THE INFLUENCE OF CONSUMPTION VALUES ON MALAYSIAN GENERATION Z'S INTENTION TO USE SMART TROLLEYS

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FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF MARKETING

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THE INFLUENCE OF CONSUMPTION VALUES ON MALAYSIAN GENERATION Z'S INTENTION TO USE SMART TROLLEYS

BY

CHEW AI SHAN
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A final year project submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF MARKETING (HONS)

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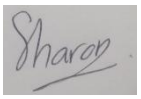
1. Chew Ai Shan	2106911	
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DEDICATION

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PREFACE

The main aim of this paper was to explore how consumption values influence Malaysian Gen Z's intention to use smart trolleys. The study was motivated by two key factors, which are the growing presence of technology in retail and the strong influence young consumers have in driving future shopping trends. To frame the research, the Theory of Consumption Values (TCV) was applied, focusing on functional, emotional, social, epistemic, and conditional values as the main determinants. Beyond its theoretical contribution, the research hopes to add valuable insights into customer preferences and provide practical guidance for retailers seeking to integrate smart technologies. Completing this project was not without its challenges, like limited time and resources demanded persistence and resilience throughout the process. However, it proved to be a rewarding journey, offering a deeper understanding of consumer behaviour and sharpening research and analytical skills. Ultimately, the findings are expected to serve both as a useful reference for academic study and as a practical guide for retailers in the real world.

ABSTRACT

This paper aims to examine the degree to which the Theory of Consumption Values (TCV) can explain the intention of Malaysian Generation Z to adopt smart trolleys in the retail environment. As the retail industry undergoes a rapid digital transformation, smart technologies are increasingly incorporated into retail settings to enhance operational efficiency and improve shopping experiences. A significant consumer group, Generation Z, is characterized by its high adaptability, technological abilities, and trend consciousness. Their use and acceptance of smart trolleys are essential to the effective application of such advancements. This quantitative study involved 411 Malaysian Generation Z individuals within the age range of 18 to 30. The survey was administered using two modes, which are an online Google Form and physical distribution. The survey measured five dimensions of consumption values, which were functional value (FV), emotional value (EV), social value (SV), epistemic value (EP), and conditional value (CV). Statistical Package for Social Science (SPSS) software was used to conduct statistical analysis, such as Pearson correlation and multiple regression analysis. The results revealed that all value dimensions showed a significant positive correlation with the intention to use smart trolleys. These findings indicate that if situational attributes, novelty, social influence, and emotional satisfaction are provided, Gen Z consumers are particularly willing to adopt smart trolleys. Besides, this study was added to the context of the literature by using TCV for the adoption of smart retail technology and provides useful recommendations for retailers and technology developers on how to increase Gen Z consumers' acceptance of smart trolleys in Malaysia.

Keywords: Consumption Values, Theory of Consumption Values (TCV), Smart Trolley Adoption, Consumer Intention, Generation Z, Malaysia.

Subject Area: HF5410-5417.5- Marketing. Distribution of products.

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LIST OF ABBREVIATIONS

TCV	Theory of Consumption Values
Gen Z	Generation Z
FV	Functional Value
EV	Emotional Value
SV	Social Value
EP	Epistemic Value
CV	Conditional Value
I	Intention to Use
IV	Independent Variable
DV	Dependent Variable
SPSS	Statistical Package for Social Science

LIST OF APPENDICES

CHAPTER 1 RESEARCH OVERVIEW

1.0 Introduction

The current chapter introduces the study by summarising the background, clarifying the research problem, outlining the objectives, formulating the research questions, and explaining the importance of the research.

1.1 Research Background

Nowadays, people can obtain their daily essentials at a shopping centre. They always want technology to make their tasks easy rather than completing them themselves because they lead busy lifestyles. In this innovative world, shopping centres use shopping trolleys to help customers choose and purchase the items they plan to buy. Customers use smart trolley systems to make purchases quickly with great convenience (Satheesan et al., 2021). Smart trolleys use RFID and product barcode scanning to streamline shopping, allowing customers to add or remove items, view total costs from the LCD, and complete billing conveniently (Patil et al., 2022).

Once the reset button is pressed, a new customer can utilize the smart trolley. To avoid theft, the IR sensor maintain a record of the number of products while the LCD screen will show the complete bill amount, and payment must be made in person at the counter. The product's QR code, which displays the price, weight, and other details, may be read with a QR scanner. Using image processing, the QR scanner can read product QR codes. Customers are therefore able to calculate the total cost and make purchases within their budgets with ease (Shukla et al., 2019; Satheesan et al., 2021).

TROLLEE and Jaya Grocer, a famous supermarket chain in Malaysia recognized for its high-quality fresh produce and household goods, have started a Proof of Concept (PoC). Through this agreement, TROLLEE's smart trolley technology, TROLLEE P2, will be available in a few Jaya Grocer locations as of November 28, 2024 (TROLLEE, 2024).

According to Beresford Research (2025), Generation Z, which includes people born between 1997 and 2007, is distinct from previous generations. Digital natives with numerous identities, Generation Z is characterized as a forward-thinking, creative, and anxious generation that values collaborative consumption (Elodie, 2020). It is easy to locate and confirm the information that Generation Z requires. They also share knowledge with others quickly. Because they use social media and a wide range of communication technology, they are constantly taking in information (Dolot, 2018). Since Gen Z has grown up enclosed by technology (Katalin & Garai-Fodor, 2024), this research aims to determine how Malaysian Generation Z's inclination towards using smart trolleys is influenced by consumption value.

According to Schultz and Zacheus (2024), there are 291 shoppers participated in a field study to learn more about the factors impacting consumers' desire to adopt smart trolleys. According to the study, customers do indicate a desire to adopt smart trolleys in traditional retail environments, mostly due to their affordability and convenience of use. Although they did not provide an exact figure for the usage rate, they did testify to the general curiosity and favorable emotions.

According to Fazal-e-Hasan et al. (2021), the effects of perceived novelty, effectiveness, compatibility, and risk factors on intention to use were investigated in a multi-method study including 338 knowledgeable consumers. This implies that smart trolleys have the environment and potential for adoption, but it does so by concentrating on drivers rather than actual usage.

1.2 Problem Statement

In this era of advanced technology, the retail industry worldwide is slowly embracing technology to enhance the customer experience and shopping efficiency (Dash & Khandelwal, 2019). Common retail technologies include cashierless stores, self-checkout kiosks, mobile checkouts, smart trolleys, and virtual assistants. Among these, the smart trolley integrates digital displays, payment systems, barcode scanners, and automated checkout to address the traditional trolley's inconvenience by saving time, showing real-time total costs, and avoiding long queues (Abdelaziz, 2014; Ishak et al., 2017; Gunawan et al., 2019).

In advanced countries throughout Europe, North America, and several Asian nations, including China, Korea, the United States, and others, smart trolleys have become common (Virtue Market Research, 2023). However, the adoption in Malaysia remains limited to selected retailers such as Redtick, Jaya Grocer, and Aeon (The Star, 2023). The smart trolley is available in Redtick Supermarket's Putrajaya outlet in Shaftsbury Putrajaya, AEON Style Taman Maluri, AEON Bandar Utama, AEON Bandar Puchong, and AEON Mid Valley. For Jaya Grocer, it is currently available at 1 Utama outlet, Sunway 163 Mall, NU Empire, Eco Galleria, The Intermark Mall, Gurney Paragon, Sunway Pyramid, and Eco Ardence.

