna dengan aplikasi pembayaran parkir mudah alih di Malaysia, menawarkan pandangan yang berguna bagi pemaju dan pembuat dasar. Ia menekankan kepentingan kebolehgunaan, persepsi pengguna, dan halangan kepada penerimaan, serta memberi panduan untuk kajian masa depan dan meningkatkan keberkesanan sistem pembayaran mudah alih untuk parkir.

Kata Kunci: Pembayaran Mudah Alih, Smart Selangor Parking, Kepuasan Pengguna

Abstract

The Smart Selangor Parking (SSP) app aims to enhance digital adoption in Selangor's journey toward becoming a liveable smart state. However, user satisfaction with the application is remains unclear, raising concerns about its effectiveness in fostering economically productive and environmentally conscious communities. The research question is: What factors significantly influence user satisfaction with the SSP application? The objectives are to identify the factors influencing user satisfaction with SSP and to determine which of these factors have the most significant impact. This analysis aims to provide insights into areas that require improvement to enhance the app's overall effectiveness and adoption. This research use a quantitative design to assess user satisfaction with the SSP application. It includes three phases: definition, exploratory, and confirmation. In the definition phase, the research problem and objectives are set. The exploratory phase involves collecting data and refining the research questions. The confirmation phase rigorously tests hypotheses using statistical techniques. Validation activities ensure the reliability and validity of the findings, such as ensuring accurate measurements and testing the consistency of data collection methods. The study found that user satisfaction with the Smart Selangor Parking application is most influenced by learnability, which ensures ease of use and minimizes distractions. Helpfulness also plays a significant role, as providing relevant information enhances user satisfaction. Emotional attachment, controllability, and efficiency were also factors, though efficiency had the least impact. Overall, the study emphasizes the importance of usability, clear information, and user-centered design in enhancing satisfaction. This study contributes to the understanding of factors influencing user satisfaction with mobile parking payment applications in Malaysia, offering valuable insights for developers and policymakers. It highlights the importance of usability, user perceptions, and barriers to adoption, guiding future research and enhancing the effectiveness of mobile payment systems for parking.

Keywords: Mobile Payment, Smart Selangor Parking, User Satisfaction

Acknowledgement

Bismillahirahmanirahim

First of all, I would like to express my gratitude to Allah S.W.T. above all his blessings that have given me inspiration, wisdom, strength, and patience in completing this thesis.

Next, I would like to express my gratitude to my supervisor, Prof. Madya Ts. Dr. Maslinda binti Mohd Nadzir, for all his valuable time, countless knowledge and advice, as well as guidance and encouragement which is very motivating. Without her help, I would not have been able to complete this thesis.

In addition, I would also like to say a big thank you to my husband Mohd Firdaus Razali for all his patience, help, and words of encouragement are very meaningful. It has given me strength throughout the course of this study. Thank you for the permission that has been given.

Infinite gratitude is also given to my mother, Kartini Binti Sirat for all the sacrifices and prayers that always fuelled my spirit to continue fighting in this life. I dedicate this thesis to both of them.

Appreciation is also given to my parents-in-law, family members, and friends who helped me a lot throughout my studies. Finally, I would like to thank Universiti Utara Malaysia and all those who have contributed directly and indirectly to completing this thesis.

Thank you.

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Abbreviations

ANOVA	Analysis of Variance
BNM	Bank Negara Malaysia
EE	Effort Expectation
FC	Facilitating Condition
IoT	Internet of things
MAE	Maybank E-Wallet
MOSTI	Ministry of Science, Technology and Innovation
PE	Performance Expectancy
PLS	Partial Least Square
POS	Point Of Sales
PU	Perceived Usefulness
SI	Social Influence
SOP	Standard Operating Procedure
SSP app	SMART Selangor Parking application
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
UTAUT	Unified Theory Of Acceptance And Use Of Technology
VIF	Variation Inflation Factors

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Over this new millennium, smartphone ownership has undeniably become essential in our daily lives. The number of smartphone users has significantly increased significantly. According to Ericsson's network research, it was estimated that nearly 1/3 of the global population would own a smartphone by 2020 (Boxall, 2013). Additionally, within Malaysia, statistics from the Malaysian Communications and Multimedia Commission (MCMC) indicated that in 2018, 78% of the Malaysian population owned a smartphone. This number increased over time, with projections suggesting that over 89% of Malaysians would own smartphones by 2023. This figure surpasses the 76% smartphone adoption rate in the Asia-Pacific region in 2022 (*Topic: Smartphones in Malaysia*, 2024).

Even though the capabilities of smartphones are seemingly endless, users have yet to fully optimize the usage of the smartphone and often remain limited to familiar applications. A smartphone can do much more than just surf the web, socialize, and make video calls, play music, stream videos, send texts, take pictures, and play games. Another significant function of a smartphone is its ability to translate texts, create wonderful designs, order a taxi, and facilitate parking payments.

Mobile payments for parking involve transactions that utilize a smartphone as a digital wallet or medium to pay for a parking spot. Users can achieve this through various methods, such as scanning a QR code or barcode displayed on a parking meter or ticket machine, keying in a unique zone number or plate number on a mobile application or

web application, tapping the phone on a contactless reader or NFC device, or even using voice commands or text messages to initiate or confirm a payment. Depending on the system, the user may be required to download a specific application, register an account, link a payment method, and verify their identity to utilize the mobile gateway for parking payment.

Currently, Selangor is heading towards becoming a digital state, and the Smart Selangor initiative was launched in May 2016. The Smart Selangor initiative is a program by the Selangor state government with the goal of making Selangor a livable Smart State in ASEAN by 2025. This will be achieved by empowering its people, businesses, and the public sector through the optimization of digital technologies (About us – Smart Selangor, n.d.). The initiative consists of four pillars: Smart Governance, Smart Economy, Smart Community, and Smart Digital Infrastructure.

Within the Smart Community, part of the initiative is to offer hybrid payment methods to pay for parking spots, which includes a combination of ticket payments, coupons, and smartphone applications. Hence, the Selangor government introduced the *Pelaksanaan Sistem Parkir and Kompaun Berintegrasi Di Negeri Selangor* (Smart Selangor Parking), better known as the SSP app, in July 2018. The aim of this app is to bring Selangor closer to its aspiration of becoming Southeast Asia's premier smart state by 2025 (*Cashless Parking Catches on – Smart Selangor*, 2022). For payments using smartphone applications, various applications have been used to make it easier for both users and enforcers. These include private-owned applications such as MCash E-Wallet, Touch 'n Go eWallet, CityCarPark, JomParking, and state-owned parking application, Smart Selangor Parking Application (SSP app). Additionally, this

application allows users to pay parking fees across Selangor, crossing various local authorities, as well as pay compound or summon fees, and serves as a reminder.

The application was developed to facilitate and encourage drivers to make parking and compound payments online at any relevant Selangor Local Authority. In addition, the SSP app enables enforcement to be carried out online more effectively and efficiently by the Local Authority Enforcement Department. Outline of the objectives of the SSP app are:

1. To facilitate online payments, allowing drivers to easily make parking and compound payments online.
2. To encourage digital transactions and promote the usage of online payment methods among drivers.
3. To improve user experience by providing a user-friendly platform for drivers to manage their parking and compound payments.
4. To enhance enforcement efficiency by enabling the Local Authority Enforcement Department to conduct enforcement activities more effectively and efficiently online.
5. Finally, to reduce administrative burden by digitizing payment and enforcement activities, thereby minimizing paperwork and manual processes for local authorities.

Figure 1.1. Promotional poster of Smart Selangor Parking Application

The SSP app offers several advantages for both drivers and parking operators, namely providing convenience, efficiency, security, and sustainability. With the usage of mobile payments, users can pay for their parking spot literally from anywhere, without the need to carry cash, cards, or tickets. Users can also remotely extend their parking time after receiving reminders and finally receive the payment receipt. Additionally, users can save time and avoid queues, fines, or hassle by paying for their parking spot with a smartphone. Moreover, users can protect their personal and financial information by using encrypted and authenticated mobile payments. Furthermore, users can reduce paper and plastic waste by using digital parking tickets and receipts. They can also lower their carbon footprint by using less fuel and emitting fewer emissions by quickly finding and paying for a parking spot. This application was designed to be hassle-free with minimal human intervention. With the authorities' oversight, they can collect data for research and future strategic planning development purposes in Selangor, thereby providing benefits to the populace.

Selangor has a population of 5.8 million people, and the majority have embraced the use of the SSP app. This is evidenced by the application exceeding 2 million downloads as of June 2023 (Abd Wahab, 2023).

Locating a parking spot in Malaysia can be challenging. However, the difficulties do not end here. The issue persists beyond finding a parking spot, as drivers often encounter problems when making payments. These problems frequently arise due to unforeseen circumstances such as malfunctioning parking meters, the unavailability of coupon agents, and adverse weather conditions.

1.2 Problem Statement

Previous research has identified the primary determinants of customers' willingness to use mobile payment systems. According to Dwiyana and Muqorobin (2021), in Indonesia, Adi Soemarmo Airport has adopted this technological trend in the development of its parking payment system. However, the system still operates in two modes of payment: cash and cashless. Users sometimes tend to pay using large denominations, and they frequently face issues with insufficient cash. Therefore, understanding the ease of use of the parking payment application can help minimize congestion.

Different applications can be utilized for various purposes or pursuits. They can assist in solving problems related to performing payments for desired parking spots through the application. For instance, parking applications offer a time-saving solution to this issue.

By using the parking app, enforcers can easily verify payments made by vehicle drivers. Furthermore, Yeap (2019) notes that parking applications can provide online data and reporting for parking management and urban planning. The concept behind most parking apps is similar, arising from the frustration of having too many expired coupons and the difficulty of locating a parking meter to pay for daily parking.

As outlined in the introductory chapter, the state of Selangor provides multiple methods for users to pay for parking, including the SSP app, coupons, and tickets. Despite the SSP app having been downloaded up to 2 million times, the majority still choose to use conventional payment methods (i.e., cash, coupon, or ticket system) to pay for parking fees. Even worse, the user has the app downloaded but prefers not to pay for parking fees at all.

As evidence, numerous vehicles have been issued summonses due to owners' refusal to pay for parking, citing the inefficacy of the available payment methods. The Shah Alam City Council has responded by initiating a campaign to reduce parking fines, offering a reduction of up to RM10 off for the Road Transport Order Compound (Parking Space Allocation) MBSA 2007 and a 70% reduction for selected compounds. This campaign ran from 23 March to 21 April 2023. Similarly, the Kuala Langat Municipal Council and Sepang Municipal Council have also launched campaigns to reduce parking fines.

Residents of Selangor face several challenges in fully utilizing the SSP app, including issues related to internet connectivity, app reliability, smartphone accessibility, and compliance while driving. To use mobile payments, users must, of course, possess a smartphone, have an internet connection, and set up an e-wallet account. Additionally,

they must adhere to the regulations set by payment gateway providers and authorities. Litman (2023), in "Paradigm Shift in Parking Planning," identified various parking issues, such as insufficient or excessive supply, inappropriate pricing, inadequate user information (e.g., signboards), and poor management. Furthermore, the future consistency of the application warrants consideration. According to the Google Play Store, the Smart Selangor Parking application has a rating of 3.3 stars (*Smart Selangor Parking - Apl Di Google Play*, n.d.). In contrast, the Apple App Store rating is significantly lower than the Google Play Store, at 1 star (App Store, 2018). Numerous users have reported various issues with the application, including questionable stability, failure to meet its intended purpose, inability to reload or withdraw balance, and unfriendly user interface, which can significantly visualize the level of user satisfaction among users.

According to Kawamoto et al. (2023), an analysis of key elements must be done to provide an understanding of the capacity to significantly impact the management and success of mobile payment services in the market. This analysis highlights the importance of efficiently providing services to enhance user acceptance of mobile payment systems. The market for mobile payment services has experienced substantial growth. Therefore, to maintain a competitive edge over traditional payment methods, businesses must continuously innovate and improve their mobile payment offerings.

Therefore, this research aims to assess user satisfaction with the SSP app in Selangor. This aligns with the Selangor state government's aspiration to become a livable smart state in ASEAN, fostering economically productive and environmentally conscious communities through the adoption of digital technologies.

1.3 Research Questions

Therefore, the research questions of this research are:

1. What factors influence user satisfaction with Smart Selangor Parking?
2. How do the identified factors have a significant influence on user satisfaction with the SSP application?

1.4 Research Objective

The objectives of this research are:

1. To identify the factors influencing user satisfaction with Smart Selangor Parking
2. To identify the factors that have a significant influence on user satisfaction to use Smart Selangor Parking.

1.5 Research Scope

This research was conducted to assess the level of user satisfaction with the SSP app. Therefore, the targeted respondents are individuals or users who frequently use parking lots managed by Selangor State Municipal Councils, and indirectly own vehicles such as private cars, lorries, or vans. Other criteria include respondents who live, work, or visit the areas and use the SSP app as a method of payment for parking spots.

1.6 Significance of The Research

The objective of this research is to evaluate user satisfaction with the SSP app. A comprehensive understanding of users' perceptions regarding their satisfaction with the SSP app for vehicle parking can be derived from various criteria, including the convenience aspect, individual satisfaction, perceived utility, and social impact. The findings of this study will enable the researcher to ascertain how the SSP app can

contribute to the Smart Selangor Initiatives improvement and identify the promotional strategies utilized by the government to attract a larger user base.

This research aims to provide reliable and valid data on the trends in the usage of parking applications in Malaysia, which will be beneficial for future researchers conducting related studies. The purpose of this research project is to address a gap in the literature regarding the factors influencing satisfaction with the SSP app and to contribute positively to the community.

By obtaining feedback from respondents, the government will be able to position its products or services more precisely and effectively. A comprehensive understanding of the market is essential to identify the factors that attract and retain customers' loyalty to an application, thereby promoting the state's funding growth. The findings of this research will also assist parking application developers in providing more advanced state-of-the-art features, enhancing the quality of their apps, and operating more efficiently and effectively. Additionally, this research will offer parking application developers reliable information on why users are attracted to their products and why they may be reluctant to abandon traditional methods of paying for parking.

1.7 Operational Definitions

1.7.1 User Satisfaction

Satisfaction is the fulfilment of one's desires and expectations regarding a particular entity (Negmu, 2021).

1.7.2 SSP App

One of the smartphone applications that can be used specifically for parking payment transactions is under the supervision of the local authority for the state of Selangor. (*MyGOV - the Government of Malaysia's Official Portal*, n.d.).

1.7.3 Parking Payment Method

The parking payment method includes using a single meter system or centralized meter, tickets/coupons, smart cards, or the use of applications (*GUIDE ON: PARKING SERVICES*, 2022).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Recent developments in vehicle parking technologies have facilitated their widespread adoption in both management and payment collection. Various payment methods have been integrated, including cash, credit cards, debit cards, and e-wallet applications. This diversity in payment options aims to enhance user convenience in paying for parking spaces.

2.2 Overview of Operational

The Smart Selangor Parking app (SSP app) is a mobile solution designed to make parking in Selangor and Kuala Lumpur more convenient. It's designed to save time and reduce the hassle of traditional parking payment methods.

2.2.1 Smart Selangor Initiatives

The Smart Selangor Delivery Unit (SSDU), which includes the SSP app, was founded in May 2016 as a result of a decision made by the Selangor State Executive Council (Majlis Mesyuarat Kerajaan Negeri, or MMKN). Since its founding, SSDU has been instrumental in developing Selangor's Smart Agenda, spearheading multiple projects and initiatives in partnership with important stakeholders to become Malaysia's most progressive state. As the primary executive portfolio of YAB Dato' Menteri Besar Selangor, SSDU is dedicated to creating a more livable future for Selangor residents. The goal is to make Selangor a livable Smart State in ASEAN by 2025, and this is accomplished by offering appropriate solutions through technology optimization for

Smart State applications. The initiatives consist of 4 pillars: Smart Government, Smart Economy, Smart Community, and Smart Digital Infrastructure.

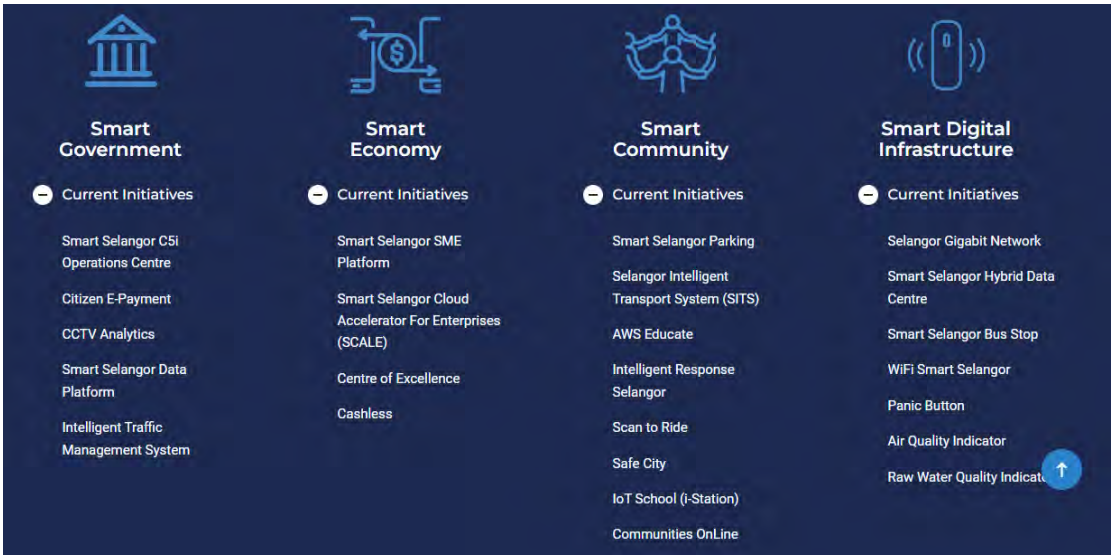

Figure 2.1. The 4 pillars of Smart Selangor Initiatives

The Smart Community Initiative in Selangor comprises a wide range of programs aimed at improving the quality of life for people. Below is a brief overview of some of the key initiatives:

1. Smart Selangor Parking (SSP) application: This app simplifies parking payments and management across local authorities in Selangor, making it more convenient for citizens.
2. Selangor Intelligent Transport System (SITS): Aims to improve the efficiency and reliability of public transportation in Selangor.
3. AWS Educate: Provides educational resources and cloud computing training, helping build a knowledgeable and skilled workforce.
4. Intelligent Response Selangor: Enhances emergency response capabilities through smart technologies.

5. Scan to Ride: Integrated into the CEP app, this feature allows users to board Smart Selangor Buses using a QR code, streamlining the boarding process.
6. Safe City: Focuses on improving public safety through various smart technologies and initiatives.
7. IoT School (i-Station): Introduces Internet of Things (IoT) education to schools, fostering innovation and technological skills among students.
8. Communities OnLine (COOL): This app facilitates engagement between citizens and the state government, providing a platform for information and interaction with the 56 Selangor State Assemblymen.

These initiatives collectively contribute to making Selangor a smarter, more connected, and more efficient state. They not only enhance convenience and safety but also promote education and community engagement.

2.2.2 Smart Selangor Parking (SSP) Application

According to the Selangor Government, the Smart Selangor Parking application (SSP app) facilitates online parking and compound payments through a unified platform. This application is deployed across multiple Local Authorities within the State of Selangor.

The term 'smart' has become a prevalent prefix for various technologies, including phones, homes, buildings, traffic, and parking systems. It implies the capability to solve problems and adapt to changes, which is inherently linked to being 'user-friendly,' as noted by Hollands (2008). The SSP app is one of the Smart Selangor initiatives developed under the domain of Smart Transport and Mobility.