As compared to other generations, Gen Z customers are more educated and more tech-savvy; consequently, their ability and adaptability in processing and information digestion are much faster than others (Priporas et al., 2017; Raza et al., 2022). Yet, long checkout lines in Malaysian supermarkets often reduced their perceived functional value of in-store experience in terms of convenience, time efficiency, and effectiveness (Thangavel et al., 2019). This drives Gen Z consumers towards online delivery services, which provide speed and convenience but reduce emotional value due to a lack of interactivity. Therefore, retailers need innovative solutions such as smart trolleys to recapture and enhance the value of shopping in physical stores.

Since most prior research has been conducted in a foreign contexts such as China (Chen & Chang, 2023), Italy and Crotian (Dominici et al., 2016), Indonesia (Ridha et al., 2023), the United States (Tan, 2022), and the United Kingdom (Alotaibi, 2012; Yin, 2021) and the study (Schultz & Zacheus, 2024) is based on an international context, researchers rarely focus on Malaysian retail setting. Due to cultural, behavioral, and market variations, these findings may not be applicable to the Malaysian setting.

Furthermore, most research has investigated smart retail technologies in general consumer contexts without focusing on specific generations of consumers, causing an overlook of Generation Z's behavioral patterns, value perceptions, tendencies, and intention to adopt technologies.

Many scholars have applied the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM) to examine user acceptance of the technical and functional aspects of smart retail technology (Kim et al., 2016; Zaki & Broujerdi, 2020; Francois & Somogyi, 2022). Other theoretical frameworks, like the cognitive dissonance theory and value-based adoption model (VAM), have also been applied (Jasim, 2024; Zaki & Broujerdi, 2020). However, limited research has examined the intention toward the use of smart trolleys by specifically using the theory of consumption values.

Hence, this research addresses these gaps by exploring how different types of consumption value affect Malaysian Generation Z's willingness and intentions to use smart trolleys. Also, the research aims to provide insights to help consumers better understand smart trolleys while providing retailers with more accurate marketing strategies and facilitating the wider application of smart trolleys in Malaysia.

1.3 Research Objective

The primary objective of this research is to investigate and evaluate the ways in which consumption values would significantly impact Malaysian Generation Z's intention to use smart trolleys.

1.3.1 Specific Research Objective

The following research objective is the focus of this investigation.

1. To investigate how functional value affects Malaysian Generation Z's intention to use smart trolleys.

2. To investigate how emotional value affects Malaysian Generation Z's intention to use smart trolleys.

3. To investigate how social value affects Malaysian Generation Z's intention to use smart trolleys.

4. To investigate how epistemic value affects Malaysian Generation Z's intention to use smart trolleys.

5. To investigate how conditional value affects Malaysian Generation Z's intention to use smart trolleys.

1.4 Research Question

The following research questions are designed to figure out if consumption value correlates with the intention to use a smart trolley:

1. Does the intention of Malaysian Generation Z to use smart trolleys depend on functional value?

2. Does the intention of Malaysian Generation Z to use smart trolleys depend on emotional value?

3. Does the intention of Malaysian Generation Z to use smart trolleys depend on social value?

4. Does the intention of Malaysian Generation Z to use smart trolleys depend on epistemic value?

5. Does the intention of Malaysian Generation Z to use smart trolleys depend on conditional value?

1.5 Research Significance

This research brings both theoretical and practical significance. Most research has recently focused on other smart retail technologies and used theoretical frameworks, such as the Technology Acceptance Model, Cognitive-Dissonance Theory, and others. Therefore, this study broadens the use of the Theory of Consumption Values (TCV) to smart retail technologies, focusing more specifically on the smart trolleys context. Moreover, different-aged consumers have different consumer behavior and value perceptions. This research enables to enrich the understanding of generational consumer behaviors by focusing specifically on Generation Z's value perceptions. They are often characterized as digital natives and having a different mindset and behavior that differs from other cohorts. In addition, theories utilized in prior studies may not be fully applicable to all aspects of consumer perception. Applying the Theory of Consumption Values in this research may deepen the understanding of which consumption values are valued and have a strong influence on consumers' adoption intention. This research also provides insights within the Malaysian

context, which is beneficial in filling the gap that local academic research on smart retail technologies still remains limited. Lastly, the results provide a useful reference for further research. It may be significantly useful and enable researchers to predict Generation Z's intention to use and to extend this theoretical framework into other forms of the latest innovative retail technologies. Overall, this study is theoretically significant as it applies the Theory of Consumption Values to smart trolleys and explains how each of the consumption values influences the Malaysian Generation Z's perception and consequently shapes their intention to use them differently.

Practically, this research offers beneficial contributions for both practitioners and policymakers. From a policy perspective, it provides valuable insight for government and policymakers into the appropriate resource allocation and strategic initiatives for supporting retailers in improving smart trolleys. Additionally, the studies might also help policymakers create programs and policies that support the retail industry's digital transition. This enables the Malaysian retail environment to align with its plan for advancing the digital economy. For practitioners, they may better understand the key factors that drive Gen Z to use the smart trolleys. These insights allow the practitioners to design better and more user-friendly smart trolleys that better align with Gen Z expectations and preferences. Consequently, it presents chances to improve the in-store buying experience. Besides, this study helps retailers develop effective strategies by focusing on the value aspects that customer matter the most to drive more usage of smart trolleys. Retailers may design their marketing strategies and promotional campaigns based on the values that Gen Z matter the most whether efficiency, enjoyment, social recognition, or others.

CHAPTER 2 LITERATURE REVIEW

2.0 Introduction

This section introduces the Theory of Consumption Value (TCV) as the basis of the study. It also outlines the five value dimensions along with the related hypotheses and conceptual framework

2.1 Underlying Theory - Theory of Consumption Value (TCV)

Theory of Consumption Value (TCV) serves as a comprehensive framework that interprets consumers' behaviour through multiple value dimensions (Sheth et al., 1991; Tanrikulu, 2021). Each individual may have their own unique viewpoint on various goods and services depending on the different types of consumption value (Yeo et al., 2016; Tan & Chiu, 2024). This may directly affect the consumers' desire to purchase and how they make decisions. TCV identifies the fundamental factors that affect consumer behavior, enhancing understanding and prediction of consumers' decisions (Lin & Huang, 2012). Several studies have widely used this theoretical framework to examine behavioral intentions of the usage of various technologies. For instance, Xiao et al. (2015) explored the different consumption values of payment technology usage, while others examined mobile technology (Wang et al., 2013; Goh et al., 2014), mobile applications (Bodker et al., 2009; Kaur et al., 2021; Chakraborty et al., 2022), and 5G mobile communication technology (Shah et al., 2023; Shams et al., 2024).

This multidimensional approach addresses consumers' perceived value by considering five primary consumption values that may influence the consumer's decisions (Sheth et al., 1991). When a product or service delivers benefits such as

quality, efficiency, and practicality, these aspects represent its functional value (Sheth et al., 1991). A product has functional value if it possesses unique physical, practical, and functional attributes. Furthermore, social value refers to the values that are perceived to be connected to one or more specific social groups from a different association. Also, social benefits result from products or services that can improve a consumer's social self-concept (Sheth et al., 1991). Emotional value determines how much a consumer perceives a product or service to be worth, depending on its ability to elicit a psychological or emotional reaction, and is further influenced by the advantages that consumers derive from it (Sweeney and Soutar, 2001). Epistemic is when a decision can generate curiosity, bring novelty, and satisfy a need for information. Conditional value highlights how specific conditions or environments can influence the perceived usefulness or importance of a choice.

In the context of smart trolleys, functional value links to the trolley's capability to streamline the shopping process through technologies such as automation and barcode scanning. Social value could derive from Gen Z consumers to use a smart trolley as a representation of socially approved or tech-savvy, while the emotional value may be associated with bringing up a more enjoyable shopping journey. Next, the epistemic value could relate to the smart trolley's innovation and evoke Gen Z consumers' interest in trying out new smart retail technologies. Lastly, the conditional value may be applied to the consumers' shopping situation during peak hours.

2.2 Review of Variables

2.2.1 Independent Variable (IV) - Functional Value (FV)

Consumers could gain functional value from the product's performance that offers practical benefits and functionalities (Sheth et al., 1991). It often includes attributes like quality, efficacy, dependability, and ease that

influence how consumers perceive value for money (Lee et al., 2010). For smart trolleys, functional value reflects the technological features that improve the consumers' shopping experience. According to Satheesan et al. (2021) and Jadhav et al. (2024), the practical benefits of smart trolleys are associated with functions like voice assistant, in-store navigation, automated billing, product scanning, and product suggestions. These features are all intended to improve efficiency and convenience, streamline the shopping process, and eliminate the need for long queues. Yeo et al. (2017) highlighted that convenience, time savings, and energy and effort minimization during their shopping are all what they truly care about. Hence, functional value is an important aspect in this study as it evaluates how the features, functionality, and usefulness of smart trolleys meet consumers' functional aspects and utilitarian needs.

2.2.2 Independent Variable (IV) - Emotional Value (EV)

Emotional value captures how a product can influence mood, generate feelings, and establish a personal connection with consumers (Mason et al., 2023). Emotions may be classified into positive and negative sentiments, with different emotions eliciting different experiences and associations for different individuals. Positive feelings include enjoyment and happiness, while negative ones include fear, frustration, sadness, guilt, and humiliation. These can shape consumers' experience and association with products or services (Altaf et al., 2017). Besides, it has been shown that emotional value is significant since it can increase consumer satisfaction and loyalty (Nurfaedah & Mustikasari, 2017). Customers will have an enjoyable and pleasant shopping experience since using a smart trolley makes the procedure simpler and more convenient (Chandran et al., 2019).

2.2.3 Independent Variable (IV) - Social Value (SV)

The social impression of a choice's image is usually linked to this social value, which stems from people's drive to demonstrate their identity, status, or a sense of belonging via their choices (Tanrikulu, 2021). Social value emerges when customers believe that using a certain good or service would help them gain social acceptance, elevate their position, and engage with others (Sheth et al., 1991). Social influence has a big impact on consumer behavior (Bhukya & Paul, 2023). An individual will change their mindset, attitude, and behavior after interacting with others. As Tanrikulu (2021) states, social value is the added value that individuals can feel to improve their social image because of the association of a product or service with a particular social group. Its social value is reflected in consumers viewing the use of smart trolleys as a symbol of social recognition and demonstrating both their technological literacy and successful integration into society.

2.2.4 Independent Variable (IV) - Epistemic Value (EP)

An epistemic value refers to an alternative that arouses novelty, knowledge, and curiosity. New experiences or even having a basic alternative that offers a shift in setting may provide epistemic value (Sheth et al., 1991). Berlyne (1950) described curiosity as a novel stimulus that affects its receptors will causing an organism to go through a drive-stimulus-producing reaction, which in turn motivates individuals to explore and learn. Epistemic value has been found to encourage consumers to explore new things and experiences (Kaur et al., 2021). Smart trolley, as a kind of new smart retail technology with multiple high-tech functions in Malaysia, has epistemic value reflected in sparking curiosity and interest of consumers to try it out.

2.2.5 Independent Variable (IV) - Conditional Value (CV)

According to Altaf et al. (2017), conditional value refers to the specific situation that boosts the alternative's functional or social worth, benefiting a consumer. Conditional value is determined by comparing it to a set of alternative outcomes. The alternatives that depend on the different circumstances may be associated with seasons, once-in-a-lifetime events, emergencies, or mild conditions (Sheth et al., 1991). This value is shaped by various situational factors such as the physical environment, time pressure, social setting, task specification, or emotional state (Chen & Chang, 2023). A product's conditional value is not intrinsic, but rather arises when its context increases its perceived functional or social value. Prasanna and Priyanka (2024) stated that Gen Z usually seeks real-time interaction, seamless support, and immediate solutions. Therefore, in terms of this study, the conditional value may be reflected from the use of a smart trolley in a specific context, like during the crowded shopping time, the smart trolley can offer real-time assistance to the customers' problems, helping the customers to grasp and understand the technology quickly, or provide navigation of products.

2.2.6 Dependent Variable (DV) – Intention to Use (I)

Intention is used to describe the likelihood of performing a future behavior that an individual tends to act upon (Fazal-e-Hasan et al., 2021). Sheeran (2002) claimed that behavioral intentions are the self-instructions that individuals create to guide their actions toward specific behaviors. Behavioral intention reflects how a person's motivational willingness is to get involved in a specific activity or action. Intention to use serves as a key metric that can assist in capturing motivations for embracing innovative retail technologies (Yeoh et al., 2025). In this study, the intention to use, which is a more specific type of behavioral intention, will be used to

evaluate the likelihood that Generation Z consumers will adopt or use a smart retail cart during the shopping experience.

2.3 Proposed Conceptual Framework

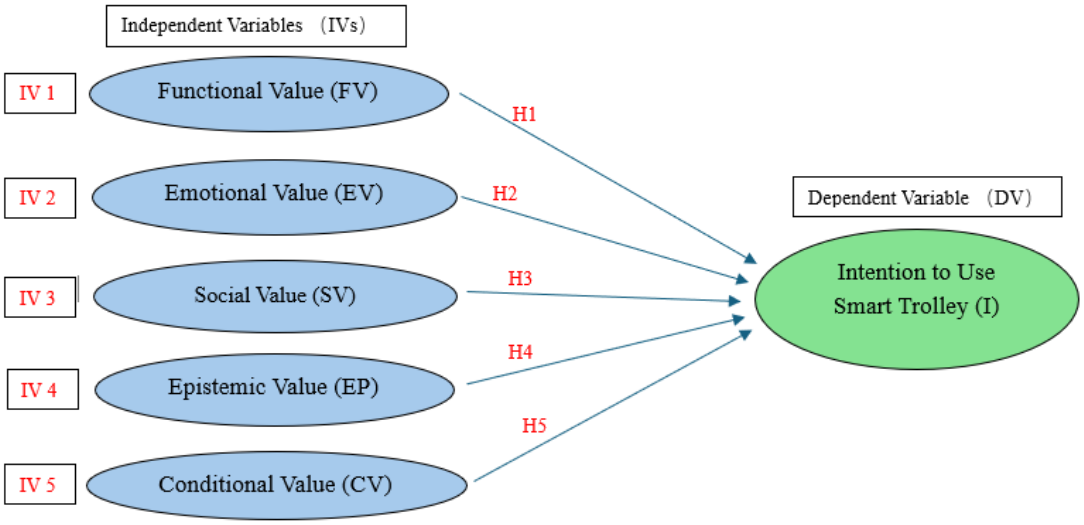

Figure 2.1. Proposed Conceptual Framework

As shown in Figure 2.1, this study conceptualises Malaysian Generation Z's intention to adopt smart trolleys as the dependent variable. The independent variables are drawn from the Theory of Consumption Values and encompass five dimensions, including functional value (FV), emotional value (EV), social value (SV), epistemic value (EP), and conditional value (CV).