Figure 2.2. Functionalities and features of SSP app

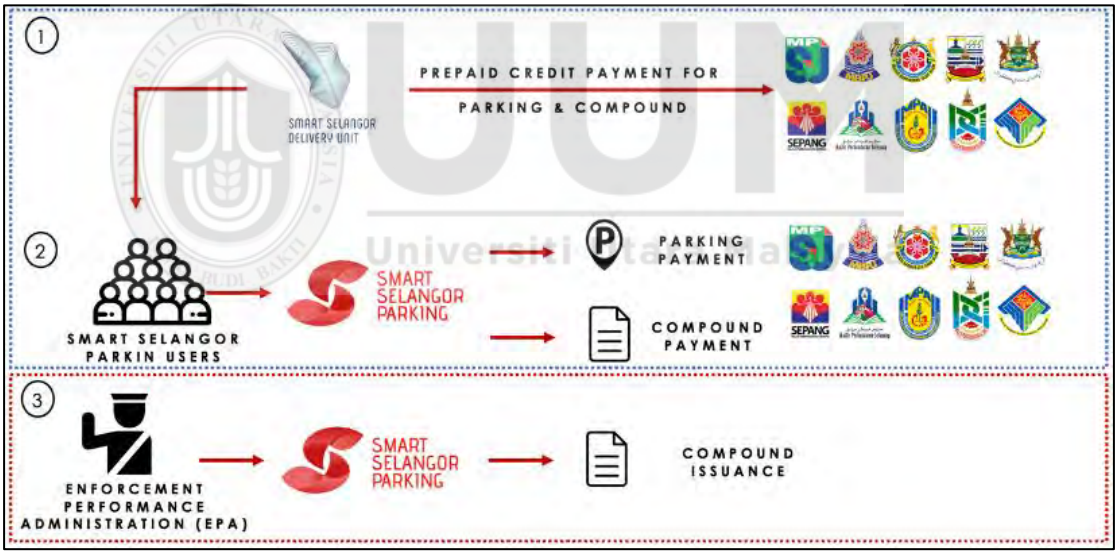

Figure 2.3. SSP app concept

Developing a smart parking system involves not only the integration of technology but also the incorporation of social innovation. Information and Communication Technology (ICT) serves as an enabler, fostering innovation, efficiency, responsiveness, resilience, and adaptability (Cavada et al., 2014). The key goals are to improve services, address difficulties, raise productivity, manage resources more

efficiently, and, most significantly, improve the quality of life for inhabitants. Consequently, the SSP app plays a crucial role in advancing the Smart Selangor Initiative. As of 2023, the SSP app has recorded 2.6 million users (Abd Wahab, 2023).

2.2.2.1 The Importance of SSP App

In addition to the Smart Selangor initiative by the Selangor State Government, which aims to leverage Internet of Things (IoT) solutions to enhance the quality of life for its citizens, the SSP app is a key component of this initiative. The SSP app provides a cashless solution for parking payments and includes features such as reminders when parking time is nearly expired. For enforcement personnel, the application simplifies their tasks by allowing them to type or scan the vehicle registration number, with payment information readily accessible on their devices.

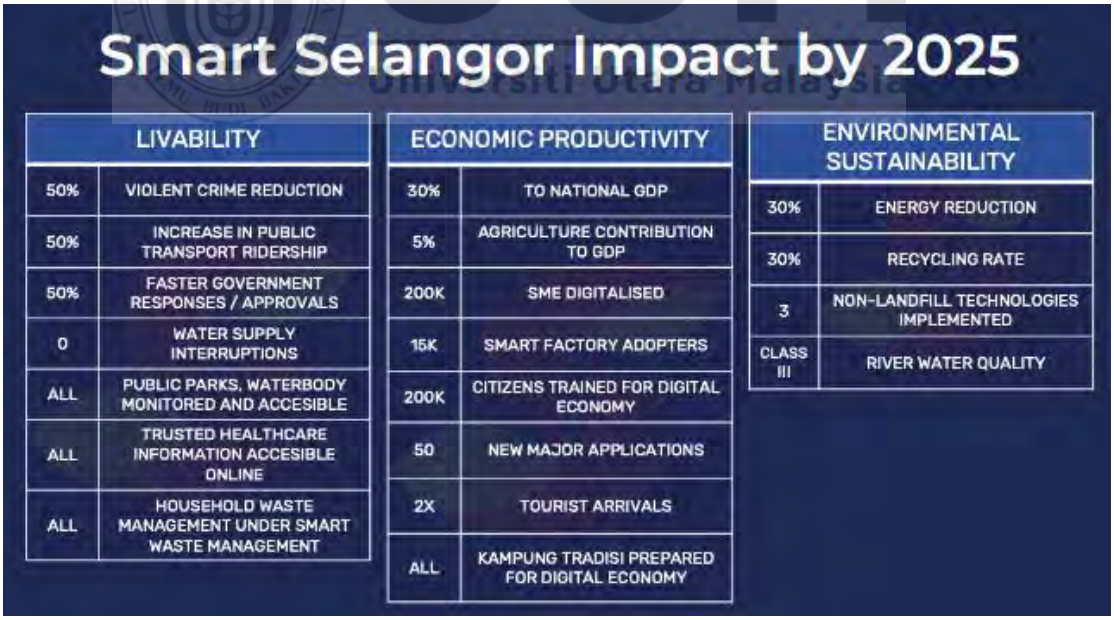

Figure 2.4. Expected impact of SSP app

2.2.2.2 Challenges of SSP App

Despite extensive promotion, the satisfaction level of the SSP app remains questionable. Users have reported issues with the app's stability, such as frequent crashes and slow loading times, which are opposite to its prime functions of convenience and efficiency. Additionally, the user interface has been criticized for being too complex and difficult to navigate. For instance, some users have found it is quite challenging to locate parking zones or understand the payment process. Furthermore, the app's impact on the community, particularly regarding user behavior and social benefits, has not met expectations. While the app aims to streamline parking payments and reduce congestion, many users feel that it has not significantly improved their parking experience or contributed to a more efficient urban environment.

Despite the high download rates and frequency of usage, users face several challenges when using SSP applications, including:

1. Limited coverage: Because of initial investment and infrastructure may be high, the cost of installing sensors and necessary infrastructure can be limited for the time being. This can be a barrier to widespread adoption, especially in remote areas or areas with limited budgets (GceLab., n.d.)
2. Compatibility and technical issues: Users can encounter technical problems such as inaccurate parking location, and information, or connectivity issues. Others include integrating the SSP app with various types of smartphone models, different versions, and hardware components that do not work well together or cause errors, glitches, and crashes. These can lead to frustration and reduced trust in the system (*Unlocking Urban Mobility: Exploring the impact of smart parking solutions on city residents | Modii*, n.d.)

3. Data privacy concerns: Users may be concerned about the privacy and security of their data every day. Smart parking systems often collect and process large amounts of data, including geolocation, vehicle type, plate number, and frequency of usage. This can raise issues related to data protection and user consent (GceLab, n.d.).
4. User experience and accessibility: Despite the high frequency of usage, some users might not find the application's graphic interface, step-by-step instructions, and geolocation settings within the phone easy to use. Not all users find SSP apps convenient or user-friendly, which can be particularly challenging for elders, disabled persons, or those who are not familiar enough with the technology (Unlocking Urban Mobility: Exploring the impact of smart parking solutions on city residents | Modii, n.d.).

2.2.2.3 Satisfaction Level of SSP App

According to Ng Sze Han, Exco of Local Government, Public Transport, and Kampung Baru Development, the SSP app has registered 348,859 users (*PARKING SMART SELANGOR | Dewan Negeri Selangor*, 2020). This significant user base indicates strong acceptance and support from the residents of Selangor for the Smart State initiative by 2025. To further promote the use of the SSP app, the state government offers an additional credit of RM1 for every RM50 top-up.

To accurately determine the satisfaction level of users with the SSP app, it would be ideal to conduct a survey or analyze existing user reviews and feedback. Key factors to consider include efficiency, satisfaction level, controllability, learnability, helpfulness, and convenience.

2.2.3 Overview of E-Wallet

An e-wallet serves as a digital replacement for a consumer's physical wallet, integrating various functions such as bank cards, credit cards, or even vouchers, all packed into a smartphone. The SSP app is an application synchronized with some prime e-wallet operators, designed for parking payment transactions, operating under the supervision of the local authority in the state of Selangor.

In essence, a cashless transaction is the exchange of products and services without the need of actual currency or coins, and is carried out exclusively through internet platforms. According to Husain et al. (2019), a cashless transaction is defined as an exchange that does not require physical currency. Advances in digital information technology have facilitated various methods to replace physical currency, including the capability to transfer funds between bank accounts. Furthermore, supported by Gupta et al. (2020), cashless transactions are payments made in a way other than physical cash. According to Bank Negara Malaysia (n.d.), cashless transactions are classified as electronic money (e-money). E-money is a payment device that electronically stores monetary value in exchange for cash provided by the issuer. This electronic money can be accessed in a variety of ways, including card-based and network-based systems like e-wallets on mobile devices. E-wallets are a subset of electronic money.

An e-wallet is an application that works similarly to a physical wallet that stores money, debit cards, credit cards, and the user's bank account information in the form of digital applications (Kagan, 2024). The website furthermore stated that e-wallets are intended to replace physical wallets.

This e-wallet application can be downloaded to users' smartphones, where they can store credit card numbers and other personal information. Thus, the user (or consumer) is not required to provide information for every online purchase they make. It is a way to avoid the problem of filling in information about repeated purchases and eliminates the need to store information on the merchant's or seller's server, as is the case with credit card payments. For example, companies that offer e-wallet facilities are Europay, MasterCard, and Visa (EMV) (Peterson and Wezel, 2016), and within Malaysia, there are Touch N Go e-wallet, GrabPay, Boost, MAE, and others.

The interface of various e-wallets provided by different operators differs from one to another. However, the overall process of utilizing these e-wallets remains relatively consistent and straightforward. For first-time users, they might need to fill in some crucial details such as name, MyKad number, address, and phone number. After that, the application will need the user to reload some amount of money. When making a payment or an online purchase, the user's personal information is automatically populated into the payment form with a single click.

The integration of parking payment systems with e-wallets can serve as an indicator of the application's acceptance level.

2.2.4 Overview of User Satisfaction

User satisfaction refers to the well-being and comfort experienced by end-users and building owners regarding a product or service. It indicates the degree to which their expectations have been fulfilled or surpassed, resulting in a favorable assessment of their exchange (Hemmati, 2024).

User satisfaction offers some important factors to consider when working with services or products. These include gauging the usability of the product or platform and how simple it is for users to browse, engage with, and complete tasks within it. User experience is greatly enhanced by intuitive interfaces, obvious navigation, and effective workflows. Furthermore, it offers the functionality level—that is, the degree to which the good or service meets the demands and expectations of the users; certain features ought to be strong, dependable, and function as intended so that users can accomplish their objectives quickly and effectively.

Next, it provides insight for the customer support unit on how effective and responsive the assistance is when users encounter issues. In addition, it includes both emotional and cognitive elements, such as the product's overall user experience and efficacy and efficiency (Trymata and Trymata, 2024). Finally, the user acceptance level can measure user expectations of products and the platform's speed and accuracy level, responsiveness, and stability in terms of performance (Koch and Koch, 2024).

Numerous techniques, such as surveys and feedback forms, can be used to measure customer satisfaction by getting firsthand feedback from users about their experiences and opinions, requests for reviews and ratings, by analyzing user reviews and ratings to calculate satisfaction levels, or by using net promoter score (NPS), by measuring the possibility that users recommending the product to others, or even asking customers outright how satisfied they are with the good or service, or using customer effort score (CES), a method by assessing how much effort users need to put in to interact with the product or service (Trymata and Trymata, 2024).

Businesses must comprehend and enhance user satisfaction, as it has a direct impact on consumer loyalty, retention, and advocacy. Usera that are happy with a product or service are more likely to use it going forward, come back for more, and refer others to it, all of which support the expansion and success of businesses. (Trymata and Trymata, 2024).

2.3 Previous Studies

Several past research have been conducted to examine the effectiveness level, acceptance level, and satisfaction level of various smartphone parking applications.

Table 2.1

Summary of previous research studies

Researchers and Research Title	**Summary of the Research**
Dwiyana and Muqorobin (2021) Analysis of Adi Soemarmo Solo Airport Parking Payment System	**Objective** To provide the best solution for airport parking payment systems. **Result** AINO is an essential part of the Solo Airport parking payment system. Many survey participants reported that they had completed transactions and that everything was using this system in a very practical and efficient manner. **Limitation** This study does not consider other factors that may

Table 2.1 continued.

	affect the effectiveness of cashless payment systems, such as consumer awareness of the technology.
Negmu (2021) The Effect of Perceived Quality of Mobile Applications on Customer Satisfaction In The Case Of Ride Service Providers in Addis Ababa	**Objective** To conduct the effect of mobile app quality on user satisfaction in the case of the Ethiopian e-hailing taxi service industry. **Result** By creating a clear link between the two, it advances knowledge of the relationship between user satisfaction and mobile app quality. The results support the theory that, over time, the application quality dimension may surpass client expectations and raise the frequency of service usage. **Limitation** The research relied on self-reported data, which may introduce biases or inaccuracies in customer responses.
Kasirye and Masum (2021) The Effects Of E-Wallet Among Various Types Of Users In Malaysia: A Comparative Study	**Objective** Researchers aim to determine the effects of e-wallets and find out the level of e-wallet usage among various users in Malaysia. **Result** Users of e-wallets do not differ significantly in terms of age, gender, or income range. However, it has an

Table 2.1 continued.

	impact on the overall results of e-wallet use. **Limitation** The research was conducted over a short period, which may not have captured long-term trends or changes in user behavior over time.
Fatima et al. (2021) Examining Factors Influencing Adoption Of M-Payment: Extending UTAUT2 With Perceived Value	**Objective** To evaluate the proposed modification of UTAUT2 to the test empirically by adding perceived value as an influencing construct. **Result** The adoption of mobile payments is strongly correlated with perceived value. **Limitation** The research relied on cross-sectional data, capturing users' perceptions at one point in time, which may not reflect changes in attitudes or behavior over time.
Abdellah and Fernandez (2021) *Faktor Yang Mendorong Generasi Y Dalam Penggunaan Dompet Elektronik*.	**Objective** To examine the extent to which Generation Y can accept the use of electronic wallets, especially in Johor. The researched factors of the study using the TAM model. **Result** The study indicates that Gen-Y finds using electronic wallet services to make purchases easier, and the

Table 2.1 continued.

	majority of users think these apps are reliable. The behavioral intentions of Johorean consumers about the use of electronic wallets are significantly influenced by every variable. **Limitation** The study only considered Millennials (Generation Y), excluding older and younger generations, who may have different attitudes toward e-wallet usage.
Shin and Lee (2021) Factors affecting user acceptance for NFC mobile wallets in the U.S. and Korea.	**Objective** To determine the elements that influence consumers' acceptance of NFC mobile wallets in the US and Korean markets. The model adds new constructs for credibility and service intelligence to the UTAUT2 model. **Result** The study findings demonstrate a strong positive correlation between users' behavioral intention to use NFC mobile wallets and their expectations in terms of habit, performance, credibility, and service intelligence. **Limitation** The research relied on self-reported data, which could introduce bias in user perceptions.

Table 2.1 continued.

Hidayat et al. (2020) User Acceptance of E-Wallet using UTAUT 2.	**Objective** To investigate significant variables on user acceptance of server-based e-wallets in South Tangerang using the UTAUT2 model and the addition of two variables, perceived trust and perceived risk. **Result** 3 of the variables were not significant in the study. These are performance expectancy, hedonic motivation, and price value. **Limitation** Problems such as loss of balance and failure to top up still occur, which may affect overall user acceptance.
Tenk et al. (2020) E-wallet Adoption: A Case In Malaysia	**Objective** To investigate Malaysians' intentions of adopting a future E-Wallet service from the perspective of mobile phones based on UTAUT. **Result** The use of e-wallets is positively impacted by performance expectations, effort expectations, and social influence; perceived risk and perceived costs have no bearing at all. **Limitation** The research was conducted in a specific period, so it may not account for rapidly evolving e-wallet

Table 2.1 continued.

	technologies or changing consumer preferences. The study also relied on self-reported data, which could be influenced by respondent bias.
Shari et al. (2020) *Pandangan Dan Pendapat Penggunaan Aplikasi Grabpay Oleh Pengusaha-Pengusaha Restoran Makanan Di Aeon Tebrau Dan Toppen Tebrau.*	**Objective** To investigate Malaysians' intentions of adopting a future E-Wallet service from the perspective of mobile phones based on UTAUT. **Result** Performance expectations, effort expectations, and social influence all have a positive effect on using an e-wallet; perceived risk and perceived costs have no effect at all. **Limitation** The sample size was small, with only six restaurant managers interviewed.
Khumrahong and Chumkate (2021) Service Innovation that Affects the Acceptance of Car Parking Application of the Service Users in Bangkok	**Objective** Research topics include the acceptance of parking applications and the choice to use them, the effect of service innovation on the acceptance of parking application technology, and the relationship between the acceptance of parking application technology and the decision to use it. **Result** The findings demonstrated that the user acceptability

Table 2.1 continued.

	of the auto parking application in Bangkok was influenced by a number of factors, including controllability over usage, social network presence, attitude toward IT usage, compatibility, complexity, and observables. Although usage patterns and technological acceptance also influence consumers' decisions to use auto parking applications in Bangkok, customer satisfaction with the application is a crucial factor.
	Limitation
	Data is collected using questionnaires, which may be limited in capturing the nuance and depth of user experience.

2.4 Theories of Customer Satisfaction

Theories of customer satisfaction aim to explain how and why customers form their satisfaction judgments. Key theories include the Expectancy-Disconfirmation Paradigm (EDP), which suggests satisfaction is based on the gap between expectations and actual performance; the Value-Percept Theory, which focuses on the perceived value of the product or service; the Attribution Theory, which examines how customers attribute causes to their satisfaction or dissatisfaction; and the Equity Theory, which considers the fairness of the exchange between the customer and the provider (Yüksel and Yuksel, 2008). These theories help businesses understand and improve customer satisfaction by addressing different aspects of the customer experience.

2.4.1 Expectancy-Confirmation Theory

Expectancy-Confirmation Theory (ECT) is a valuable framework for understanding user satisfaction, particularly in the context of technology and service usage like the SSP app. Core concepts of ECT are expectations about the app's performance, ease of use, and utility. Next is perceived performance when users form perceptions about the app's actual performance after using it. Furthermore, users compare their initial expectations with their actual experiences. If the app meets or exceeds expectations, it leads to confirmation. If it falls short, it results in disconfirmation. Moreover, the degree of confirmation or disconfirmation influences user satisfaction. Higher contentment is usually the result of positive confirmation, whereas lower satisfaction can result from negative disconfirmation. Finally, user satisfaction affects their intention to continue using the app in continuance intention. Users who are satisfied with the app are more likely to stick with it and suggest it to others.

When applying ECT to SSP app, several key factors can be considered:

1. Performance expectancy: Users expect the app to help them find parking spots efficiently. If the app performs well, it confirms their expectations.
2. Effort expectancy: Users anticipate that the app will be easy to use. If they find it user-friendly, this leads to positive confirmation.
3. Social influence: Recommendations from friends or positive reviews can shape users' expectations. If the app lives up to these social expectations, it enhances satisfaction.
4. Facilitating conditions: Users expect the app to work seamlessly with their devices and provide reliable information. Meeting these conditions confirms their expectations.

5. Hedonic motivation: The enjoyment or pleasure derived from using the app can also influence satisfaction. If users find the app enjoyable, it positively impacts their overall satisfaction.
6. Habit: Regular use of the app can form a habit, which reinforces satisfaction and continuance intention.

Recent research continues to highlight the importance of ECT in understanding user satisfaction. For instance, a study published in 2024 emphasized the role of trust in the ECT framework, proposing a trust-based model to examine customer satisfaction and repurchase intent (AlSokkar et al., 2024). The study indicated that expectations have a significant impact on customers' opinions toward confirmed trust and satisfaction.