2.4 Hypothesis Development

This section outlines the hypothesis according to the proposed conceptual framework in Figure 2.1. Each hypothesis reflects the link between consumption value and Gen Z's intention to adopt smart trolleys.

2.4.1 The relationship between functional value (FV) and the intention to use smart trolleys (I).

Prior studies have demonstrated that when technology offers customers high levels of functionality, convenience, and efficiency, they are more inclined to try it out. Consumers will develop positive attitudes toward the smart retail technology if it provides superior functions to consumers (Roy et al., 2018). Han et al. (2017) indicated that consumers' decisions are mainly influenced by the performance of the technology, as consumers are more likely to embrace technologies that deliver superior functional benefits. Adapa et al. (2020) stated that when consumers perceive smart trolleys as useful tools that assist with shopping tasks, their intention to use them will increase. Other than efficiency, functional value also refers to the reliability of the systems, which strengthens user satisfaction, promotes long-term usage engagement, and customer trust (Turel et al., 2010; Lin & Huang, 2012). Although functional value is often perceived as important, other studies showed that it may not always be a strong determinant of consumer decision and behavioral intention (Kaur et al., 2021). Consistently, Lee et al. (2010) also reported that functional value showed no significant effect on behavioral intention.

H1: Functional value positively influences Generation Z's intention to use smart trolleys.

2.4.2 The relationship between emotional value (EV) and the intention to use smart trolleys (I).

As stated by Zaki and Broujerdi (2020), emotional value is one of the elements that motivates users to accept and make use of new technologies. Both favorable and unfavorable emotions influence the decision to embrace new technologies. When consumers experience positive emotions such as

pleasure, enthusiasm, or satisfaction, their willingness to engage with these innovations strengthens (Abikari et al., 2022). Existing research indicated that pleasurable emotional experiences encourage customer commitment and long-term use of technology (Roy et al., 2020; Ortega & Ferreira, 2021). In contrast, consumers' intention may be discouraged by negative emotions like fear, anxiety, and frustration when using the technologies (Abikari et al., 2022). Peter et al. (2025) highlighted that fear and suspicion may weaken customers' behavioral intention to use the smart trolley. When users are concerned about issues such as data security and privacy, they tend to resist adopting new technologies. In this context, automated payment on smart trolleys may discourage the use if they are concerned about bank information leakage or the exposure of confidential data during login. This prove that emotional value significantly impacts customers' intention to use a smart trolley (Lii & Sy, 2009).

H2: Emotional value positively influences Generation Z's intention to use smart trolleys.

2.4.3 The relationship between social value (SV) and the intention to use smart trolleys (I).

Consumer behavior and decision-making are often affected by others through social interaction. Consumers are more likely to utilize smart trolleys if they think that adopting them would improve their image or obtain acceptance from others (Han et al., 2017). A person is frequently impacted by others, such as friends and family. When others share their positive experiences of using a smart trolley, individuals will increase their interest and are more intends to try it (Bhukya & Paul, 2023). However, several studies stated that social value may not be considered as a critical factor that may influence their behavioral intention (Turel et al., 2010; Hur et al., 2012; Amin & Tarun, 2020). This is consistent with other findings that reported

social value did not significantly predict consumers' intention. (Ramayah et al., 2018).

H3: Social value positively influences Generation Z's intention to use smart trolleys.

2.4.4 The relationship between epistemic value (EP) and the intention to use smart trolleys (I).

Consumers' intention to use smart trolleys increased when they perceived that epistemic value was increasing (Fazal-e-Hasan et al., 2021). Existing research has shown that one of the elements that encouraged their intention to use technology was epistemic value. The research (Šumak & Šorgo, 2016) showed that the adoption rate of technological innovation has risen in the educational sector, and Kim et al. (2016) stated that intention to use online technologies is positively affected by the perception of novelty. Moreover, innovation can increase consumer curiosity, which in turn drives their willingness to try new technologies (Schultz & Zacheus, 2024). As a new form of smart retail technology in Malaysia, the innovative features of smart trolleys can stimulate consumers' curiosity and novelty, and encourage consumers' intention to use them. Contrastingly, Ramayah et al. (2018) reported that Gen Z were considered as trend followers and just following what other people do rather than acting on personal curiosity, hence epistemic value did not significantly influence consumers' behavioral intention as

H4: Epistemic value positively influences Generation Z's intention to use smart trolleys.

2.4.5 The relationship between conditional value (CV) and the intention to use smart trolleys (I).

Situation plays a significant role in determining customers' intentions since various circumstances can affect consumers' final decisions in different ways. The situational factors can significantly influence consumers' evaluation and intention to use smart trolleys. Consumers prefer the convenience of smart trolleys, particularly during busy shopping hours or when they have urgent shopping duties to complete; hence, it will increase their likelihood of using smart trolleys. Conditional value may therefore positively impact Gen Z's desire to use it in some situations (Ramayah et al., 2018). Similarly, Hung and Hsieh (2010) highlighted that because of contextual conditions would determine whether a technology will be used by consumers; hence, conditional value and customers' intentions are considered to be strongly related..

H5: Conditional value positively influences Generation Z's intention to use smart trolleys.

CHAPTER 3 METHODOLOGY

3.0 Introduction

This chapter outlines the methodological approach adopted for the study. It covers the overall research design, sampling strategy, data collection method, the development of the research instrument, and the analytical techniques applied.

3.1 Research Design

3.1.1 Descriptive Research

Since the methodological goal of descriptive research is to describe experiences, situations, behaviours, and outcomes without diving into theoretical predictions or cause-and-effect relationships, descriptive research will be used in this study. There are several methods for conducting descriptive research, including surveys, case studies, and observation. While case studies offer a more in-depth look at individuals or groups, enabling an in-depth investigation of difficult themes, observational research usually entails watching subjects in either natural or controlled contexts, helping to capture authentic behaviors (Purdy & Rholetter, 2023).

The goal of descriptive research is to explain the connections between variables, like the aspects of consumption value. Consumption values that can be linked to how Generation Z's intention to use smart trolleys influenced include functional, emotional, social, epistemic, and conditional

values. Additionally, descriptive research describes how Generation Z responds when using a smart trolley.

Besides, this study also used a cross-sectional design. The most important aspect of cross-sectional designs is the straightforward fact that all of the observed data are collected at single point in time (Cummings, 2017). This research involves collecting information from a particular demographic, which is Generation Z, at one particular point in time. This approach is effective, less costly, and appropriate for descriptive research objectives.

3.1.2 Quantitative Research

Quantitative research methods focus on gathering and evaluating structured data that may be expressed numerically. The "what," "how much," "why," "who," "where," "when," and "how" of the situation in question can all be effectively answered by quantitative research, which focuses on data that can be measured. As a result, questions are straightforward, measurable, and frequently contain sentences (Goertzen, 2017).

Quantitative research was suitable for this study since it made it possible to evaluate Gen Z's attitudes and plans about the use of smart trolleys. The connection between consumption values and intention to use could be completely investigated by statistical analysis.

3.2 Sampling Design

3.2.1 Target Population

The target population of the study is Generation Z who born between 1995 through 2007 (Seemiller & Grace, 2017). It demonstrates clearly that in 2025, Generation Z will be between the ages of 18 and 30. Because people in Generation Z have adopted smart trolleys and other such technology (Ng et al., 2010), Generation Z has been selected as the study's target population.

Since Generation Z's purchasing behavior is typically influenced by functional and convenience value (Theocharis et al., 2025), it is important for the study to focus on this target population. Hence, the study can enhance technology adoption techniques in smart retail environments and provide developers and retailers with useful insights.

3.2.2 Sampling Location and Sampling Frame

The study may only include groups of Generation Z who have the skills to test and utilize the smart trolleys as a primary population, but it won't be limited to any specific locations (Priporas et al., 2017). Thus, it indicates that Generation Z, who live in any of Malaysia's states is accepted, which includes West Malaysia and East Malaysia. The Malaysia's states include Kedah, Perlis, Perak, Pulau Pinang, Pahang, Melaka, Johor, Selangor, Negeri Sembilan, Kelantan, Terengganu, Sabah, and Sarawak.

3.2.3 Sampling Elements

The study will focus on Malaysian groups of Generation Z, who are between the ages of 18 and 30 years old. Generation Z in Malaysia, with the ability to test and utilize the smart trolleys, could be considered a target respondent.

3.2.4 Sampling Size

Based on research, the target population is Generation Z's consumption values have influenced the intention to use smart trolleys. The ages range from 18 to 30 years old. In 2024, there are about 7,874,940 Generation Z in Malaysia (Department of Statistics Malaysia, 2023). According to Bukhari (2021), the sampling size can be determined by using the Krejcie and Morgan Table. If the target population exceeds 1,000,000, the sample size will become 384. According to Figure 3.1, since there are 7,874,940 Generation Z population in Malaysia, 384 will be the sample size for the study. Because researchers usually do not have access to the entire population of interest and must make conclusions from a representative sample, the study decided to use the Krejcie and Morgan Table.

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	26	140	103	340	181	1000	276	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is Population Size
"S" is Sample Size.

Figure 3.1. Krejcie and Morgan Table

3.2.5 Sampling Technique

The non-probability sampling technique is used in the study. The non-probability sampling method relies on the objective evaluation of the researcher. Besides, the judgmental sampling method is selected to use in this study. The researcher can utilize judgmental sampling to ensure that the data collected is directly relevant to the research topic by carefully selecting participants who meet these criteria. Because the study focuses on how Malaysian Generation Z's consumption attitudes have influenced their intention to use smart trolleys, judgmental sampling was applied. This is due to judgmental sampling enables the selection of appropriate and suitable respondents, such as a group of Generation Z between the ages of 18 and 30 years old, and because it examines how consumption values impacted the intention to use smart trolleys, the study used judgmental sampling. The survey begins with two questions that serve as filtering questions. Only after respondents respond yes to the filtering question will the survey begin. The following are the filtering questions:

(1) Are you a Malaysian?
(2) Do you belong to Generation Z (born between 1995 and 2007)?
(3) Are you familiar with smart trolleys? (eg: seen them online or in store)

3.3 Data Collection Method

Quantitative data collection will be conducted through both online and physical methods. The sample consists of Malaysian Generation Z (18 to 30 years old). The survey will be created using Google Form and shared online via a link, and will also be distributed physically within the UTAR campus to reach the respondents directly. From this, a judgmental sampling was employed. Based on the Theory of Consumption Values, the survey instrument was designed to assess behavioral

intention towards smart trolley adoption, and the five value dimensions constructs include functional, social, epistemic, emotional and conditional.

3.4 Research Instrument

3.4.1 Questionnaire Design

Google Form, an online survey tool, will be used to design and distribute the questionnaire to respondents. The survey will be presented in English and divided into nine sections (A to I). Section A consists of screening questions to identify suitable respondents. Section B will be collecting demographic information, including respondents' age, gender, educational level, occupation, state, and income level. Section C focuses on general information on shopping behaviour. Sections D to H will focus on the independent variables, while Section I will focus on the dependent variables. Each variable consists of 4 to 5 questions.

The survey questions use a structured format with a Likert Scale ranging from "strongly disagree" to "strongly agree". The scale was chosen because it offers clear response categories, which can boost respondents' willingness to participate and ensure objectivity in measuring respondents' attitudes.

3.4.2 Pre-Test

The study's pre-test involves distributing the questionnaire to a select group of lecturers. Additionally, the select group of lecturers will also determine whether the survey questions are understandable and straightforward.

One of the filtering questions was removed once the pre-test was completed. Additionally, the ethnicity question was removed from the demography section, and a list of all Malaysian states was added, along with a question about monthly income. Besides, there are some add-on and drop-out questions in the questionnaire's Sections D to I.

3.4.3 Pilot Study

To provide high-quality results, a comprehensive research study with a suitable experimental design and exact execution is required. Examining its viability before to conducting the primary research might therefore be quite helpful. Any research methodology starts with a pilot study, which usually a little investigation that aids in planning and adjusting the bigger study (In, 2017). Following the end of the pilot study, nothing has changed.

3.5 Proposed Data Analysis Tools

The study data is analysed using SPSS software. The SPSS software platform includes capabilities including text analysis, big data integration, open software extensibility, advanced statistical analysis, a vast library of machine learning algorithms, and seamless application deployment. People of all skill levels, SPSS can assist in finding new opportunities, boost productivity, and lower risk (IBM, 2025).

3.5.1 Descriptive Analysis

Descriptive research methods have been widely used in a wide range of subjects, including education, psychology, and the social sciences. Besides, the application of these kinds of studies has started to grow in the field of

teaching and learning of second languages (Nassaji, 2015). Descriptive analysis is without a doubt one of the most complex, adaptable, and frequently used tools in the field of sensory analysis. Over time, a variety of techniques have been developed to accomplish different objectives and purposes, each with unique advantages and disadvantages (Kemp et al., 2018).

3.5.2 Internal Consistency Analysis

To ensure that measurement items are dependable, Cronbach's alpha is utilized to assess internal consistency. In other words, it measures the reliability of survey answers, instrumentation, or ratings assessed by participants, which will show how stable the instruments are. This statistic is to assess whether the items within a construct function together to measure the same concept. The value ranges from 0 to 1, where greater values indicate stronger reliability while lower value suggests that some or allitems may measure different dimensions (Tang et al., 2014).

Cronbach's alpha test may be used to determine whether the items are trustworthy in measuring the same dimension. Typically, Cronbach's alpha test is used to evaluate the stability and consistency of surveys that evaluate latent variables (Tang et al., 2014).

Table 3.1:
Rule of Thumb on Cronbach's Alpha (Chan et al., 2023)

Cronbach's Alpha	Internal Consistency
<0.60	Poor
0.60 to < 0.70	Fair
0.70 to < 0.80	Good
0.80 to < 0.95	Very Good

Table 3.3 demonstrates that a general Cronbach's Alpha rule is 0.80 and above is very good, 0.70 and above is good, 0.60 and above is considered fair, and below 0.60 is poor. There may be a strong correlation between the questions in a test with a high alpha score. But the alpha coefficient is also influenced by the quantity of testing questions.