Another review from Newcastle University discusses how ECT has evolved from consumer research and social psychology, pointing out that the theory emphasizes how consumer pleasure is shaped by expectations before purchase and experiences after purchase (eBusiness@Newcastle, n.d.).

2.4.2 Value-Percept Theory

Value-Percept Theory is a framework that explains how users' satisfaction with a product or service is influenced by the perceived value they derive from it. Founded by Locke (1976), he suggested that the difference between what people value and what they believe they receive determines how satisfied they are.

One core concept of Value-Percept Theory is value perception, in which users have specific values or standards they expect from a product or service. Next is perceived

performance, where users assess the real performance of a product or service. Finally, satisfaction is influenced by the disparity between users' values and their perceptions of the product's performance by value-percept disparity. Smaller disparities lead to higher satisfaction, while larger disparities result in dissatisfaction.

When applying the Value-Percept Theory to the SSP app, several key factors can be considered, such as:

1. Efficiency: Users value the app's ability to help them find parking spots quickly and easily. If the app meets these expectations, users are likely to be satisfied.
2. Ease of use: Users expect the app to be user-friendly. If the app is intuitive and easy to navigate, it aligns with their values and enhances satisfaction.
3. Reliability: Users value accurate and reliable information about parking availability. Meeting this expectation is crucial for user satisfaction.
4. Cost: Users may value the cost-effectiveness of the app. If the app provides good value for money, it positively impacts satisfaction.
5. Support: Users appreciate responsive customer support. Effective support services can enhance users' perceptions of the app's value.

Recent research continues to highlight the importance of Value-Percept Theory in understanding user satisfaction. For example, a study on the sharing economy highlighted the importance of context value in influencing in-use value (functional, convenient, and monetary value), which in turn positively impacts the total satisfaction assessment (Zhao et al., 2023). This highlights the importance of aligning the app's features with users' value perceptions to enhance satisfaction.

Another comprehensive explanation of Value-Percept Theory suggests that the theory recognizes that elements that affect job satisfaction are external (such as benefits and compensation) and intrinsic (connected to satisfaction within the work itself) (Miller, 2023). This dual focus on intrinsic and extrinsic values can be applied to SSP apps by ensuring both functional efficiency and enjoyable user experiences.

2.4.3 Attribution Theory and Cognitive Dissonance

Attribution Theory shows how people understand what happens to them and how it affects the way they think and behave. In the context of user satisfaction, it focuses on how users attribute their experiences with an application to various causes. Some core concepts of Attribution Theory are the cross-sectional between internal and external attributions, where the user may outline their satisfaction or dissatisfaction with internal factors (e.g., their skills or effort) or external factors (e.g., the app's design or functionality). Next is to justify the stability, where users consider whether the cause of their experience is stable (unchanging) or unstable (likely to change). Furthermore, users assess whether the cause of their experience is controllable (within their control) or uncontrollable (beyond their control).

While Cognitive Dissonance Theory points out that individuals experience psychological dissonance or discomfort when they hold conflicting beliefs or when their behavior conflicts with their beliefs, this discomfort motivates them to reduce the dissonance, often by changing their attitudes or behaviors. Some key concepts of Cognitive Dissonance Theory interpret that dissonance and reduction strategies may interfere with the theory, where dissonance is the psychological discomfort experienced due to conflicting cognitions, while reduction tactics support the idea that people can

lessen cognitive dissonance by altering their views, learning new information, or downplaying the significance of the contradicting thought.

Recent research continues to highlight the relevance of these theories in understanding user satisfaction. For example, a study on cognitive dissonance found that when people's actions contradict their beliefs and thinking, it might cause psychological conflict. This aligns with the disconfirmation concept in Expectancy-Confirmation Theory, which suggests that users experience dissonance when their expectations are not met (eBusiness@Newcastle, n.d.).

Another study emphasized the role of attribution in user satisfaction, stating that users' satisfaction is significantly influenced by their attributions of success or failure to internal or external factors (Clinton and Wellington, 2013). This highlights the importance of understanding how users attribute their experiences with the SSP app to improve satisfaction.

2.5 Theories of Service Quality and Customer Satisfaction

2.5.1 Smartphone Application Usability

A software program created specifically for use on a mobile device, like a smartphone or tablet, is known as a smartphone application or mobile app. These apps can perform a wide range of functions, from gaming and social networking to productivity and education (Gunnell, 2024).

While smartphone application usability is a critical aspect of mobile app development

and user experience design, it encompasses various factors that determine how effectively and efficiently users can interact with an app to achieve their goals. Some components of usability measurement are to find out the level of learnability, in terms of how easy it is for users to accomplish basic tasks the first time they encounter the app. A well-designed app should have an intuitive interface that minimizes the learning curve. Next, concerning the efficiency of the application, efficiency is often measured by the number of steps or time required to complete a task. Another task is to measure memorability, as an app with high memorability ensures that users do not have to relearn how to use it. Usability can also measure the errors and bugs of the application, in terms of how many, how severe, and how easily they can recover. Finally, usability of the smartphone application can be used to measure the level of satisfaction, often measured through surveys and feedback, focusing on the overall user experience.

While some practical considerations when measuring usability are based on three criteria, as suggested by Badshah et al. (2020): technical, environmental, and social. Technical criteria include battery life, network connectivity, and screen size. Environmental criteria include light conditions, phone temperature, mobility of the user, level of distraction, noise, and cognitive and functional limitations of the user. Social criteria include confidentiality/privacy, relief, personalization, and acceptance and adoption.

2.5.2 Measurement of Satisfaction

Measuring satisfaction in mobile phones involves evaluating various factors that influence users' experiences and perceptions. This process is multifaceted, encompassing perceived quality, value, user experience, and customer service. Here is

an in-depth look at these factors, supported by insights from recent research.

Part of the measuring methods is the perceived quality and value. Perceived quality refers to users' perceptions of the overall quality of the mobile phone, including its performance, design, and durability. Research indicates that perceived quality significantly impacts customer satisfaction. For instance, a study by Hoque (2019), found that perceived quality has a significant impact on customer satisfaction with a regression coefficient value of 0.382. This suggests that higher perceived quality leads to greater satisfaction among users.

Perceived value, on the other hand, involves the users' assessment of the phone's worth relative to its cost. Higher perceived value often results in greater satisfaction. According to a study by Smith (2020) value significantly and positively influences customer satisfaction. This highlights the importance of offering a product that users feel is worth the price they pay.

Next is measuring customer expectations. Meeting or exceeding customer expectations is crucial for satisfaction. However, some studies suggest that the direct impact of customer expectations on satisfaction may not always be significant. For example, Hoque (2019) also cited that consumer satisfaction and consumer expectations do not significantly affect one another. This indicates that while expectations are important, other factors might play a more critical role in determining satisfaction.

Another tool used to measure satisfaction is user experience (UX). UX encompasses the overall experience of using the mobile phone, including ease of use, interface

design, and functionality. Positive UX is a strong predictor of satisfaction. Yazdanparast and Tran (2015) highlighted that the impact of consumers' experience with mobile phones on satisfaction provides theoretical and practical implications for understanding consumer experiences. This highlights the importance of designing user-friendly interfaces and ensuring smooth functionality to enhance satisfaction.

Finally, customer service and support are important factors. The quality of customer service and support provided by the mobile phone company can have an impact on customer satisfaction. Effective and responsive customer service can improve user satisfaction and loyalty. Although specific quotes on this aspect are not as prevalent, it is widely recognized in the industry that good customer service is a crucial element of overall satisfaction.

Surveys and questionnaires are common methods for measuring satisfaction. They typically include questions about various aspects of the mobile phone and the user's experience. Hoque (2019), for instance, once more employed a structured questionnaire to get feedback from mobile users to investigate the causal connections between consumer expectations, quality, value, satisfaction, and loyalty. Structural Equation Modeling (SEM) is a statistical technique used to analyze the relationships between multiple variables. It helps in understanding how different factors like perceived quality, value, and customer expectations interact to influence satisfaction.

One study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data and found significant relationships between image, perceived quality, and customer satisfaction. While the Importance-Satisfaction Matrix is another method that involves plotting the importance of various factors against the satisfaction levels to

identify areas for improvement. This method helps in prioritizing efforts to enhance customer satisfaction.

2.6 Theoretical Review of User Satisfaction

This study aims to determine the level of acceptance of mobile phone applications regarding customer satisfaction. Previous research on user satisfaction related to new information technologies has mainly focused on understanding the reasons for accepting these technologies. To accomplish this research objective, several research models have been developed and suggested. These empirical models, which include various independent variables, have been utilized to forecast user attitudes and intentions.

Kedah et al. (2015) investigated customer loyalty and satisfaction from the perspective of online booking services and website quality. Concurrently, a study by Ling et al. (2021) focused on the impact of usage factors on user satisfaction and the intention to reuse mobile food delivery applications, considering aspects such as details, payment security, usability, and convenience.

During the COVID-19 pandemic, numerous researchers have shown a keen interest in understanding users' satisfaction with online meal delivery services. From an Indonesian perspective, Prasetyo et al. (2021) examined customer loyalty and satisfaction within the framework of an expanded Theory of Planned Behavior.

An intriguing finding from this body of research indicated that usability did not influence a user's intention to use an online food delivery application. The explanation

provided is that users are no longer in the learning phase, having accumulated substantial experience with the application. Additionally, Rahim and Yunus (2021) explored the correlation between user satisfaction and factors such as food quality, price, and service quality.

In addition, Negmu (2021) in his research, he employed the Software Usability Measuring Index (SUMI) Model to evaluate the perceived satisfaction of users with ride service providers' mobile applications. According to O'Malley et al. (2014) both researchers and practitioners have determined that the SUMI model is more effective than other models in assessing user satisfaction based on the perceived quality of mobile applications.

Consequently, the SUMI model has been extensively utilized for evaluating user satisfaction. SUMI consists of a questionnaire that users respond to based on their experiences with the software. The questionnaire covers five key dimensions: efficiency, measuring on how quickly and effectively users can complete tasks using the software; affect, defining on users' emotional responses to the software, including enjoyment and frustration; helpfulness, justifying the quality and usefulness of the software's help features and documentation; control, calculating the degree to which users feel in control of the software and its functions; and learnability, how easy it is for users to learn and become proficient with the software.

The SSP app's overall usability and user happiness can be greatly improved by applying the SUMI. Here's how SUMI can be applied to evaluate the SSP app:

1. Evaluation process

a) Survey distribution: Users of the SSP app are invited to complete the SUMI questionnaire after using the app for a certain period. This ensures that they have sufficient experience to provide meaningful feedback.

b) Questionnaire components:

1) Efficiency: Users rate how quickly and effectively they can complete parking-related tasks using the SSP app.

2) Affect: Users express their emotional responses, such as enjoyment or frustration, while using the app.

3) Helpfulness: Users evaluate the quality and usefulness of the app's help features and documentation.

4) Control: Users assess how much control they feel they have over the app's functions.

5) Learnability: Users rate how easy it is to learn and become proficient with the app.

c) Data collection: Responses are collected and analyzed to produce scores for each dimension, as well as an overall usability score.

2. Analysis and interpretation

a) Benchmarking: The SSP app's usability scores can be compared against other similar applications to identify strengths and areas for improvement.

b) Detailed feedback: The analysis provides detailed feedback on each dimension, helping developers understand specific user concerns and preferences.

3. Benefits of SSP App

a) Improved user experience: By identifying and addressing usability issues, the SSP app can enhance the overall user experience, making it more efficient and enjoyable.

b) Increased adoption: A more user-friendly app is likely to see higher adoption rates, as users find it easier and more pleasant to use.
c) Targeted improvements: The detailed feedback from the SUMI analysis allows for targeted improvements, ensuring that development efforts are focused on areas that will have the most significant impact on user satisfaction.

By applying the SUMI model to the SSP app, developers and stakeholders can systematically assess and enhance the app's usability, ultimately leading to a more satisfying user experience.

This method is considered effective due to its close relationship with mobile applications. It is specifically employed to gauge the level of satisfaction with reactive applications, including those related to obesity. The SUMI model is a reliable and widely accepted metric for measuring satisfaction, and it provides a robust framework for creating hypothesis tests for this study.

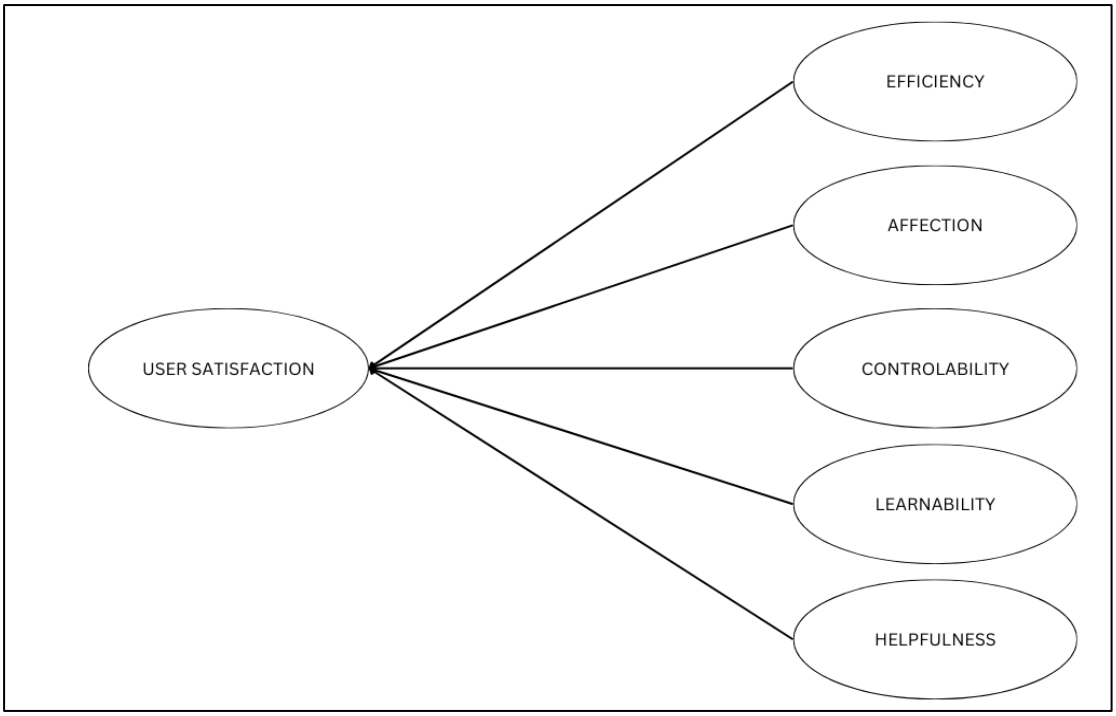

Figure 2.5. Software Usability Measuring Index (SUMI) Model

2.7 Conceptual framework

Efficiency, affection, controllability, learnability, and helpfulness are adapted from Furlong et al. (2013). The conceptual framework of this research is theoretical and serves as the basis for hypothesis development.

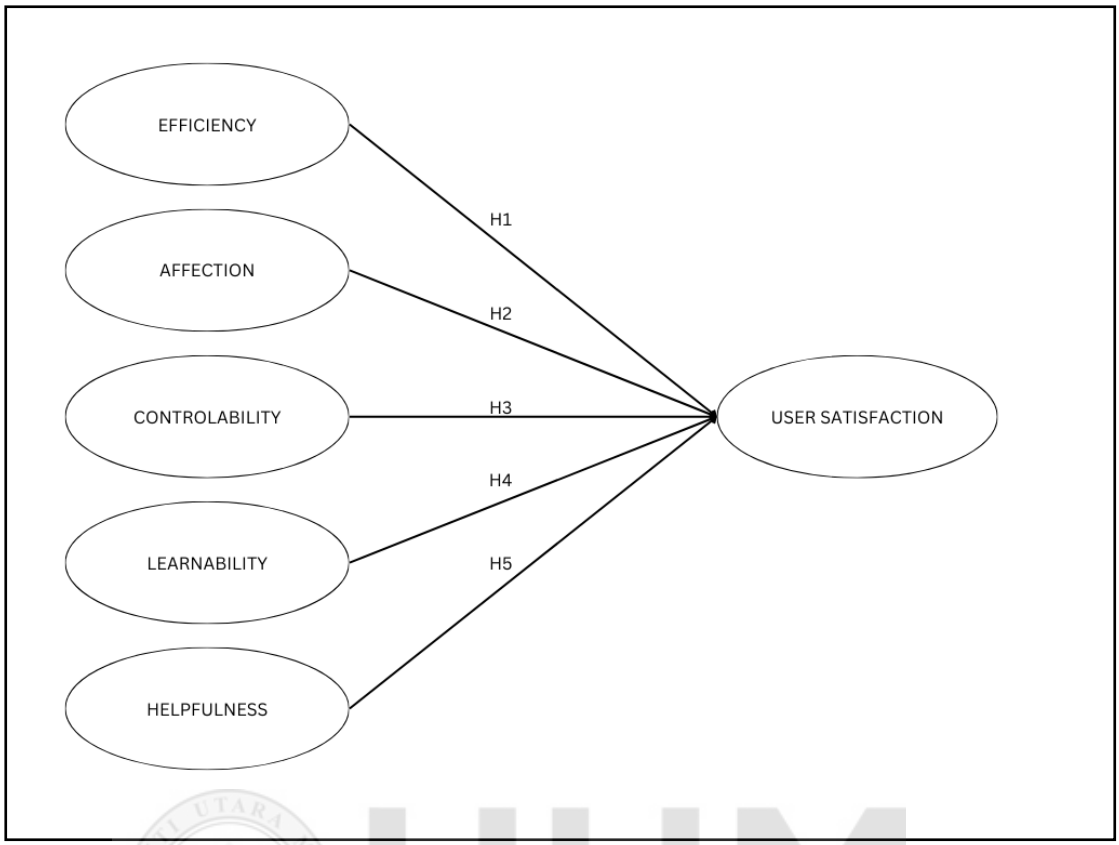

Figure 2.6. Conceptual framework and hypothesis

For efficiency, users can achieve their goals quickly and with minimal effort. Efficiency includes the time taken to complete a task and the number of steps required to achieve the desired result, then the generated hypothesis H1 is:

H1: Efficiency has a significant influence on user satisfaction of the Smart Selangor Parking application.

For the affection factor when using the Smart Selangor Parking application, hypothesis H2 is produced if the user believes that it is fun to use. Affection is important because it affects the overall perception of the application.

H2: Affection has a significant influence on the user satisfaction of the Smart Selangor Parking application.

For the controllability factor of using the Smart Selangor Parking application, if users feel they have control over the application. This includes the ability to customize settings, intuitive navigation, and the freedom to make choices. Good control gives users a sense of satisfaction and confidence in using the software, so the hypothesis H3 produced is:

H3: Controllability has a significant influence on the user satisfaction of Smart Selangor Parking application.

Next, for the learnability factor of using the Smart Selangor Parking application, if users can learn how to use the application quickly and easily. This includes ease of understanding the user interface, navigation logic, and the availability of training or tutorials. High learning ability ensures that users can take full advantage of the application without needing a long time to learn, so the hypothesis produced H4 is:

H4: Learnability have a significant influence on the user satisfaction of Smart Selangor Parking application.

While the last hypothesis is the helpfulness factor of using the Smart Selangor Parking application, this aspect evaluates the extent to which the application provides useful assistance to users. This includes the availability and effectiveness of documentation, user guides, and technical support. Good assistance can improve the user experience and reduce confusion, so the generated hypothesis H5 is:

H5: Helpfulness has a significant influence on the user satisfaction of Smart Selangor Parking application.