3.5.3 Inferential Analysis

3.5.3.1 Multiple Regression Analysis

An essential tool for assessing a building's energy use is multiple regression analysis. These models are frequently used to evaluate commercial buildings' energy performance and forecast areas where energy consumption may be reduced (Amiri et al., 2015).

The estimated regression model is (Chan et al., 2023):

$$\boldsymbol{y = a + b1X1 + b2X2 + b3X3 + \ldots + bkXk}$$

Hence, a multiple regression equation is generated as:

$$\mathbf{I = a + b1(FV) + b2(EV) + b3(SV) + b4(EP) + b5(CV)}$$

I = Intention to use smart trolley

a = constant

FV = Functional Value

EV = Emotional Value

SV = Social Value

EP = Epistemic Value

CV = Conditional Value

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In Chapter 4, there are three main subtopics, which are descriptive analysis, reliability test, and inferential analysis. This chapter is to analyze data after collecting all of the respondents.

4.1 Descriptive Analysis

4.1.1 Demographic Data

4.1.1.1 Gender

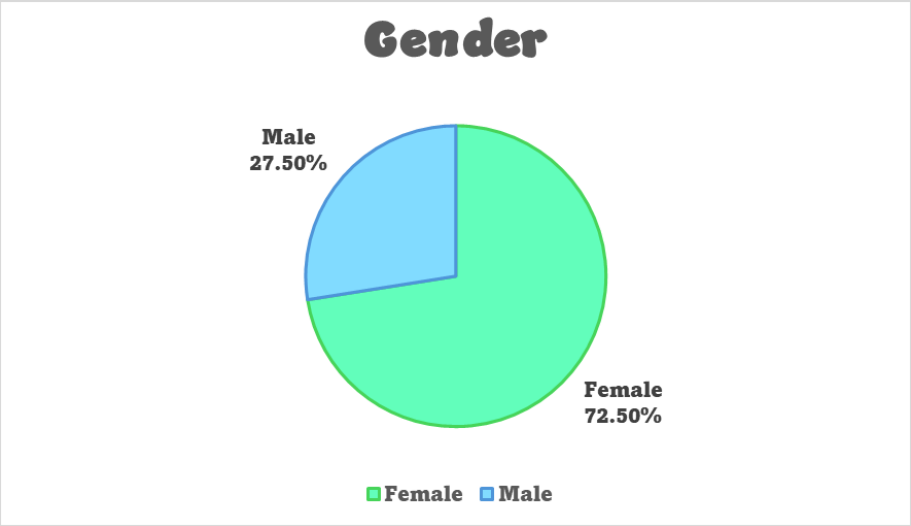

Figure 4.1. Gender of Respondents

As shown in Figure 4.1, most of the respondents in this study are female, constituting 72.50% (N= 298), whereas male respondents are 27.50% (N= 113).

4.1.1.2 Age

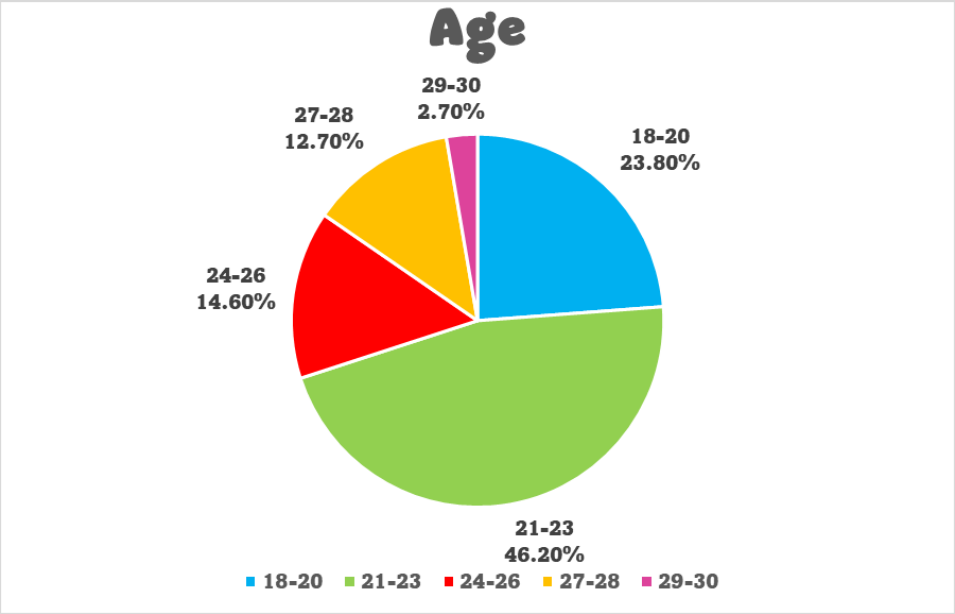

Figure 4.2. Age of Respondents

Figure 4.2 shows that Gen Z is represented by 23.80% of 18-20 years old groups (N=98), 46.20% of 21-23 years old groups (N=190), and 14.60% of 24-26 years old groups (N=60). The 27-28 age group accounts for 12.70% (N=52) while the 29-30 age group accounts for 2.70% (N=11).

4.1.1.3 Educational Level

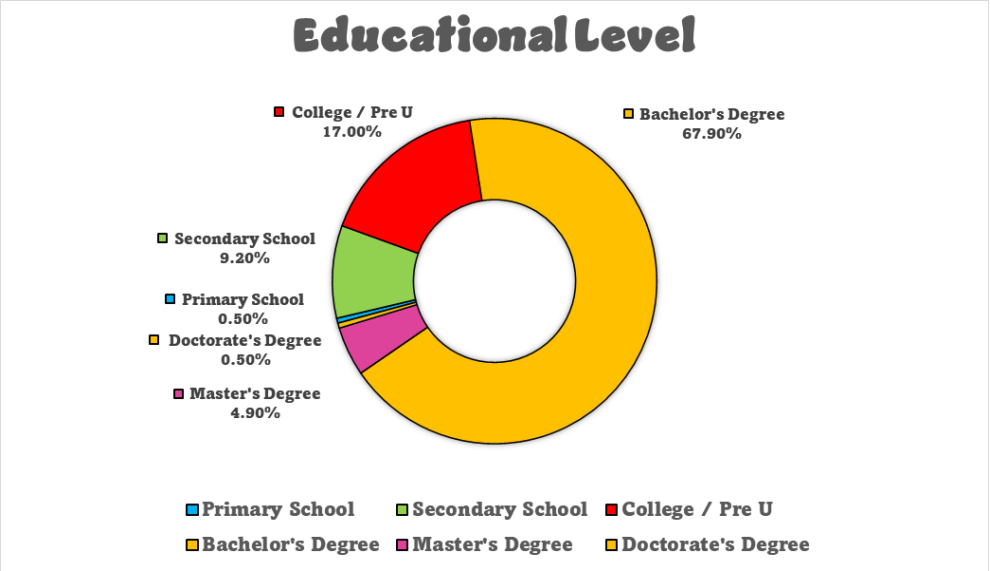

Figure 4.3. Educational Level of Respondents

Figure 4.3 indicates that the majority of respondents, 67.90% (N=279), have a bachelor's degree/ There are 17.00% (N=70) for college or pre-university, 0.50% (N=2) for doctoral degree, 4.90%(N=20) for master's degree, 0.50% (N=2) for primary school, and 9.20% (N=38) for secondary school.