2.8 Research Hypothesis

The hypotheses of the recent research are as follows:

Table 2.2

Research Hypothesis

H1	Efficiency has a significant influence on user satisfaction with the Smart Selangor Parking application.
H2	Affection has a significant influence on user satisfaction with the Smart Selangor Parking application.
H3	Controllability has a significant influence on user satisfaction with the Smart Selangor Parking application.
H4	Learnability has a significant influence on user satisfaction with the Smart Selangor Parking application.
H5	Helpfulness has a significant influence on user satisfaction with the Smart Selangor Parking application.

2.9 Conclusion

This chapter discusses the idea of determinants of SSP app user satisfaction. The SUMI model is thought to be appropriate when discussing satisfaction factors to use, based on the discussion. The research hypothesis is then discussed as well. Customer satisfaction is determined by a variety factors, including efficiency, affection, controllability, learnability, and helpfulness. The technique, design, and implementation will be discussed in detail in the following chapter to provide a simple overview of determining acceptance factors.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The earlier chapter covered aspects related to the purpose of this study and a literature review related to e-wallets and SSP apps to get an overview and general information about the study to be conducted. This chapter provides a focus and detailed explanation of the sample or respondents required as well as the techniques used in obtaining the study's conclusions.

3.2 Research Design

A research design is a comprehensive plan that outlines the goals of the study and provides recommendations for achieving those goals. In other words, it is the overall strategy for conducting the research. The research design framework specifies the methods used in the research process.

Generally, research design is categorized into three types: experimental, descriptive, and exploratory. This study employs quantitative methods to collect measurable data and perform computational, statistical, or mathematical analyses to examine phenomena.

Several essential elements are typically involved in the quantitative research design process to ensure a systematic and rigorous approach to data collection and analysis. The process generally encompasses three main phases, although the specific steps may vary depending on the research context. These phases are the definition phase, the exploratory phase, and the confirmation phase.

The definition phase involves establishing the research problem, objectives, and questions. During this phase, researcher conduct a literature review to understand the current state of knowledge, while identifying gaps in the existing research and directly formulating hypotheses or research questions before developing a conceptual framework to guide the study.

The exploratory phase is characterized by the collection and preliminary analysis of data to gain insights and generate hypotheses. This phase includes qualitative methods such as interviews, focus groups, and observations, as well as initial quantitative methods like surveys or pilot studies. Data analysis is performed to identify patterns, trends, and relationships. Finally, research questions and hypotheses are refined based on initial findings. When conducting exploratory research on the SSP app, several validation activities are essential to ensure the reliability and credibility of the findings. Below is some key validation activities tailored to the SSP app:

1. Construct validity: Ensure that the constructs related to user satisfaction, usability, and technology acceptance are accurately measured. This involves defining these constructs clearly and using appropriate measurement tools, such as surveys or interviews, to capture user perceptions and experiences.
2. Content validity: Ensure that the research covers all relevant aspects of the SSP app. This can involve expert reviews and comprehensive literature reviews to confirm that the research questions and methods are thorough and cover all necessary dimensions of user satisfaction and usability
3. Internal validity: Ensure that the observed effects are due to the variables being studied (e.g., usability features, payment options) and not other factors. Techniques such as control groups and randomization can help rule out alternative explanations.

4. External validity: Ensure that the findings can be generalized to other contexts, populations, or times. This involves using representative samples of SSP users and considering the broader context of mobile payment systems and e-wallets in Selangor.
5. Reliability: Ensure that the research methods produce consistent results over time. This can involve pilot testing the surveys or interview protocols, using standardized procedures, and checking for consistency in data collection and analysis.
6. Triangulation: Use multiple methods, data sources, or researcher to cross-check and validate the findings. For example, combine survey data with interview insights and usage data from the SSP app to ensure a comprehensive understanding of user satisfaction.

The confirmation phase involves rigorous testing of the hypotheses or research questions formulated during the definition phase. This phase typically includes detailed quantitative methods such as experiments, longitudinal studies, or large-scale surveys, performing statistical analysis to test the validity and reliability of the findings, comparing results with the initial hypotheses or research questions, drawing conclusions and making recommendations based on the confirmed findings. In the context of the SSP app, validating a model and its instruments in confirmatory research involves several key steps to ensure that the measurement tools are reliable and valid.

1. Confirmatory Factor Analysis (CFA): This statistical technique is used to test whether the data fit a hypothesized measurement model. For the SSP app, CFA can help evaluate the internal structural validity of constructs such as user satisfaction, usability, and technology acceptance. By comparing the hypothesized model structure with the observed data, you can confirm whether the constructs are

accurately measured (Rogers, 2024)

2. Model fit indices: To evaluate how well the model matches the data, a number of indexes are used. Typical indices consist of:
    a) Chi-square test: Assesses the overall fit of the model.
    b) Root Mean Square Error of Approximation (RMSEA): Evaluates the goodness of fit.
    c) Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI): Compare the fit of the hypothesized model to a baseline model (Rogers, 2024)
3. Reliability testing: This involves assessing the consistency of the measurement instruments. Techniques such as Cronbach's Alpha, Composite Reliability, and McDonald's Omega are used to evaluate the internal consistency of the scales. For example, you might test the reliability of survey items measuring user satisfaction with the SSP app (Rogers, 2024)
4. Validity testing:
    a) Convergent Validity: Ensures that measures that should be related are indeed related. This can be assessed by examining the Average Variance Extracted (AVE) and factor loadings.
    b) Discriminant Validity: Ensures that measures that should not be related are indeed not related. The Fornell-Larcker criterion or a comparison of the AVE with the squared correlations between the constructs can be used to evaluate this (Rogers, 2024)
5. Invariance testing: This involves testing whether the measurement model operates equivalently across different groups (e.g., different user demographics). Configural, metric, and scalar invariance tests are conducted to ensure that the model is stable across different subgroups (Rogers, 2024)

6. Pilot Testing: Before full-scale data collection, pilot testing is conducted to refine the instruments and ensure they are understandable and reliable. This helps in identifying any issues with the measurement tools and making necessary adjustments (Cabrera-Nguyen, 2010)
7. Use of Established Instruments: Whenever possible, using already validated instruments from previous research can save time and resources. These instruments have been tested for reliability and validity in prior studies (Rogers, 2024)

These phases collectively ensure a comprehensive approach to research, from defining the problem to confirming the findings (Koestler Parapsychology Unit Study Registry, 2018).

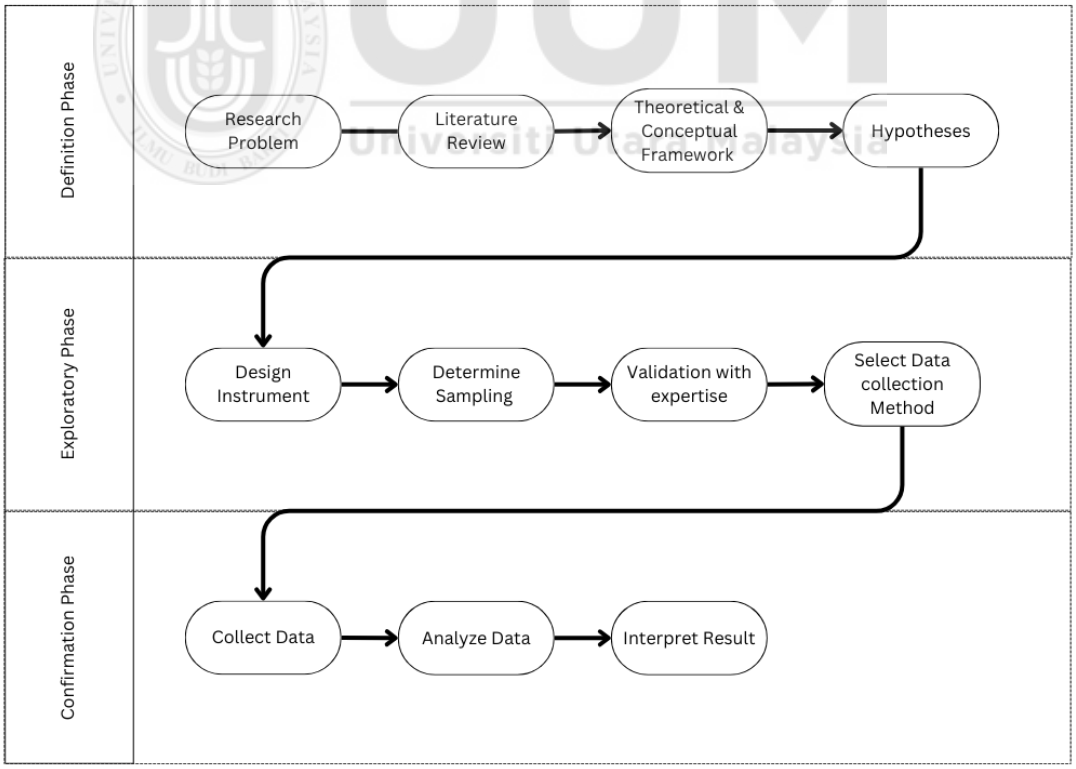

Figure 3.1. Research Design

3.3 Research Instruments

The research instrument used in this study was designed to gather data that aligns with the study's objectives. A quantitative approach was employed, and a translated questionnaire was used that was tailored to the specific context of the study.

The questionnaire consisted of two sections: respondents' demographic profiles and the constructed items. Statements from previous research were refined and adjusted to meet the specific requirements of this study, creating a scale for evaluating the primary constructs of the SUMI identified in this investigation. The SUMI questions related to the initial constructs (Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Hedonic Motivation, Habit, and Use Behavior) were modified and adapted from the original questions by Venkatesh et al. (2012). The questions related to customer satisfaction dimensions are Efficiency, Affect, Learnability, Helpfulness, and Control, as adopted from O'Malley et al. (2014).

All statements were rated on a five-point Likert scale, with 1 indicating strong disagreement and 5 indicating strong agreement. Respondents were required to provide answers based on five levels of agreement, represented by the following numerical values: 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). Utilizing the Likert scale facilitated the analysis and interpretation of the findings based on the responses provided.

Table 3.1 shows the items to be used in the study, together with the labels and items.

Table 3.1

Items used in SUMI-SMART

Construct	Label	Items	Authors, year
Efficiency (E)	E1	The apps provide accurate real-time information to complete the task.	Negmu (2021)
	E2	I have made a number of mistakes while using the Smart Selangor Parking for the first time.	
	E3	I don't know what to do next as the Smart Selangor Parking has many steps.	
Affection (A)	A1	Menu organization or option lists are set in logical	Negmu (2021)
	A2	The Smart Selangor Parking icon is eye-catching elements.	
	A3	I feel comfortable while using Smart Selangor Parking	
Controllability (C)	C1	Smart Selangor Parking execution speed is fast.	Negmu (2021)
	C2	Sometimes Smart Selangor Parking stop suddenly	
	C3	When using Smart Selangor Parking, I think that everything is under my control.	

Table 3.1 continued.

Learnability (L)	L1	It is easy to learn all features of Smart Selangor Parking relatively within a short period.	Negmu (2021)
	L2	Smart Selangor Parking has an understandable method of displaying information.	
	L3	It doesn't need a long time to learn how to use the Smart Selangor Parking .	
Helpfulness (H)	H1	There is not enough information on the screen when necessary.	Negmu (2021)
	H2	When I use Smart Selangor Parking , sometimes I didn't need someone's assistance to operate.	
	H3	I think that using S Smart Selangor Parking didn't put me in trouble.	
User Satisfaction (US)	US1	I'm satisfied with the Smart Selangor Parking as it was found to be helpful	Negmu (2021)
	US2	I'm delighted to use the app as it made the service much easier for me.	
	US3	I intend to keep on using Smart Selangor Parking rather than others e-wallets.	
	US4	I'm pleased as interacting with Smart	

Table 3.1 continued.

	Selangor Parking doesn't require a lot of mental effort.
US5	My overall experience of the Smart Selangor Parking use was very contented.

3.4 Validity and Reliability

External consistency (validity) and internal consistency (reliability) of survey instruments must be verified to ensure the relevance and accuracy of the data collected (Ahmed et al., 2024). Validity refers to how well the scale accurately represents the intended concept. It can be defined as an evaluation of the fit between specific items and concepts, focusing on the degree to which the concept is defined by the measure. Reliability, on the other hand, demonstrates the degree to which the investigator is confident in the accuracy of the information gathered using the employed tools. It indicates the extent to which the researcher can trust the data acquired through the questionnaires.

For this study, two experts in the field of entrepreneurship were consulted to complete the questionnaire and provide feedback. One expert is a lecturer with expertise in entrepreneurship and research methods, while the other is an entrepreneur who has received MOSTI funds, operates a business in Selangor, and has recently completed her PhD. They were asked to provide feedback on the questionnaire's layout and the suitability of each construct's questions, particularly those concerning customer satisfaction with the SSP app for parking payment in Selangor. The selection of these

experts is justified by their subject matter expertise, academic and professional credentials, previous experience with questionnaire validation and distribution, frequent use of the SSP app, and the diverse perspectives they bring to the study.

The feedback received included corrections to grammar and spelling, rearrangement of question order, improvements to sentence structure, and shortening of lengthy and confusing questions, considering the study's target population of busy individuals. As a result of the feedback, a total of 56 spelling and grammar corrections were made, some questions were removed, additional demographic questions were included, and improvements to page layout and font size were implemented. Finally, the questions were re-edited based on the experts' recommendations.

3.5 Pilot Test

Conducting a pilot test is the next step after content validity is finished (Hinkin, 1998). Hinkin emphasized that this pilot test should be administered to participants whose backgrounds align with those of the study's final participants. According to Academy and Academy (2024), the primary objective of the pilot test is to evaluate the accuracy of the scale used in this investigation, identifying any current issues with the questionnaire's design using the same target population.

The questionnaire was distributed over a two-week period, from January 16, 2023, to January 30, 2023. This pilot test included 35 respondents, comprising 4 men and 31 women, from the states of Selangor and Putrajaya with prior experience using the SSP app. The results indicated that the respondents had no difficulty understanding the instructions and questionnaire items. Table 3.2 presents the demographics of the

respondents involved in the pilot test.

A total of 35 respondents participated. Most of them were aged 30-49 years and were either self-employed or employed by an organization. The majority of the respondents were women. Additionally, the participants included users who utilized the SSP app at least once a month or as needed. They had been using the app for a duration of 1–3 years.

Table 3.2

Demographic Analysis

Description		**Frequency**	**Percentage**
Age	Below 19 years	0	0%
	20-29 years	1	2.9%
	30-39 years	14	40.0%
	40-49 years	13	37.1%
	50-59 years	4	11.4%
	Above 60 years	3	8.6%
Gender	Male	4	11.4%
	Female	31	88.6%
Employment status	Employed	15	42.9%
	Self-Employed	18	51.4%
	Unemployed	2	5.7%
Have you ever used the Smart Selangor Parking	Yes	31	88.6%
	No	4	11.4%

Table 3.2 continued.

How frequently do you use Smart Selangor Parking	At least once a day	5	14.3%
	At least once a week	4	11.4%
	At least once a month	10	28.6%
	If needed	12	34.3%
	Not Applicable	4	11.4%
For how long, you have been using Smart Selangor Parking?	Less than 1 year	2	5.7%
	1-2 years	18	51.4%
	2-3 years	8	22.9%
	More than 3 years	3	8.6%
	Not Applicable	4	11.4%

The reliability of the questionnaire was assessed using the Cronbach's alpha test, a reliability coefficient ranging from 0 to 1, which measures the scale's internal consistency. According to Zikmund and Babin (2013), the range of alpha coefficients indicates the degree of reliability. An alpha coefficient value of less than 0.60 suggests poor reliability, values between 0.60 and 0.70 indicate fair reliability, and values between 0.70 and 0.80 denote good reliability. A higher level of reliability is achieved with alpha coefficients ranging from 0.80 to 0.95.

In this study, the alpha coefficients for each factor were calculated, with nearly all constructs falling between 0.724 and 0.983. Consequently, each construct was recognized as reliable.

Table 3.3

The Rule of Thumb of Cronbach

Coefficient alpha value	**Reliability**
Below 0.60	Poor reliability
0.60 – 0.70	Fair reliability
0.70 – 0.80	Good reliability
0.80 – 0.95	Excellent reliability

Table 3.4 below displays the alpha coefficients for customer satisfaction and 13 mobile application attributes.

Table 3.4

Reliability Analysis of the Variables

Variables	**Cronbach's Alpha**	**N of items**
Efficiency	.772	3
Affection	.919	3
Controllability	.774	3
Learnability	.980	3
Helpfulness	.878	3
User Satisfaction	.953	5

3.6 Population and Sampling

This study focuses on parking spot users aged 18 years and above who possess a vehicle license and are capable of utilizing mobile payment systems for various purposes. According to the Selangor State Government, in 2019, the population of Malaysian

citizens residing in Selangor aged 18 years and above was 3,432,100. To determine the appropriate sample size for a population of 3,432,100, researcher refer to Chua (2011) guidelines on sample size determination. According to Chua (2011), for large populations, a sample size of around 384 respondents is typically sufficient to achieve a 95% confidence level with a 5% margin of error.

Researchers look for details of prospects to answer questionnaires from database of entrepreneurial portals such as PUNB and MARA websites, as well as directories from Ministries, Agencies, and Universities in the Klang Valley with initial expectation, the prospects always moving (with their own vehicles) with the purpose of delivering sales goods, meeting suppliers, vendors and customers, dealing with bank and join meeting. The prospects are selected using simple random sampling technique.

3.7 Methods of Data Collection

Recent survey trends indicate that online web surveys have become the primary source of academic research data. The most popular tools for creating online surveys are Survey Monkey and Google Forms. The target population is contacted via email, various mobile applications (such as Telegram and WhatsApp), and social media platforms (such as Facebook, LinkedIn, and Instagram). Survey forms are distributed along with notes outlining the purpose of the survey. This channel is preferred due to its widespread recognition in Malaysia. The survey link remains accessible to the intended audience for one month, allowing participants to complete the form at their convenience by clicking on the provided URL. Participation in the questionnaire is voluntary.

3.8 Methods of Data Analysis

Following the processing and cleaning of the data collected from the respondents, the data will be analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive analysis will be employed to explain the characteristics underlying the study data, focusing on what the data indicates.

After data collection, various statistical measures will be used to analyze and draw conclusions. Two types of measurements will be utilized for additional statistical tests: central tendency (mean, median, and mode) and spread (range, variance, and standard deviation). The data can be used to create frequency distributions (bar charts), percentage distributions (pie charts), and tables detailing the characteristics of the population and sample. The research data will be presented using various graphic presentations, with demographic profiles displayed using pie charts.

Pearson's correlation analysis will be employed to display the strength, direction, and significance of the relationship between all independent and dependent variables on the interval scale (Sekaran and Bougie, 2009). Pearson's correlation coefficient will be used to calculate the correlation between two variables, ranging from -1.00 to +1.00. A positively correlated variable falls between 0 and +1.0, while a negatively correlated variable falls between -1.0 and 0. A variable is considered uncorrelated when the correlation value is equal to 0.

Table 3.5

The rules for Pearson correlation coefficients

Coefficient range	**Strength**
0.91 – 1.00	Very strong
0.71 – 0.90	High
0.41 – 0.70	Moderate
0.21 – 0.40	Small but definite relationship
0.00 – 0.20	Slight, almost negligible

In addition, linear regression analysis is employed to predict and interpret the value of the dependent variable by comparing it with the value of one or more related independent variables. The link between two variables that are measured on an interval or ratio scale is the main focus of hypothesis testing. This method also allows for the estimation of specific or natural relationships that may occur.

3.9 Conclusion

This chapter explains research methods and the steps. A thorough study will be conducted to obtain accurate results. The findings of the study will be examined and expanded upon in the following chapter.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

This chapter will cover the data analysis and research findings for this study. The chapter will begin with a discussion of the preliminary results of the final study. The measurement model will be assessed in the upcoming chapter. The measurement model is evaluated using two different types of analysis. The structured model will be examined after the measurement model. Two analyses will be done on this structured model. This chapter will explain all the measurement models and structured model results. The hypotheses' findings will then be examined. We will conclude this chapter with some thoughts.

This chapter begins with a discussion on the distribution of questionnaires that were conducted for 3 months, starting from February 2023 until June 2023. There are a total of 3,432,100 Selangor citizens aged 18 and above who have been identified. However, only 384 people could be used as survey respondents. Then the questionnaire was distributed via WhatsApp, Telegram, Facebook, and Instagram randomly. Respondents can fill out the survey form by clicking on the provided URL at any point during the predetermined period. Participants filled out the questionnaire voluntarily. Next, the data obtained will be analyzed according to the analysis methods that have been set.

4.2 Final Study

This questionnaire process has been conducted for 120 days, starting from February 16, 2023 until June 15, 2023, entirely through electronic mediums such as WhatsApp, Facebook, and email. For the WhatsApp medium method, the respondent's phone

number was obtained from contacts and a database obtained from the entrepreneurial programs participated, also through the WhatsApp Group. It was spread through Facebook via the Facebook Group. For distribution via email, researcher obtained email addresses from their own databases or entrepreneurial portals such as PUNB and MARA websites, as well as directories from Ministries, Agencies, and Universities in the Klang Valley.

4.2.1 Data Preparation

Questionnaires were distributed to over 500 respondents through various mediums, and a written statement was included asking for their permission to participate in this study. Respondents who continue to answer this questionnaire are considered to have agreed to participate.

4.2.2 Data Analysis

Coding, database entry, and raw data filtering were necessary for the first round of data analysis in order to find missing data. Missing values occurred because the respondents could not understand or overlooked the questions of the survey instrument, and some respondents did not answer all the questions even if they said they had used the e-wallet application.

The total number of messages and questionnaires distributed was as much as 500, but only 384 respondents gave answers to the questionnaire. SPSS software was used to load all 384 samples for the following purposes:

1. Analyze each variable in the data set to identify any missing or invalid data.
2. Analyze to identify any outliers that may affect the nature of the data.

3. Conduct analysis to determine data distribution.

4. Produce statistical reports and analysis.

4.2.3 Demographic Analysis

The following is a demographic analysis of the 384 respondents who were surveyed.

Table 4.1

Demographic Analysis

Description		**Frequency**	**Percentage**
Age	Below 19 years	3	0.8%
	20-29 years	27	7.0%
	30-39 years	145	37.8%
	40-49 years	143	37.2%
	50-59 years	48	12.5%
	Above 60 years	18	4.7%
Gender	Male	112	29.2%
	Female	272	70.8%
Employment status	Employed	113	29.2%
	Self-Employed	221	57.6%
	Unemployed	50	13.0%
Have you ever used Smart	Yes	365	95.1%
Selangor Parking	No	19	4.9%
How frequently do you use	At least once a day	49	12.8%
Smart Selangor Parking	At least once a week	48	12.5%
	At least once a month	95	24.7%

Table 4.1 continued.

	If needed	173	45.1%
	Not Applicable	19	4.9%
For how long, you have been using Smart Selangor Parking?	Less than 1 year	16	4.2%
	1-2 years	147	38.3%
	2-3 years	109	28.4%
	More than 3 years	93	24.2%
	Not Applicable	19	4.9%

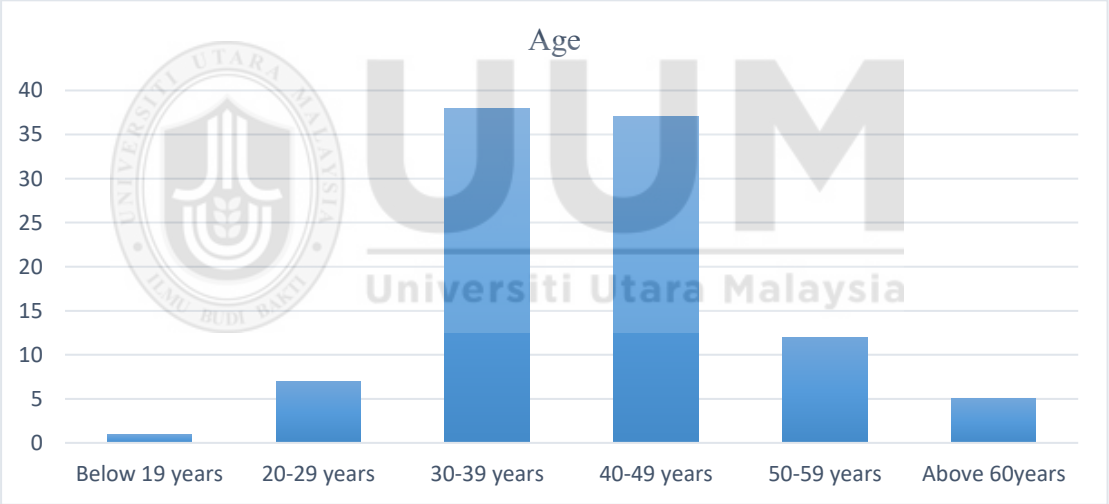

Figure 4.1. Breakdown of the questionnaire representing age respondents

Based on the analysis that was done, 38 percent of the respondents are between the ages of 30 and 39. The age percentage of other respondents is less than 19 years, 1 percent; aged 20 to 29 years is as much as 7 percent; aged 40 to 49 years is as much as 37 percent; aged 50 to 59 years is as much as 12 percent; and respondents aged 60 and over were 5 percent.

The majority of users aged 30-39 and 40-49 years are the group that is actively using this application. According to Farag et al. (2007), consumers in this age group are more likely to optimize internet use and online shopping, when compared to consumers in an older age group. They also do not give in easily and are always ready to explore something new, especially in implementing electronic payments ((Burns et al., 2013).

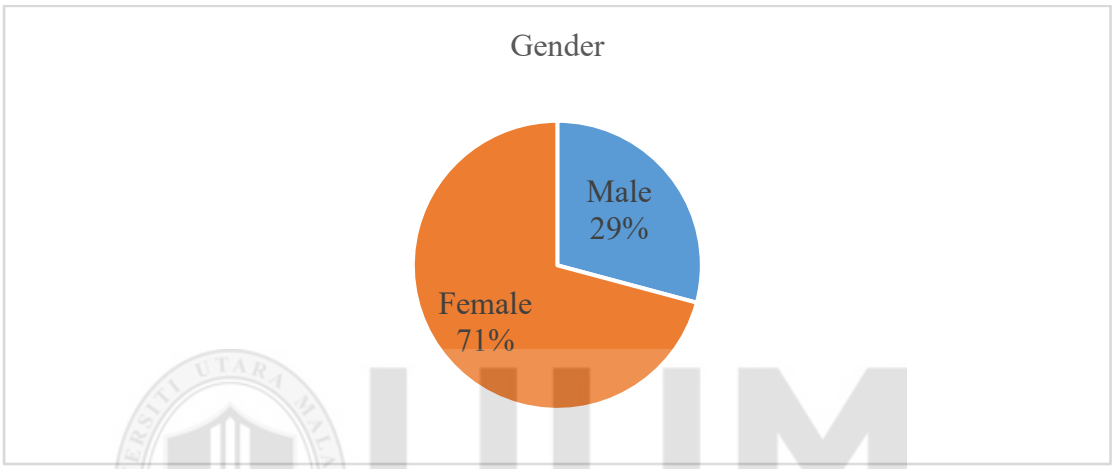

Figure 4.2. Breakdown of the questionnaire representing male respondents and female respondents

Most of the participants are female, which is 71 percent compared to male respondents, which is 29 percent. This demonstrates that the investigation of an application is influenced by gender as well.

Throughout the questionnaire session, female respondents stated that they prefer to use the SSP app to make parking payments. They also stated that this application is easy to use because there is no need to go to the vehicle and only requires internet access. Even if they are inside the building or in an important meeting, they simply turn on the SSP app and make the payment.

The situation is slightly different with the male respondents found because the majority of them use motorcycles to move and only use the SSP app when they are with their family or when attending programs that require them to carry a lot of hardware or equipment.

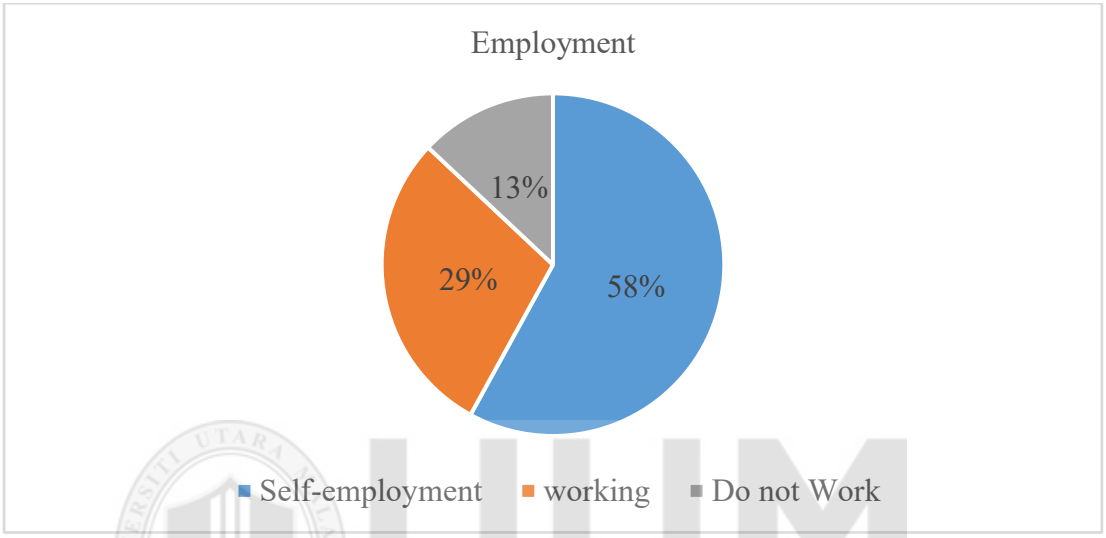

Figure 4.3. Breakdown of the questionnaire representing employment respondents

While the respondent's occupation shows self-employment as the highest majority, which is 58 percent, this was followed by respondents who worked, showing as much as 29 percent. The lowest percentage is respondents who are unemployed, at 13 percent.

The results of the questionnaire with respondents found that the majority of them run their businesses that require them to travel to many locations for the delivery of their merchandise. They need this application to facilitate their movement from one premise to another within the state of Selangor.

Meanwhile, 29 percent consists of those who work. They use this application to pay for parking their vehicles while they are at work. The rest are 13 percent of those who are

unemployed. This group mainly consists of students and senior citizens.

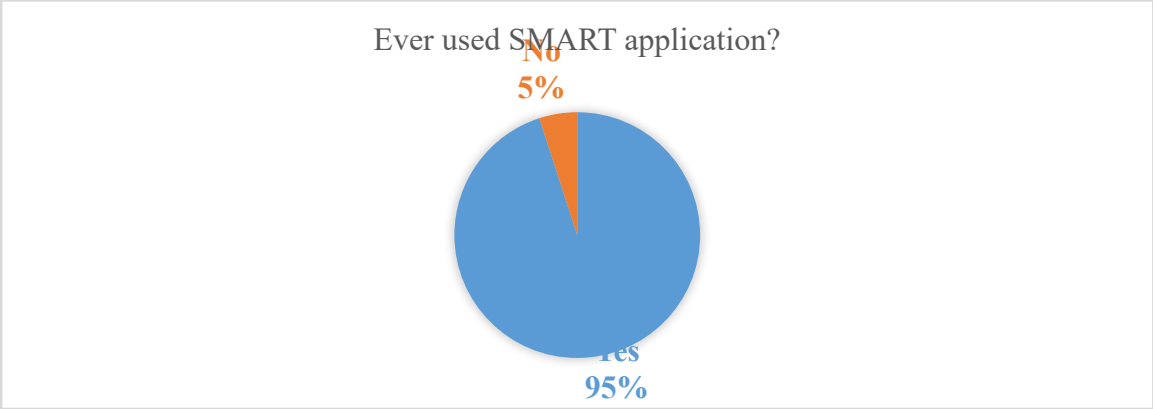

Figure 4.4. Breakdown of the questionnaire representing the use of SSP

Next, a study on the application of SSP. A total of 95.1 percent has used this application compared to 4.9 percent who have never used this application.

Returning to the primary goal of this research, the aim is to investigate user satisfaction with the SSP app. Therefore, at the beginning of the questionnaire, it was stated that it is for those who have used this application. Thus, the purpose has been achieved as the respondents consist of those who use this application.

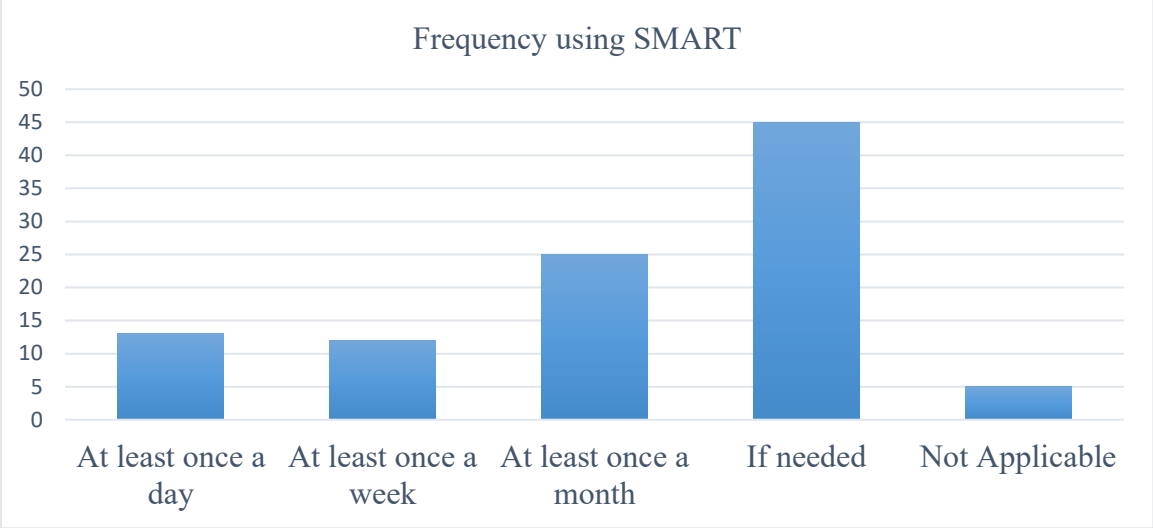

Figure 4.5. Breakdown of the questionnaire representing the frequency of SSP usage

As for the frequency of use of the SSP app, as many as 45 percent of respondents use this application if needed. Followed by 25 percent of respondents who use this application once a month; 13 percent who use it once a day and only 12 percent who use it once a week. While the remaining 5 percent are those who have never used this application.

The majority of respondents stated that they would only use this application when necessary, considering that nowadays most premises have their parking lot. Therefore, they use the parking lot that has been provided.

Even so, there are still many people who use this application at least once a month. These respondents usually use it when they want to use services such as banking. While at least once a week and once a day, these respondents consist of those who work. Where they use their vehicles to go to work. Finally, some respondents do not use this application.

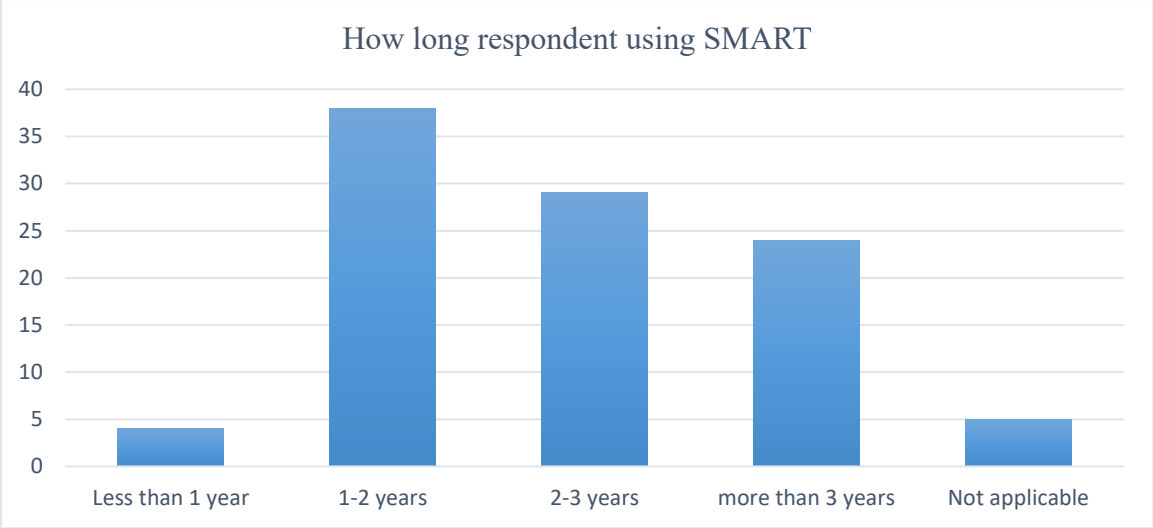

Figure 4.6. Breakdown of the questionnaire representing the duration of respondents using SSP

The last demographic information reported that 38 percent of respondents used the SSP app for 1 to 2 years. Additionally, the demographic information also reported that 29 percent used this application for 2 to 3 years. As much as 24 percent of respondents have used it for more than 3 years, and 4 percent used the application for less than 1 year. The remaining 5 percent are those who have never used this application.

After Covid-19 hit the country, more and more users are using e-wallet applications, including this SSP app. Therefore, most users started using this application after that period, which was 2 or 3 years ago. This is followed by those who have been using this application for a long time. This statement indicates that these people consist of individuals who work by riding their vehicles.

Even so, there are still new users who want to use the SSP app for parking payments. But there are still those who do not use this application to pay for parking.

In conclusion, according to this demographic data and the analysis among them, women aged between 30-49 years, who are self-employed and have used the SSP app in the last 2 or 3 years, are the target category that often uses this application for parking payment for the parking lot. They need a little encouragement to use this application in their daily life.

4.2.4 Descriptive Analysis

A mobile application is an application software program designed to perform specific tasks through user interaction. User satisfaction to use apps is influenced by five related factors such as Efficiency, Affection, Usefulness, Learnability and Controllability. A likert scale was used to measure the contribution of perceived quality of mobile application dimensions to user satisfaction. On a five-point scale, respondents were asked to choose the number that best represented their views. The degree of agreement with each attribute was assigned from 1 to 5 (where 5 is the highest/strongest agreement, and 1- is the highest/strongest disagreement).

Accordingly, level-level translations are analyzed based on the following customer satisfaction criteria (Negmu, 2021). A mean score value in the range of 1.00 – 1.80 is considered the lowest satisfaction, 1.81 – 2.61 low satisfaction, 2.62 – 3.41 average satisfaction, 3.42 – 4.21 good satisfaction (high), and 4.22 – 5.00 means very good satisfaction (highest). The results of the analysis are presented as follows.

4.2.4.1 Efficiency

Referring to Table 4.2, respondents strongly believe that this application provides accurate real-time information to complete tasks (mean 3.97). But at the same time,

they also agree that they made some mistakes when they used the app for the first time (mean 2.92) and know what to do next because the app has several steps (options) with a mean score value (mean 2.66).

Table 4.2

Efficiency of Smart Selangor Parking

Label	Items	Mean	Std. Deviation
E1	The apps provide accurate real-time information to complete the task.	3.97	.699
E2	I have made several mistakes while using the Smart Selangor Parking for the first time.	2.92	1.072
E3	I don't know what to do next as the Smart Selangor Parking has many steps.	2.66	1.027

4.2.4.2 Affection

The results in Table 4.3 show that the majority of respondents feel comfortable when using the Smart Selangor Parking application (mean 3.72), the organization of the menu or list of options is set logically (mean 3.58), and the Icon is an interesting (eye-catching) element (mean 3.45), This shows that the aesthetic quality of an app's design has the potential to tempt users to download it even if they have no intention of using it.