4.1.1.4 State

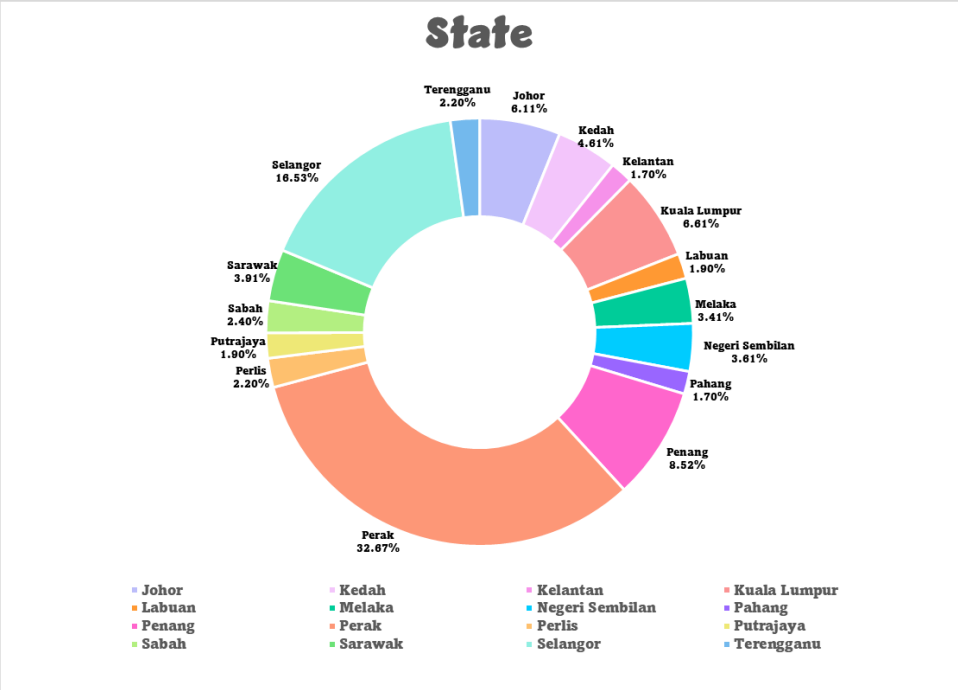

Figure 4.4. State of Respondents

Figure 4.4 indicates that 32.60% of the respondents (N=134) are from Perak. Respondents from Johor make up 6.10% (N=25), Kedah make up 4.60% (N=19), Kelantan make up 1.70% (N=7), Kuala Lumpur make up 6.60% (N=27), Labuan make up 1.90% (N=8), Melaka make up 3.40% (N=14), Negeri Sembilan make up 3.60% (N=15), Pahang make up 1.70% (N=7), Penang make up 8.50% (N=35), Perlis make up 2.20% (N=9), Putrajaya make up 1.9% (N=8), Sabah make up 2.40% (N=10), Sarawak make up 3.90% (N=16), Selangor make up 16.50% (N=68), and Terengganu make up 2.20% (N=9).

4.1.1.5 Employment Status

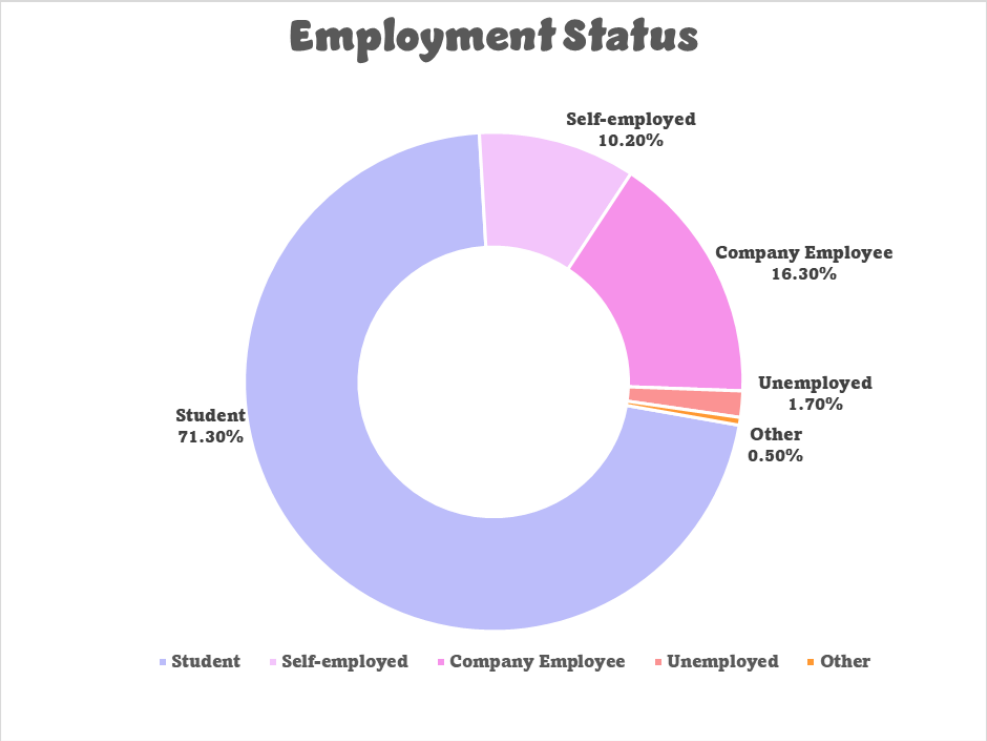

Figure 4.5. Employment Status of Respondents

As seen in Figure 4.5, 71.30% (N=293) of respondents are students. 16.30% (N=67) of those surveyed work for the company. The employment status of 0.50% (N=2) of the respondents is other. Of the respondents, 10.20% (N=42) are self-employed. The unemployment rate among respondents is 1.70% (N=7).