Table 4.3

Affection of Smart Selangor Parking

Label	Items	Mean	Std. Deviation
A1	Menu organization or option lists are set in logical	3.58	.660
A2	The Smart Selangor Parking icon is an eye-catching element.	3.45	.664
A3	I feel comfortable while using Smart Selangor Parking	3.72	.630

4.2.4.3 Controllability

The results of the study showed that respondents agreed with the speed of implementation of Smart Selangor Parking (mean 3.83) and they also thought that all matters were under their control (mean 3.83). But they did not expect that sometimes the application can stop suddenly (mean 3.31). It has the implication that they are not sure if the matter is a problem with the mobile phone or internet access or the Smart Selangor Parking application itself.

Table 4.4

Controllability of Smart Selangor Parking

Label	Items	Mean	Std. Deviation
C1	Smart Selangor Parking execution speed is fast.	3.83	.571

Table 4.4 continued.

C2	Sometimes Smart Selangor Parking stops suddenly	3.31	.643
C3	When using Smart Selangor Parking, I think that everything is under my control.	3.83	.768

4.2.4.4 Learnability

The results, Table 4.5, show that respondents agree that it does not take long to learn how to use the application fully with a mean value of 3.98. They also agree that this application has a clear method of displaying information with a mean score value of 3.85 and the ease of learning all the features of the application in a relatively short period of time with a mean value of 3.85. This shows that the majority of respondents have a positive perception of the learning ability of this application because it has a local language option that makes it easier for them to understand it.

Table 4.5

Learnability of Smart Selangor Parking

Label	**Items**	**Mean**	**Std. Deviation**
L1	It is easy to learn all the features of Smart Selangor Parking relatively within a short period.	3.85	.904
L2	Smart Selangor Parking has an understandable method of displaying information.	3.85	.904
L3	It doesn't take a long time to learn how to use	3.98	.689

Table 4.5 continued.

	the Smart Selangor Parking.

4.2.4.5 Helpfulness

Table 4.6 reveals that respondents think that by using Smart Selangor Parking, they no longer have problems paying for parking (mean 3.83). Respondents can also do it by themselves without needing help from others (mean 3.71) although sometimes the information displayed is insufficient (mean 3.19). Therefore, it can be concluded that the helpfulness of the Smart Selangor Parking application does not reach a satisfactory level.

Table 4.6

Helpfulness of Smart Selangor Parking

Label	Items	Mean	Std. Deviation
H1	There is not enough information on the screen when necessary.	3.19	1.173
H2	When I used Smart Selangor Parking, sometimes I didn't need someone's assistance to operate.	3.71	.807
H3	I think that using Smart Selangor Parking didn't get me in trouble.	3.83	.766

4.2.4.6 Overall User Satisfaction

Overall user satisfaction, Table 4.7, shows that the majority of respondents are very satisfied with the application because it can help with daily tasks (mean 4.78) by making the service easier for them (mean 4.78). In addition, they are also satisfied with the application because it does not require much mental effort (mean 4.78); and their overall experience of using this application was found to be very satisfied (mean 4.98) and they intend to continue using the Smart Selangor Parking application compared to other parking payment applications (mean 4.97). It can be concluded that overall user satisfaction is found to be very satisfactory for daily use but requires improvements or software updates accordingly.

Table 4.7

Overall User Satisfaction of Smart Selangor Parking

Label	Items	Mean	Std. Deviation
US1	I'm satisfied with the Smart Selangor Parking as it was found to be helpful	4.78	.422
US2	I'm delighted to use the app as it made the service much easier for me.	4.78	.420
US3	I intend to keep on using Smart Selangor Parking rather than others e-wallets.	4.97	.179
US4	I'm pleased as interacting with Smart Selangor Parking doesn't require a lot of mental effort.	4.78	.432
US5	My overall experience of the Smart Selangor Parking use was very contented.	4.98	.170

4.3 Inference Analysis

For inference analysis, researcher applied Pearson's correlation analysis, used to find out if there is a relationship between 2 variables. The strength of the correlation relationship is as follows:

Table 4.8

Correlation index value and interpretation of the relationship between 2 constructs

Correlation index value	**Relationship Interpretation**
0.00 – 0.20	Very weak
0.21 – 0.40	Weak
0.41 – 0.70	Moderate
0.71 – 0.90	Strong
0.91 – 1.00	Very Strong

However, as the 2-way test (2-tailed) will display both the distribution's positive and negative tails, it is utilized. It investigates the probability of a positive or negative difference.

Pearson's correlation was investigated for the first time to explore the relationship between independent variables and User Satisfaction. Five independent variables associated with user satisfaction were used in this study: Efficiency (E), Affection (A), Controllability (C), Learnability (L), Helpfulness (H), and User Satisfaction (US), as shown in the table below. The justification for using 2-tailed is because the researcher is not sure whether a variable will overcome another variable.

Table 4.9

Pearson Correlation Analysis

		E	A	C	L	H	US
E	Pearson Correlation	1	.391**	.426**	.125*	.431**	.245**
	Sig. (2-tailed)		.000	.000	.017	.000	.000
	N	365	365	365	365	365	365
A	Pearson Correlation	.391**	1	.883**	.501**	.269**	.518**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	365	365	365	365	365	365
C	Pearson Correlation	.426**	.883**	1	.250**	.290**	.441**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	365	365	365	365	365	365
L	Pearson Correlation	.125*	.501**	.250**	1	.673**	.824**
	Sig. (2-tailed)	.017	.000	.000		.000	.000
	N	365	365	365	365	365	365
H	Pearson Correlation	.431**	.269**	.290**	.673**	1	.771**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	365	365	365	365	365	365
US	Pearson Correlation	.245**	.518**	.441**	.824**	.771**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	365	365	365	365	365	365

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

**. Correlation is significant at the 0.05 level (2-tailed).*

Table 4.9 shows the correlation between the five dimensions of user satisfaction. The

scores are based on Pearson Correlation. There is a substantial, positive, and strong correlation between user satisfaction and the results of the relation tests. Learnability (r=0.824), Helpfulness (r=0.771), Affection (r=0.518), Controllability (r=0.441), and Efficiency (r=0.245) showed a moderately positive relationship.

Next, has the SSP app reached the level of user satisfaction? Figure 4.7 shows that the highest factor that achieves user satisfaction is learnability (82.4%). Followed by helpfulness (77.1%), affection (51.8%), controllability (44.1%), and finally efficiency (24.5%).

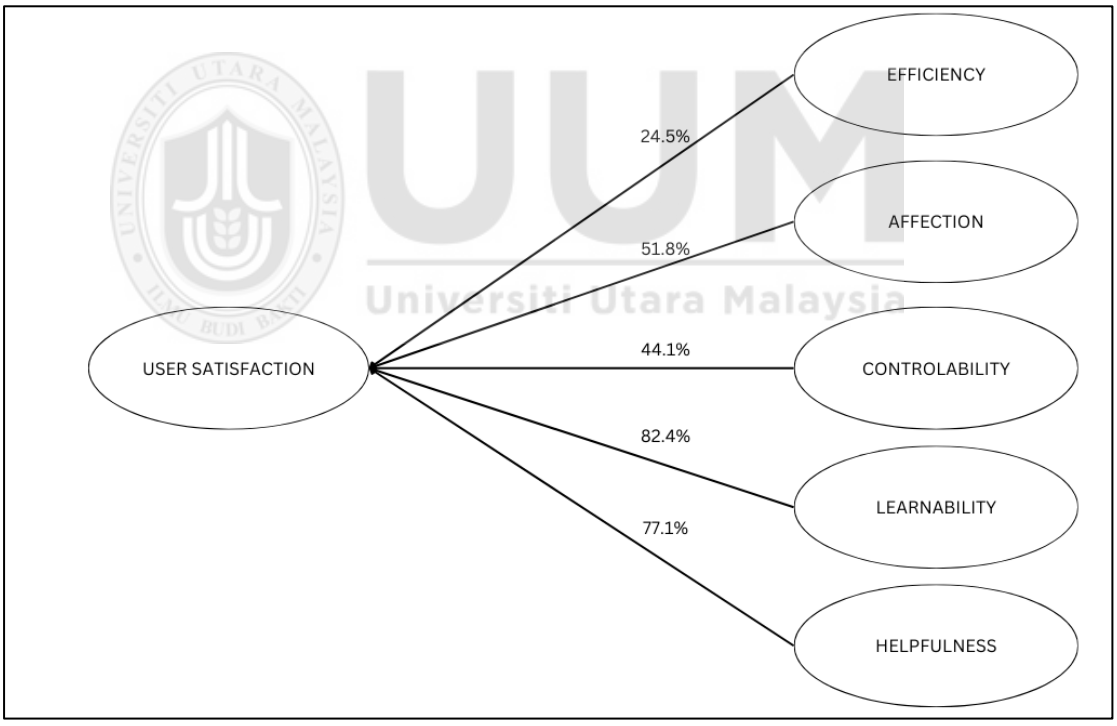

Figure 4.7: The relationship of factors to user satisfaction using SSP

Learnability is a key factor in user satisfaction when using the SSP app. According to the questionnaire, users stated that they can easily understand every feature of SSP in a relatively short amount of time. SSP also provides an easy-to-understand information

display method that requires little time to adapt.

While efficiency is the lowest factor in terms of user emphasis for achieving satisfaction with the SSP app, it is still a highly prioritized aspect in an application. Based on the questionnaire, most respondents answered that this application provides precise real-time information to complete tasks and gives answers promptly. However, some users mentioned making mistakes when using SSP for the first time and feeling unsure about what to do next due to the multiple steps involved.

4.4 Hypothesis Test Result

To investigate the application of SSP, among the five independent variables, Efficiency, Affection, Controllability, Learnability, and Helpfulness have significant effects on User Satisfaction. As a result, Table 4.10's results demonstrate that the independent and dependent variables have a meaningful relationship. Because the predictor coefficient is statistically significantly less than five percent; then the conclusion that the independent and dependent variables in the regression model are related can be drawn.

R quantifies the strength and direction of the linear relationship between the variables. If R is positive, it indicates a positive linear relationship, while a negative R indicates a negative linear relationship. When R = 0, it shows no linear relationship. R^2 measures prediction accuracy. If $R^2 = 0$, the model doesn't predict better than the mean. If $0 < R^2 < 1$, the model partially predicts, and if $R^2 = 1$, the model perfectly predicts. The result is as follows.

Table 4.10

R, R^2 and ANOVA values for Linear Regression

Influence	**R**	**R^2**	**ANOVA**
Efficiency and user satisfaction	.245	.060	.000
Affection and user satisfaction.	.518	.268	.000
Controllability and user satisfaction	.441	.195	.000
Learnability and user satisfaction	.824	.680	.000
Helpfulness and user satisfaction	.771	.594	.000

Listed are the conclusions that can be drawn from Table 4.10:

1. For the efficiency construct, 24.5% of user satisfaction is influenced by efficiency and there is a correlation between user satisfaction and efficiency.
2. For the affection construct, 51.8% of user satisfaction is influenced by affection and there is a correlation between user satisfaction and affection.
3. For the controllability factor, 44.1% of user satisfaction is influenced by controllability and there is a correlation between user satisfaction and controllability.
4. For the construct of learnability, 82.4% of user satisfaction is influenced by learnability and there is a correlation between user satisfaction and learnability.
5. For the helpfulness construct, 77.1% of user satisfaction is influenced by helpfulness and there is a correlation between user satisfaction and helpfulness.

To produce hypotheses for this research, either the alternative hypothesis or the null hypothesis was supported by linear regression.

R^2 between two variables was studied to confirm the proposed hypothesis. After analyzing the results of this study, it was found that the factors of efficiency, affection, controllability, learnability, and helpfulness influence the user satisfaction of the SSP app.

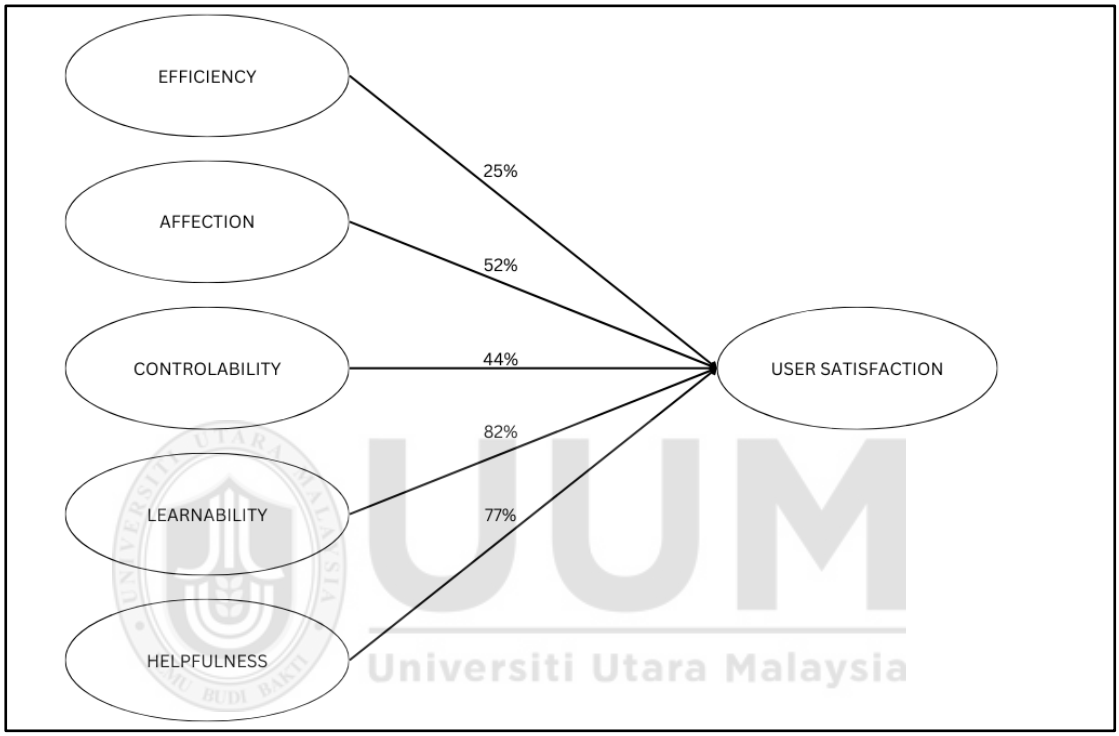

Figure 4.8: Value of the influence of each variable on user satisfaction using the SSP

The results of the hypothesis found that the factor that has the highest influence on user satisfaction to use the e-wallet application is learnability (82%). Followed by the helpfulness factor (77%), affection (52%), controllability (44%), and the last and least influential factor is the efficiency factor (25%).

Therefore table 4.11 shows the conclusion for the hypothesis results obtained from the findings from the conducted research. The results show significant results for all the hypotheses carried out.

Table 4.11

Hypothesis Testl Result

	Alternate Hypothesis	**Result**
H1	Efficiency has a significant influence on user satisfaction of Smart Selangor Parking.	Significant
H2	Affection has a significant influence on the user satisfaction of Smart Selangor Parking.	Significant
H3	Controllability has a significant influence on the user satisfaction of Smart Selangor Parking.	Significant
H4	Learnability has a significant influence on the user satisfaction of Smart Selangor Parking.	Significant
H5	Helpfulness has a significant influence on the user satisfaction of Smart Selangor Parking.	Significant

4.5 Conclusion

The basic aim of this study is related to the properties of mobile applications based on smart phones which are seen as quality and their influence on user satisfaction who take the provision of Smart Selangor Parking services as a case study. The objective was set to study the factors influencing user satisfaction with Smart Selangor Parking and to identify factors that had a significant influence on user satisfaction with Smart Selangor Parking.

The model relates efficiency, affection, controllability, learnability and helpfulness. Based on these characteristics, the findings of the study are briefly discussed below. Learnability has the highest influence (88.4%) on user satisfaction through its

contribution to the ease of use of the application by ensuring that distractions are avoided. Furthermore, it suggests that the system's visibility as it relates to the current actions taken is thought to be sufficient to inform the user of what the application is doing.

Similarly, providing additional information to the intended user (helpfulness 77.1%) shows a positive and significant relationship with user satisfaction. It contains the location of the user as well as their participation in other activities when utilizing the mobile application. The user's disposition towards reading or focusing on the extra information offered by the application is contingent upon their circumstances or the context in which they utilize their mobile application to access the parking lot.

Similar to the level of emotional feelings of users towards ride-hailing applications, affection shows a positive effect (51.8%) on user expectations that exceed expectations. Because customers use the parking service application to avoid fines, their happiness with it is therefore correlated with their level of attachment.

On the other hand, the rate of the application's ability to respond to user input consistently (controllability 44.1%). Mobile applications are inherently designed for user use. Therefore, it must be able to be controlled by the user without any problems and the help of others. Developers and parking service providers should take this into consideration by accurately showing only the necessary information and defining a specified degree of information in order to assure satisfaction.

The implication is that the application is well-developed and more efficient to perform the given task with a satisfactory usage effect. However, it did not happen in this study

because the efficiency of the Smart Selangor Parking application was found to have relatively the lowest influence (24.5%) on user satisfaction.

Thus, it can be said that the user's perception of the application's learnability, helpfulness, affection, controllability, and efficiency determines user happiness with mobile applications. If software developers and service providers comprehend how users perceive their environment, they may guarantee their contentment. In addition to closely adhering to technical and development standards, encouraging application usability within the bounds of capabilities by offering precise informative support.

CHAPTER FIVE

CONCLUSION, AND RECOMMENDATIONS

5.1 Conclusion

This research focuses on the factors that influence the satisfaction of using SSP app in Selangor. The table below summarizes the research questions, research objectives, measurement methods used, and the findings obtained. After answering all the research questions, this study is seen to be significant and can answer research objectives.

Table 5.1 below lists the research questions, research objectives, measurement methods used, and research findings as a summary of the whole research.

Table 5.1

List of research questions, research objectives, measurement methods used, and research findings

Research Questions and Research Objectives	**Measurement Methods Used**	**Research Findings**
Research Question What factors affect user satisfaction with Smart Selangor Parking? **Research Objective** To identify the factors influencing user satisfaction with Smart Selangor Parking	Linear Regression	The factors influencing user satisfaction to use SSP app is: Learnability (82.4%) Helpfulness (77.1%) Affection (51.8%) Controllability (44.1%) Efficiency (24.5%)

Table 5.1 continued.

Research Question How do the identified factors have a significant influence on user satisfaction with the SSP application? **Research Objective** To identify the factors that have a significant influence on user satisfaction to use Smart Selangor Parking.	Descriptive Analysis	Factors identified as having a significant influence on user satisfaction using Smart Selangor Parking. E1= 3.97, E2= 2.92, E3= 2.66 A1= 3.58, A2= 3.45, A3= 3.72 C1= 3.83, C2= 3.31, C3= 3.83 L1= 3.85, L2= 3.85, L3= 3.98 H1= 3.19, H2= 3.71, H3= 3.83

This study aims to determine the extent to which the SSP app is used among Selangor citizens. To use e-wallet use as a dependent variable, efficiency, affection, controllability, learnability, and helpfulness were examined as factors related to consumerism. A total of 384 respondents answered the questionnaire distributed online. All the information collected through the questionnaire was analyzed descriptively. By investigating the factors that influence the use of SSP app, this study can achieve its research goals.

For both new and existing users, the facilitating environment and expected effort play pivotal roles in utilizing and benefiting from the SSP program. Specifically, this application offers a convenient payment method for consumers who utilize parking spaces across the 12 local authorities in Selangor. Its numerous functionalities are not only faster but also easier to use compared to alternative payment methods, potentially

enhancing individual productivity.

Kim et al. (2014) developed a theoretical model to investigate the antecedents influencing smartphone users' application usage. Additionally, the customer satisfaction model was constructed based on factors impacting customer satisfaction. Key aspects include user reviews, ease of use, perceived enjoyment, and informativeness. Notably, cost-effectiveness is also a significant component. Interestingly, the study found that program usage remained unaffected by cost-effectiveness.

To establish an emotional bond between customers and services, the motivational relationship was integrated into the marketing strategy during the initial model of adoption. Based on the analysis, the most influential factors shaping SSP user satisfaction include learnability, helpfulness, affection, controllability, and efficiency. These findings provide insights into consumerism and user satisfaction with the SSP app in Selangor.

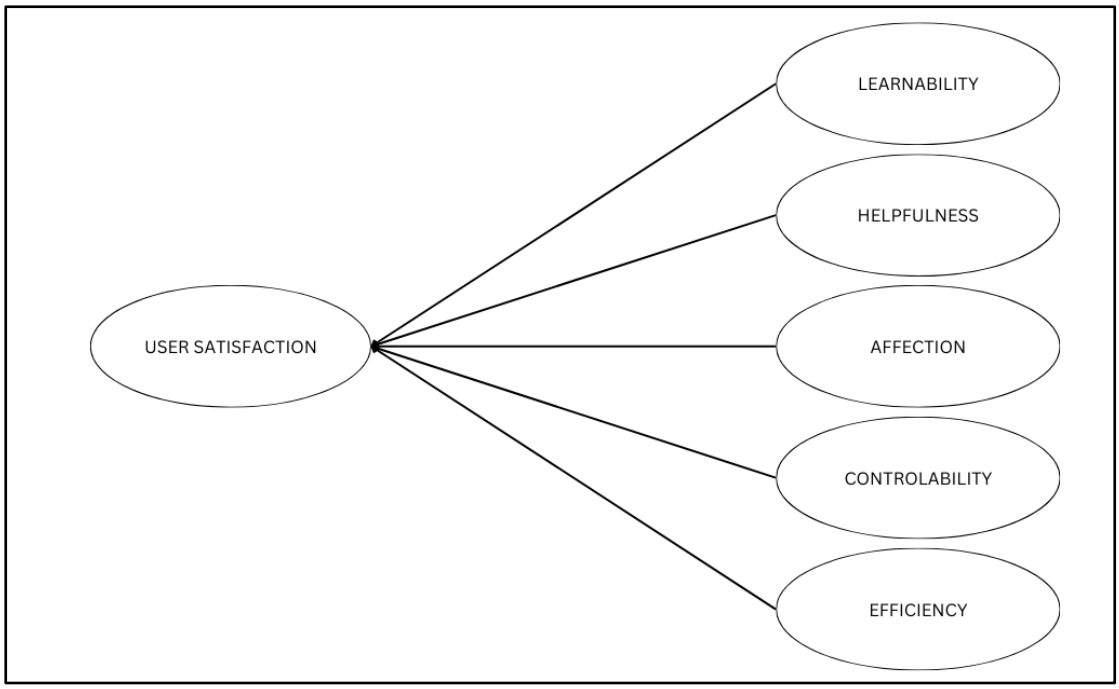

Figure 5.1: User Satisfaction Model for Smart Selangor Parking

The results can significantly benefit the Selangor government in several ways. Informed policies can be crafted based on user satisfaction levels, leading to targeted interventions and service improvements. By enhancing the user experience, promoting adoption, and optimizing resource allocation, the government can achieve cost savings and operational efficiency. Additionally, data-driven insights enable better planning and predictive analytics for future needs. Overall, the model empowers the government to enhance services, engage citizens, and optimize the parking system.

Apart from the points that have been discussed, there are still some features or functionalities that can be pointed out, such as providing self-service portal enhancements and improving the e-wallet experience.

5.2 Recommendations

The parking payment service application provider in Selangor is an in-house resource

designed and developed by a local company. Ensuring user satisfaction with an application is crucial, as it enhances their overall experience, encourages repeat usage, and influences others to adopt it. Based on the primary findings and recommendations, the next research proposal should delve into the application's usability from a psychological perspective, focusing on users' perceived quality.

Furthermore, some recommendations for future researchers interested in studying the factors influencing the satisfaction of using mobile parking payment applications in Malaysia are to expand the theoretical framework by incorporating additional independent variables beyond the ones mentioned in the current study. Consider factors such as perceived ease of use, perceived enjoyment, perceived risk, and environmental awareness. These variables can provide a more comprehensive understanding of user satisfaction. Future studies should investigate non-adoption reasons by conducting research to understand why some Malaysians choose not to use mobile payment applications for parking. Identify barriers, concerns, and limitations that deter potential users. Future studies should also consider qualitative methods (interviews, focus groups) to delve deeper into user perspectives and uncover nuanced reasons behind non-adoption. Use a larger sample size to improve the study's precision. A more extensive participant pool will better reflect the diversity of the Malaysian population, including respondents from various geographical areas (urban, suburban, rural), to enhance the study's accuracy. Finally, future studies should also consider collaborating with stakeholders such as government agencies, parking app developers, and other relevant stakeholders. Their insights can inform research design, data collection, and policy recommendations. Future researchers should understand the challenges faced by app developers and policymakers in promoting mobile parking payment adoption.

REFERENCES

Abd Wahab, D. (2023, June 8). Smart Parking app records 2.6 mln users, reduce use of paper — Exco. Selangor Journal. https://selangorjournal.my/2023/06/smart-parking-app-records-2-6-mln-users-reduce-use-of-paper-exco/

Abdellah, R. H. B., and Fernandez, D. (2021). Faktor yang mendorong generasi Y dalam penggunaan dompet elektronik. Research in Management of Technology and Business, 2(1), 47–59.

About us – Smart Selangor. (n.d.). https://www.smartselangor.com.my/about-us/

Academy, E., and Academy, E. (2024, February 28). Why is a pilot study important in research? Enago Academy. https://www.enago.com/academy/pilot-study-defines-a-good-research-design/#:~:text=Importance%20of%20Pilot%20Study%20in,may%20negatively%20affect%20your%20project.

Ahmed, H. M., Alkhateeb, N. E., Shabila, N. P., and Ahmad, A. A. (2024). Research practice, satisfaction, motivation, and challenges among university academics in Kurdistan Region of Iraq. PLoS ONE, 19(4), e0302540. https://doi.org/10.1371/journal.pone.0302540

Alalwan, A. A., Dwivedi, Y. K., and Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. International Journal of Information Management, 37(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

AlSokkar, A. a. M., Law, E. L., AlMajali, D. A., Al-Gasawneh, J. A., and Alshinwan, M. (2024). An Indexed Approach for Expectation-Confirmation Theory: A Trust-based model. Electronic Markets, 34(1). https://doi.org/10.1007/s12525-024-00694-3

App Store. (2018, April 23). Smart Selangor Parking. https://apps.apple.com/us/app/smart-selangor-parking/id1369995577

Badshah, S., Khan, A. A., Hussain, S., and Khan, B. (2020). What users really think about the usability of smartphone applications: diversity based empirical investigation. Multimedia Tools and Applications, 80(6), 9177–9207. https://doi.org/10.1007/s11042-020-10099-x

Bank Negara Malaysia. (n.d.). Payment Systems in Malaysia. https://www.bnm.gov.my. https://www.bnm.gov.my/types-of-payment-systems#:~:text=E-money%20is%20a%20payment,goods%20and%20services%20from%20merchants.

Boxall, P. (2013). Twenty-First-Century fiction. https://doi.org/10.1017/cbo9780511902727

Burns, A., Veeck, A., and Bush, R. (2013). Marketing research (7th ed.). Pearson.

Cabrera-Nguyen, P. (2010). Author Guidelines for reporting scale development and validation results in the Journal of the Society for Social Work and Research. Journal of the Society for Social Work and Research, 1(2), 99–103. https://doi.org/10.5243/jsswr.2010.8

Cashless parking Catches on – Smart Selangor. (2022, February 28). https://www.smartselangor.com.my/2022/02/28/cashless-parking-atches-on/

Cavada, M., Hunt, D. V. L., and Rogers, C. D. F. (Eds.). (2014). Smart cities: contradicting definitions and unclear measures. MDPI. https://doi.org/10.3390/wsf-4-f004

Chua, Y. (2011). Kaedah dan statistik penyelidikan: kaedah penyelidikan. In McGraw-Hill Education eBooks. http://eprints.um.edu.my/10246/

Clinton, A., and Wellington, T. (Eds.). (2013). A theoretical framework of users' Satisfaction/Dissatisfaction Theories and models (2nd ed.). 2nd International Conference on Arts, Behavioral Sciences and Economics Issues (ICABSEI'2013).

Dwiyana, D., and Muqorobin, M. (2021). Analysis of Adi Soemarmo Solo Airport Parking Payment System. International Journal of Computer and Information System (IJCIS), 2(1), 1–3. https://doi.org/10.29040/ijcis.v2i1.21

eBusiness@Newcastle. (n.d.). Expectation Confirmation Theory - TheoryHub - Academic theories reviews for research and TandL. https://open.ncl.ac.uk/theories/14/expectation-confirmation-theory/

Farag, S., Schwanen, T., Dijst, M., and Faber, J. (2007). Shopping online and/or in-store? A structural equation model of the relationships between e-shopping and in-store shopping. Transportation Research Part a Policy and Practice, 41(2), 125–141. https://doi.org/10.1016/j.tra.2006.02.003

Fatima, T., Kashif, S., Kamran, M., and Awan, T. M. (2021). Examining Factors Influencing Adoption of M-Payment: Extending UTAUT2 with Perceived Value. Research Gate. https://www.researchgate.net/publication/352847396_Examining_Factors_Influencing_Adoption_of_M-Payment_Extending_UTAUT2_with_Perceived_Value

Furlong, M. J., You, S., Renshaw, T. L., Smith, D. C., and O'Malley, M. D. (2013). Preliminary development and validation of the Social and Emotional Health Survey for secondary school students. Social Indicators Research, 117(3), 1011–1032. https://doi.org/10.1007/s11205-013-0373-0

GceLab. (n.d.). Smart Parking Solutions: Revolutionizing urban mobility and

convenience. https://www.gcelab.com/blog/smart-parking-solutions-revolutionizing-urban-mobility-and-convenience

Guide On: Parking Services (2022nd ed., Vol. 2). (2022). Royal Malaysian Customs Department, Sales and Service Tax Division, Putrajaya. https://mysst.customs.gov.my/assets/document/Industry%20Guides/GI/Guide%20on%20Parking%20Services%2020220110.pdf

Gunnell, M. (2024, May). Mobile Application. https://www.techopedia.com. https://www.techopedia.com/definition/2953/mobile-application-mobile-app

Gupta, R., Kapoor, C., and Yadav, J. (2020). Acceptance towards digital payments and improvements in cashless payment ecosystem. 2020 International Conference for Emerging Technology (INCET). https://doi.org/10.1109/incet49848.2020.9154024

Hemmati, R. (2024). District energy systems. In Elsevier eBooks (pp. 201–259). https://doi.org/10.1016/b978-0-443-23728-7.00009-6

Hidayat, M. T., Aini, Q., and Fetrina, E. (2020). User acceptance of E-Wallet using UTAUT 2. Jurnal Nasional Teknik Elektro Dan Teknologi Informasi, 9(3). https://doi.org/10.22146/.v9i3.227

Hinkin, T. R. (1998). A brief tutorial on the development of measures for use in survey questionnaires. Organizational Research Methods, 1(1), 104–121. https://doi.org/10.1177/109442819800100106

Hollands, R. (2008). Will the real smart city please stand up? City: Analysis of urban Trends. Research Gate. https://doi.org/10.1080/13604810802479126

Hoque, S. (2019). An empirical study on customer satisfaction: Mobile phone users in an emerging market. www.academia.edu. https://www.academia.edu/96480822/An_empirical_study_on_customer_satis

faction_Mobile_phone_users_in_an_emerging_market

Husain, A., Varshney, T., Bhatnagar, S., and Satsangi, A. K. (2019). E-Satisfaction towards cashless Transactions: Re-Tests model for e-Tourism. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3376618

Kagan, J. (2024, July 1). What is a digital wallet? Investopedia. https://www.investopedia.com/terms/d/digital-wallet.asp

Kasirye, F., and Masum, S. M. H. (2021). The effects of e-Wallet among various types of users in Malaysia: a comparative study. Asian Journal of Research in Business and Management, 3(2). https://myjms.mohe.gov.my/index.php/ajrbm/article/view/13442

Kedah, Z., Ismail, Y., Haque, A. K. M. A., and Ahmed, S. (2015). Key success factors of Online food ordering Services: An Empirical study. Malaysian Management Review, 50(2). http://ur.aeu.edu.my/529/1/Key%20Success%20Factors%20of%20Online%20Food%20Ordering%20Services-2-19.pdf

Khumrahong, C., and Chumkate, J. (2021). Service Innovation that Affects the Acceptance of Car Parking Application of the Service Users in Bangkok. Narkkhabut Paritat Journal, 13(3). https://so04.tci-thaijo.org/index.php/nakboot/article/view/245717

Kim, S. C., Yoon, D., and Han, E. K. (2014). Antecedents of mobile app usage among smartphone users. Journal of Marketing Communications, 22(6), 653–670. https://doi.org/10.1080/13527266.2014.951065

Koch, R., and Koch, R. (2024, August 15). User satisfaction: Key strategies for improving customer experience. Resonio. https://www.resonio.com/blog/user-satisfaction/

Koestler Parapsychology Unit Study Registry. (2018, January 27). Exploratory and Confirmatory Analyses. https://koestlerunit.wordpress.com/study-registry/. https://www.koestler-parapsychology.psy.ed.ac.uk/Documents/explore_confirm.pdf

Ling, G. M., Tiep, H. S., and Er, N. Z. (2021). Customer Satisfaction towards Mobile Food Delivery Apps during Covid-19 Pandemic. GATR Journal of Management and Marketing Review, 6(3), 191–201. https://doi.org/10.35609/jmmr.2021.6.3(5

Litman, T. (2023). Parking management : strategies, evaluation and planning. Victoria Transport Policy Institute. https://www.vtpi.org/park_man.pdf

Locke, E. A. (1976). The nature and causes of job satisfaction. Research Gate, 1297–1349. https://ci.nii.ac.jp/naid/10016045566

Miller, K. (2023, August 10). Understand Employee Satisfaction with Value-Percept Theory. Crowjack. https://crowjack.com/blog/strategy/motivational-theories/value-percept-theory

MyGov - the government of Malaysia's official portal. (n.d.). https://www.malaysia.gov.my/portal/content/30629

Negmu, H. (2021). The Effect Of Perceived Quality Of Mobile Applications On Customer Satisfaction In The Case Of Ride Service Providers In Addis Ababa. http://repository.smuc.edu.et/handle/123456789/6157

O'Malley, G., Dowdall, G., Burls, A., Perry, I. J., and Curran, N. (2014). Exploring the usability of a mobile app for adolescent obesity management. JMIR Mhealth and Uhealth, 2(2), e29. https://doi.org/10.2196/mhealth.3262

Peterson, T., and Wezel, R. V. (2016). The evolution of digital and mobile wallets. https://www.paymentscardsandmobile.com/wp-content/uploads/2016/10/The-

Evolution-of-Digital-and-Mobile-Wallets.pdf

Prasetyo, Y. T., Tanto, H., Mariyanto, M., Hanjaya, C., Young, M. N., Persada, S. F., Miraja, B. A., and Redi, A. a. N. P. (2021). Factors Affecting Customer Satisfaction and Loyalty in Online Food Delivery Service during the COVID-19 Pandemic: Its Relation with Open Innovation. Journal of Open Innovation Technology Market and Complexity, 7(1), 76. https://doi.org/10.3390/joitmc7010076

Rahim, N. M., and Yunus, N. F. a. M. (2021). Consumers satisfaction towards e-Hailing food delivery services during Movement Control Order period: A case study in Selangor. Journal of Science and Mathematics Letters, 9(Special), 1–9. https://doi.org/10.37134/jsml.vol9.sp.1.2021

Rogers, P. (2024). Best practices for your confirmatory factor analysis: A JASP and lavaan tutorial. Behavior Research Methods. https://doi.org/10.3758/s13428-024-02375-7

Sekaran, U., and Bougie, J. (2009). Research Methods for Business : A Skill Building Approach (5th Edition). Research Gate. https://research.tilburguniversity.edu/en/publications/research-methods-for-business-a-skill-building-approach-5th-editi

Shari, M. G., Hamdan, F., and Tawang, M. Y. (2020, December). Pandangan dan pendapat penggunaan aplikasi GrabPay oleh Pengusaha-Pengusaha restoran makanan di Aeon Tebrau dan Toppen Tebrau. In Research Gate. 3rd UUM International Islamic Business Management Conference 2020 (IBMC2020), Changlun, Kedah, Malaysia.

Shin, S., and Lee, W. (2021). Factors affecting user acceptance for NFC mobile wallets in the U.S. and Korea. Innovation and Management Review, 18(4),

417–433. https://doi.org/10.1108/inmr-02-2020-0018

Smart Selangor Parking - Apl di Google Play. (n.d.). https://play.google.com/store/apps/details?id=my.com.lits.smartselangorparkingandhl=msandpli=1

Smith, T. A. (2020). The role of customer personality in satisfaction, attitude-to-brand and loyalty in mobile services. Spanish Journal of Marketing - ESIC, 24(2), 155–175. https://doi.org/10.1108/sjme-06-2019-0036

Tak, P., and Panwar, S. (2017). Using UTAUT 2 model to predict mobile app based shopping: evidences from India. Journal of Indian Business Research, 9(3), 248–264. https://doi.org/10.1108/jibr-11-2016-0132

Tenk, M. T. T., Yew, H. C., and Heang, L. T. (2020). E-Wallet Adoption: A Case In Malaysia. International Journal of Research in Commerce and Management Studies, 2(2), 216–233. https://ijrcms.com/index.php/ijrcms/article/view/64

Topic: Smartphones in Malaysia. (2024, June 20). Statista. https://www.statista.com/topics/6615/smartphones-in-malaysia/#topicOverview

Trymata, and Trymata. (2024, August 29). What is User Satisfaction? Definition, Metrics and Best Practices - Trymata. Trymata. https://trymata.com/blog/what-is-user-satisfaction/

Unlocking Urban Mobility: Exploring the impact of smart parking solutions on city residents | Modii. (n.d.). https://www.modii.co/insights/unlocking-urban-mobility-exploring-the-impact-of-smart-parking-solutions-on-city-residents

Venkatesh, N., Thong, N., and Xu, N. (2012). Consumer Acceptance and use of Information technology: Extending the unified theory of acceptance and use of technology. MIS Quarterly, 36(1), 157. https://doi.org/10.2307/41410412

Yazdanparast, A., and Tran, G. A. (2015). Mobile Phone Satisfaction: An examination of antecedents and consequences. In Developments in marketing science: proceedings of the Academy of Marketing Science (pp. 89–90). https://doi.org/10.1007/978-3-319-11815-4_29

Yeap, A. (2019, November 29). Mobile app offers easier method to pay for parking in Taiping. The Star. https://www.thestar.com.my/metro/community/2015/12/07/mobile-app-offers-easier-method-to-pay-for-parking-in-taiping/

Yüksel, A., and Yuksel, F. (2008). Customer satisfaction: Conceptual issues Consumer Satisfaction Theories: A Critical review. Researchgate. https://www.researchgate.net/publication/258180675_Customer_Satisfaction_Conceptual_Issues_Consumer_Satisfaction_Theories_A_Critical_Review

Zarmpou, T., Saprikis, V., Markos, A., and Vlachopoulou, M. (2012). Modeling users' acceptance of mobile services. Electronic Commerce Research, 12(2), 225–248. https://doi.org/10.1007/s10660-012-9092-x

Zhao, J., Wang, L., Wang, G., Chen, H., Wang, B., and Zhou, Y. (2023). Understanding continued usage behavior and value perception in sharing economy: the case of taxi calling mobile application. Research Square (Research Square). https://doi.org/10.21203/rs.3.rs-2850488/v1

Zikmund, W. G., and Babin, B. J. (2013). Business Research Methods (9th ed.). Southwestern.

Appendix A

SURVEY QUESTIONNAIRE

My name is Siti Aslinda, a postgraduate student at the University Utara Malaysia. I am conducting my study entitled "CUSTOMER SATISFACTION WITH SMART SELANGOR PARKING AS A PARKING PAYMENT METHOD IN THE STATE OF SELANGOR". This survey aims to gather information regarding the satisfaction of using Smart Selangor Parking as a replacement for the traditional way (coupons & tickets) of paying for parking in the state of Selangor.

Nama saya Siti Aslinda, pelajar pascasiswazah di Universiti Utara Malaysia. Saya sedang menjalankan kajian bertajuk "KEPUASAN PELANGGAN TERHADAP PENGGUNAAN SMART SELANGOR PARKING SEBAGAI KAEDAH PEMBAYARAN PARKIR DI NEGERI SELANGOR. Tinjauan ini bertujuan untuk mengumpul maklumat berkenaan kepuasan menggunakan Smart Selangor Parking sebagai pengganti cara tradisional (kupon & tiket) membayar parkir di negeri Selangor.

SECTION A: DEMOGRAPHICS/ *Demografik*

Please place a tick (/) for each of the following: / *Sila tanda (/) untuk setiap yang berikut:*

1. Age/ *Umur*
   - Below 19 years / *Bawah 19 tahun*
   - 20-29 years / *20-29 tahun*
   - 30-39 years / *30-39 tahun*
   - 40-49 years / *40-49 tahun*
   - 50-59 years / *50-59 tahun*
   - Above 60 years / *Atas 60 tahun*

2. Gender / *Jantina*
   - Male / *Lelaki*
   - Female / *Perempuan*

3. Employment Status? / *Status pekerjaan?*
   - Employed / *Bekerja*
   - Self-Employed / *Bekerja Sendiri*
   - Unemployed / *Menganggur*
   - Other (Please specify)

4. Have you ever used Smart Selangor Parking? / *Adakah anda pernah menggunakan Smart Selangor Parking?*
   - Yes / *Ya*
   - No / *Tidak*
5. How frequently do you use Smart Selangor Parking? / *Berapa kerap anda menggunakan Smart Selangor Parking?*
   - At least once a Day / *Sekali sehari*
   - At least once a week / *Sekali seminggu*
   - At least once a Month / *Sekali sebulan*
   - If Needed / *Bila perlu*
   - Not Applicable / *Tidak berkaitan*

6. For how long, you have been using Smart Selangor Parking? / *Sudah berapa lama anda menggunakan Smart Selangor Parking?*
   - Less than 1 year / *Kurang 1 tahun*
   - 1-2 years / *1-2 tahun*
   - 2-3 years / *2-3 tahun*
   - More than 3 years / *Lebih 3 tahun*
   - Not Applicable / *Tidak berkaitan*

SECTION B: SMART SELANGOR PARKING APPLICATION /
APLIKASI SMART SELANGOR PARKING

Please indicate your degree of agreement on the following statements by circling the numbers given ranging from: / *Sila nyatakan tahap persetujuan anda pada pernyataan berikut dengan membulatkan nombor yang diberikan antara:*

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5
Sangat Tidak Setuju = 1, Tidak Setuju = 2, Neutral = 3, Setuju = 4, Sangat Setuju = 5

STATEMENTS / *PERNYATAAN*	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Performance Expectancy / *Jangkaan Prestasi*					
Smart Selangor Parking is a useful tool for conducting transactions / *Smart Selangor Parking ialah alat yang berguna untuk menjalankan transaksi*	**1**	**2**	**3**	**4**	**5**
Smart Selangor Parking enables me to conduct transactions easily / *Smart Selangor Parking membolehkan saya melakukan transaksi dengan mudah*	**1**	**2**	**3**	**4**	**5**
I can conduct transactions faster on Smart Selangor Parking compared to cash transactions / *Saya boleh menjalankan transaksi dengan lebih pantas di Smart Selangor Parking berbanding dengan transaksi tunai.*	**1**	**2**	**3**	**4**	**5**
Using Smart Selangor Parking increases my productivity / *Menggunakan Smart Selangor Parking meningkatkan produktiviti saya*	**1**	**2**	**3**	**4**	**5**
Effort Expectancy / *Jangkaan Usaha*					
It would be easy for me to understand the operation of Smart Selangor Parking / *Mudah bagi saya untuk memahami operasi Smart Selangor Parking.*	**1**	**2**	**3**	**4**	**5**
I find conducting transactions through Smart Selangor Parking is convenient for me / *Saya dapati menjalankan transaksi melalui Smart Selangor Parking adalah memudahkan saya*	**1**	**2**	**3**	**4**	**5**
I find it easy to conduct a transaction through Smart Selangor Parking / *Saya rasa mudah untuk melakukan transaksi melalui Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
It is easy for me to become skillful at using Smart Selangor Parking / *Mudah untuk saya menjadi mahir menggunakan Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
Social Influence / *Pengaruh Sosial*					
People who influence my behavior think that I must use Smart Selangor Parking / *Orang yang mempengaruhi*	**1**	**2**	**3**	**4**	**5**

tingkah laku saya berfikir bahawa saya mesti menggunakan Smart Selangor Parking					
People who are important to me think that I must use Smart Selangor Parking / *Orang yang penting bagi saya fikir saya mesti guna Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
People in my environment who use Smart Selangor Parking have more prestige than those who don't use them / *Orang di persekitaran saya yang menggunakan Smart Selangor Parking mempunyai lebih prestij daripada mereka yang tidak menggunakannya.*	**1**	**2**	**3**	**4**	**5**
I conduct transactions through Smart Selangor Parking because many people are doing so / *Saya menjalankan transaksi melalui Smart Selangor Parking kerana ramai yang berbuat demikian.*	**1**	**2**	**3**	**4**	**5**
Facilitating Conditions / *Syarat Memudahkan*					
I have the necessary resources to use Smart Selangor Parking / *Saya mempunyai sumber yang diperlukan untuk menggunakan Smart Selangor Parking.*	**1**	**2**	**3**	**4**	**5**
I have the necessary knowledge to use Smart Selangor Parking / *Saya mempunyai pengetahuan yang diperlukan untuk menggunakan Smart Selangor Parking.*	**1**	**2**	**3**	**4**	**5**
Online assistance is available for queries related to Smart Selangor Parking / *Bantuan dalam talian tersedia untuk pertanyaan berkaitan Tempat Letak Kereta Smart Selangor.*	**1**	**2**	**3**	**4**	**5**
Hedonic Motivation / *Motivasi Hedonik*					
Using Smart Selangor Parking is enjoyable. / *Menggunakan Smart Selangor Parking adalah menyeronokkan.*	**1**	**2**	**3**	**4**	**5**
Using Smart Selangor Parking is exciting / *Menggunakan Smart Selangor Parking adalah menarik*	**1**	**2**	**3**	**4**	**5**
Using Smart Selangor Parking is delightful / *Menggunakan Smart Selangor Parking adalah menyeronokkan*	**1**	**2**	**3**	**4**	**5**
Habit / *Kebiasaan*					
The use of Smart Selangor Parking has become a habit for me / *Penggunaan Smart Selangor Parking sudah menjadi kebiasaan bagi saya*	**1**	**2**	**3**	**4**	**5**
Using Smart Selangor Parking is something I do without thinking / *Menggunakan Smart Selangor Parking adalah sesuatu yang saya lakukan tanpa berfikir*	**1**	**2**	**3**	**4**	**5**
I must use Smart Selangor Parking / *Saya mesti menggunakan Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**

I am addicted to using Smart Selangor Parking / *Saya ketagih menggunakan Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
Use Behavior / Tingkah Laku Penggunaan					
I sometimes use Smart Selangor Parking / *Saya kadang-kadang menggunakan Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
I often use Smart Selangor Parking to conduct a transaction / *Saya sering menggunakan Smart Selangor Parking untuk menjalankan transaksi*	**1**	**2**	**3**	**4**	**5**
I regularly use Smart Selangor Parking to conduct transactions / *Saya kerap menggunakan Smart Selangor Parking untuk menjalankan transaksi.*	**1**	**2**	**3**	**4**	**5**
I always use Smart Selangor Parking to conduct transactions / *Saya selalu menggunakan Smart Selangor Parking untuk menjalankan transaksi.*	**1**	**2**	**3**	**4**	**5**

SECTION C: SATISFACTION OF USING SMART SELANGOR PARKING /
KEPUASAN MENGGUNAKAN APLIKASI SMART SELANGOR PARKING

Please indicate your degree of agreement on the following statements by circling the numbers given ranging from: / *Sila nyatakan tahap persetujuan anda pada pernyataan berikut dengan membulatkan nombor yang diberikan antara:*

Strongly Disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly Agree = 5
Sangat Tidak Setuju = 1, Tidak Setuju = 2, Neutral = 3, Setuju = 4, Sangat Setuju = 5

STATEMENTS / *PERNYATAAN*	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Efficiency / *Kecekapan*					
The apps provide accurate real-time information to complete the task / *Aplikasi ini menyediakan maklumat masa nyata yang tepat untuk menyelesaikan tugas.*	**1**	**2**	**3**	**4**	**5**
I have made a number of mistakes while using Smart Selangor Parking for the first time / *Saya telah melakukan beberapa kesilapan semasa menggunakan Smart Selangor Parking buat kali pertama.*	**1**	**2**	**3**	**4**	**5**
I don't know what to do next as Smart Selangor Parking has many steps / *Saya tidak tahu apa yang perlu dilakukan seterusnya kerana Smart Selangor Parking mempunyai banyak langkah.*	**1**	**2**	**3**	**4**	**5**
Affection / *Kasih sayang*					
Menu organization or option lists are set in logical / *Organisasi menu atau senarai pilihan ditetapkan dalam logik*	**1**	**2**	**3**	**4**	**5**
The Smart Selangor Parking icon is eye-catching element / *Ikon Smart Selangor Parking adalah elemen yang menarik perhatian.*	**1**	**2**	**3**	**4**	**5**
I feel comfortable while using Smart Selangor Parking / *Saya berasa selesa semasa menggunakan Smart Selangor Parking*	**1**	**2**	**3**	**4**	**5**
Controllability / *Kebolehkawalan*					
Smart Selangor Parking execution speed is fast. / *Kelajuan pelaksanaan Smart Selangor Parking adalah pantas.*	**1**	**2**	**3**	**4**	**5**

Sometimes Smart Selangor Parking stops suddenly / *Kadang-kadang Smart Selangor Parking berhenti secara tiba-tiba.*	**1**	**2**	**3**	**4**	**5**
When using Smart Selangor Parking, I think that everything is under my control. / *Apabila menggunakan Smart Selangor Parking, saya rasa semuanya di bawah kawalan saya.*	**1**	**2**	**3**	**4**	**5**
Learnability / *Kebolehpelajaran*					
It is easy to learn all features of Smart Selangor Parking relatively within a short period / *Mudah untuk mempelajari semua ciri Smart Selangor Parking secara relatif dalam tempoh yang singkat.*	**1**	**2**	**3**	**4**	**5**
Smart Selangor Parking has an understandable method of displaying information / *Smart Selangor Parking mempunyai kaedah yang boleh difahami untuk memaparkan maklumat.*	**1**	**2**	**3**	**4**	**5**
It doesn't need a long time to learn how to use Smart Selangor Parking. / *Ia tidak memerlukan masa yang lama untuk belajar menggunakan Smart Selangor Parking.*	**1**	**2**	**3**	**4**	**5**
Helpfulness / *Sifat Membantu*					
There is not enough information on the screen when necessary / *Tiada maklumat yang mencukupi pada skrin apabila perlu.*	**1**	**2**	**3**	**4**	**5**
When I use Smart Selangor Parking, sometimes I didn't need someone's assistance to operate / *Apabila saya menggunakan Smart Selangor Parking, kadangkala saya tidak memerlukan bantuan seseorang untuk beroperasi.*	**1**	**2**	**3**	**4**	**5**
I think that using Smart Selangor Parking didn't put me in trouble / *Saya berpendapat bahawa menggunakan Smart Selangor Parking tidak meletakkan saya dalam masalah.*	**1**	**2**	**3**	**4**	**5**
User Satisfaction / *Kepuasan Pengguna*					
I'm satisfied with Smart Selangor Parking as it was found to be helpful / *Saya berpuas hati dengan Smart Selangor Parking kerana ia didapati membantu*	**1**	**2**	**3**	**4**	**5**
I'm delighted to use the app as it made the service much easier for me / *Saya gembira menggunakan aplikasi itu kerana ia menjadikan perkhidmatan lebih mudah untuk saya.*	**1**	**2**	**3**	**4**	**5**
I intend to keep on using Smart Selangor Parking rather than others e-wallets / *Saya berhasrat untuk terus*	**1**	**2**	**3**	**4**	**5**

menggunakan Smart Selangor Parking berbanding e-dompet lain.					
I'm pleased as interacting with Smart Selangor Parking doesn't require a lot of mental effort / *Saya gembira kerana berinteraksi dengan Smart Selangor Parking tidak memerlukan banyak usaha mental.*	**1**	**2**	**3**	**4**	**5**
My overall experience of the Smart Selangor Parking use was very contented. / *Pengalaman keseluruhan saya menggunakan Smart Selangor Parking sangat berpuas hati.*	**1**	**2**	**3**	**4**	**5**

Thank you for your valued time, response and cooperation!!!
Terima kasih atas masa, maklum balas dan kerjasama yang anda hargai!!!

Appendix B

```
FREQUENCIES VARIABLES=Age Gender Employment Used Frequently Long
  /STATISTICS=STDDEV MEAN MEDIAN
  /ORDER=ANALYSIS.
```

Frequencies

Notes

Output Created		15-DEC-2023 10:45:18
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data.
Syntax		FREQUENCIES VARIABLES=Age Gender Employment Used Frequently Long /STATISTICS=STDDEV MEAN MEDIAN /ORDER=ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

```
[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav
```


Statistics

		Age	Gender	Employment	Used	Frequently	Long
N	Valid	384	384	384	384	384	384
	Missing	0	0	0	0	0	0
Mean		3.68	1.71	1.84	1.05	3.17	2.88
Median		4.00	2.00	2.00	1.00	3.50	3.00
Std. Deviation		.969	.455	.631	.217	1.122	.988

Frequency Table

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 19 years	3	.8	.8	.8
	20-29 years	27	7.0	7.0	7.8
	30-39 years	145	37.8	37.8	45.6
	40-49 years	143	37.2	37.2	82.8
	50-59 years	48	12.5	12.5	95.3
	Above 60 years	18	4.7	4.7	100.0
	Total	384	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	112	29.2	29.2	29.2
	Female	272	70.8	70.8	100.0
	Total	384	100.0	100.0	

Employment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employmend	113	29.4	29.4	29.4
	Self-Emplyoed	221	57.6	57.6	87.0
	Unemployed	50	13.0	13.0	100.0
	Total	384	100.0	100.0	

Used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	365	95.1	95.1	95.1
	No	19	4.9	4.9	100.0
	Total	384	100.0	100.0	

Frequently

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	At Least once a day	49	12.8	12.8	12.8
	At least once a week	48	12.5	12.5	25.3
	At least once a month	95	24.7	24.7	50.0
	If Needed	173	45.1	45.1	95.1
	Not Applicable	19	4.9	4.9	100.0
	Total	384	100.0	100.0	

Long

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 1 year	16	4.2	4.2	4.2
	1-2 years	147	38.3	38.3	42.4
	2-3 years	109	28.4	28.4	70.8
	More than 3 years	93	24.2	24.2	95.1
	Not Applicable	19	4.9	4.9	100.0
	Total	384	100.0	100.0	

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER PE.
```

Regression

Notes

Output Created		15-DEC-2023 10:46:05
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER PE.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

Notes

	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PE[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.334[a]	.112	.109	.574

a. Predictors: (Constant), PE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.034	1	15.034	45.616	.000[b]
	Residual	119.634	363	.330		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), PE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.092	.163		18.949	.000
	PE	.258	.038	.334	6.754	.000

a. Dependent Variable: US

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER EE.
```

Regression

Notes

Output Created		15-DEC-2023 10:46:18
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER EE.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03
	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	EE[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422[a]	.178	.176	.552

a. Predictors: (Constant), EE

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.971	1	23.971	78.606	.000[b]
	Residual	110.697	363	.305		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), EE

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.885	.148		19.437	.000
	EE	.320	.036	.422	8.866	.000

a. Dependent Variable: US

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER SI.
```

Regression

Notes

Output Created		15-DEC-2023 10:46:35
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER SI.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02
	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	SI[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316[a]	.100	.097	.578

a. Predictors: (Constant), SI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.436	1	13.436	40.229	.000[b]
	Residual	121.232	363	.334		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), SI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.132	.167		18.712	.000
	SI	.295	.047	.316	6.343	.000

a. Dependent Variable: US

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER FC.
```

Regression

Notes

Output Created		15-DEC-2023 10:46:50
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER FC.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03
	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	FC[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.422[a]	.178	.176	.552

a. Predictors: (Constant), FC

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.963	1	23.963	78.576	.000[b]
	Residual	110.704	363	.305		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), FC

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.631	.177		14.886	.000
	FC	.418	.047	.422	8.864	.000

a. Dependent Variable: US

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER HM.
```

Regression

Notes

Output Created		15-DEC-2023 10:47:01
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER HM.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.03
	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	HM[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.375[a]	.140	.138	.565

a. Predictors: (Constant), HM

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.887	1	18.887	59.216	.000[b]
	Residual	115.781	363	.319		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), HM

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.129	.139		22.479	.000
	HM	.261	.034	.375	7.695	.000

a. Dependent Variable: US

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT US
  /METHOD=ENTER HB.
```

Regression

Notes

Output Created		15-DEC-2023 10:47:15
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT US /METHOD=ENTER HB.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.04
	Memory Required	2620 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	HB[b]	.	Enter

a. Dependent Variable: US

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.362[a]	.131	.128	.568

a. Predictors: (Constant), HB

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.620	1	17.620	54.644	.000[b]
	Residual	117.048	363	.322		
	Total	134.668	364			

a. Dependent Variable: US

b. Predictors: (Constant), HB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.986	.164		18.239	.000
	HB	.318	.043	.362	7.392	.000

a. Dependent Variable: US

```
CORRELATIONS
  /VARIABLES=E A C L H US
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

Output Created		15-DEC-2023 10:49:14
Comments		
Input	Data	D:\Thesis\spss\Msc Edited Aug 23.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	384
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=E A C L H US /PRINT=TWOTAIL NOSIG...
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01

[DataSet1] D:\Thesis\spss\Msc Edited Aug 23.sav

Correlations

		E	A	C	L	H	US
E	Pearson Correlation	1	.391**	.426**	.125*	.431**	.245**
	Sig. (2-tailed)		.000	.000	.017	.000	.000
	N	365	365	365	365	365	365
A	Pearson Correlation	.391**	1	.883**	.501**	.269**	.518**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	365	365	365	365	365	365
C	Pearson Correlation	.426**	.883**	1	.250**	.290**	.441**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	365	365	365	365	365	365
L	Pearson Correlation	.125*	.501**	.250**	1	.673**	.824**
	Sig. (2-tailed)	.017	.000	.000		.000	.000
	N	365	365	365	365	365	365
H	Pearson Correlation	.431**	.269**	.290**	.673**	1	.771**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	365	365	365	365	365	365
US	Pearson Correlation	.245**	.518**	.441**	.824**	.771**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	365	365	365	365	365	365

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

*. Correlation is significant at the 0.05 level (2-tailed).