4.1.1.6 Income Level

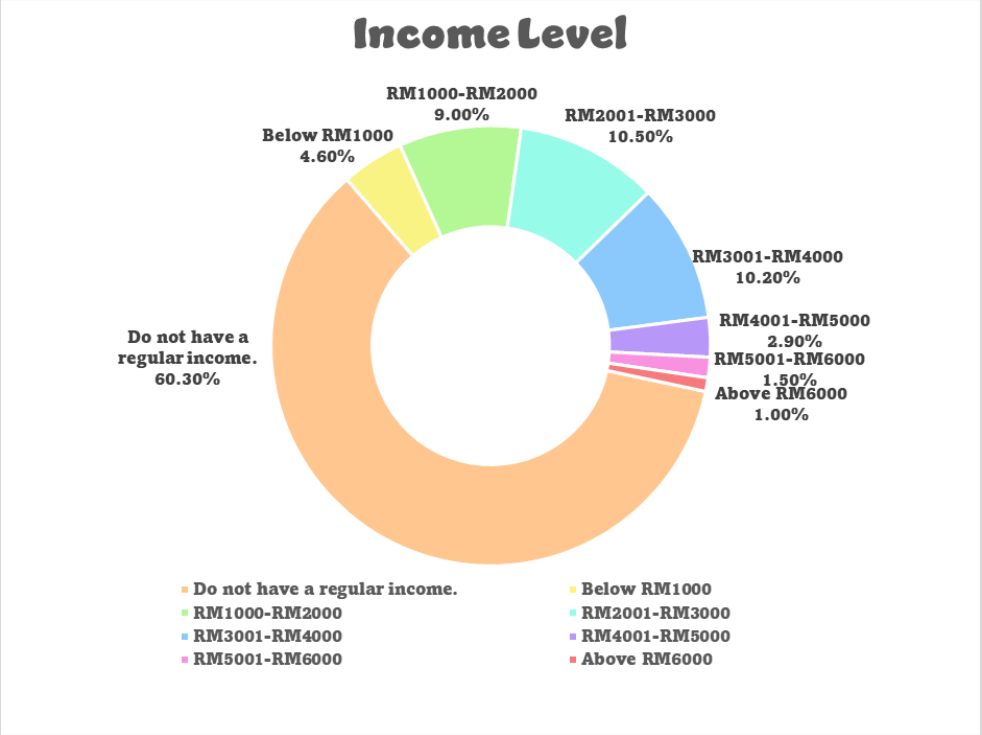

Figure 4.6. Income Level of Respondents

According to Figure 4.6, 60.30% (N=248) of respondents reported having "I do not have a regular income." Of those surveyed, 1.00% (N=4) earn more than RM6,000. Among responders, 4.60% (N=19) earn less than RM1,000. Among respondents, 9.00% (N=37) earn between RM1,000 and RM2,000. 10.50% (N=43) of respondents' income falls between RM2,001 and RM3,000. Besides, RM3,001 and RM4,000 accounts for 10.20% (N=42) of respondents' income. The income range of 2.90% (N=12) and 1.50% (N=6) of respondents is between RM4,001 and RM5,000 and RM5,001 and RM6,000 respectively.

4.1.2 General Information on Shopping Behavior

4.1.2.1 Experience of Using Smart Technologies

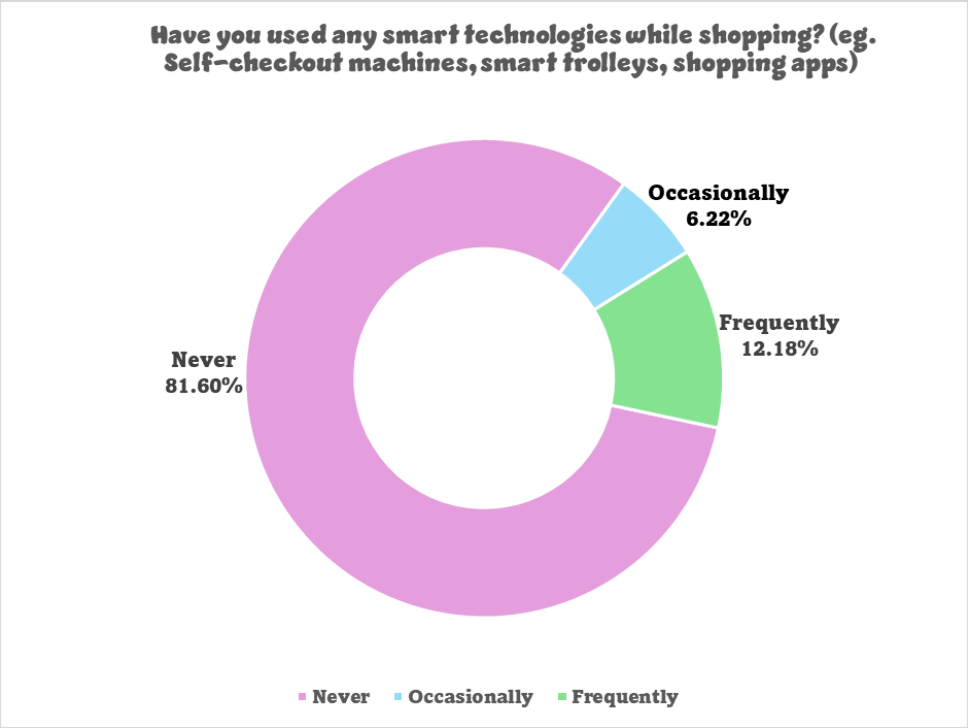

Figure 4.7. Respondents' Experience of Using Smart Technologies

Figure 4.7 indicates that 35.30% (N=145) of those surveyed utilize smart technologies frequently. Furthermore, 5.40% (N=22) of respondents said they never utilize smart technologies. 59.40% (N=244) of those surveyed said they use smart technologies occasionally.

4.1.2.2 Comfort Level of Using Smart Technologies

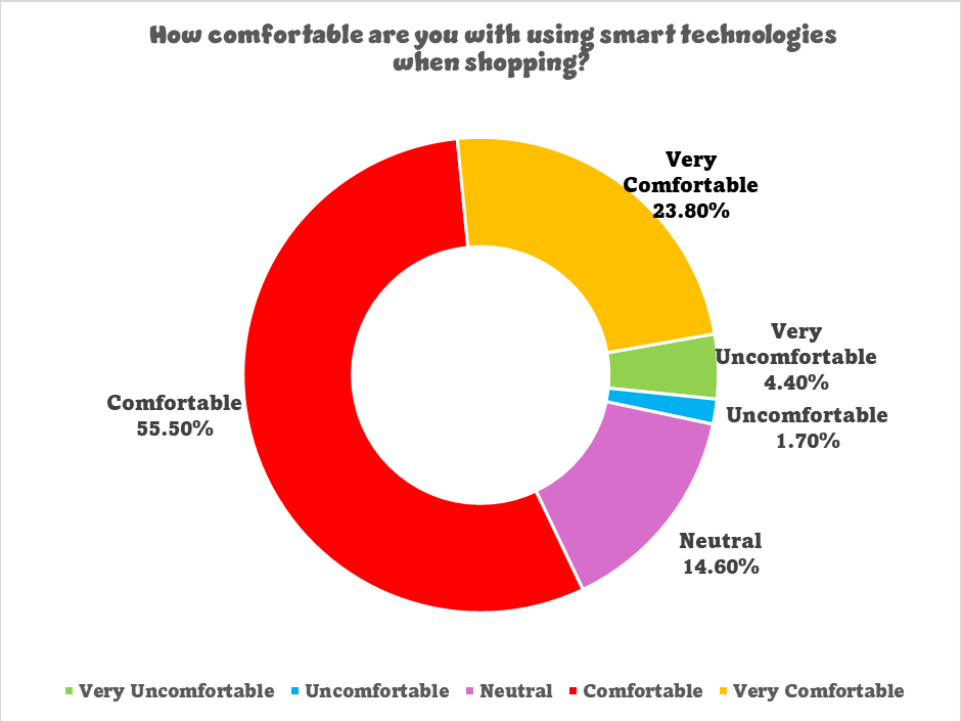

Figure 4.8. Respondents' Comfort Level of Using Smart Technologies

Figure 4.8 demonstrates that 55.50% (N=228) of respondents feel comfortable using smart technologies. The use of smart technologies is neutral for 14.60% (N=60) of respondents. Additionally, 1.70% (N=7) of respondents said they felt uncomfortable using smart technologies. Of the respondents, 23.80% (N=98) said they feel very comfortable using smart technologies. 4.40% (N=18) of respondent's report feeling uncomfortable using smart technologies.

4.1.2.3 Duration of Each Shopping Trip

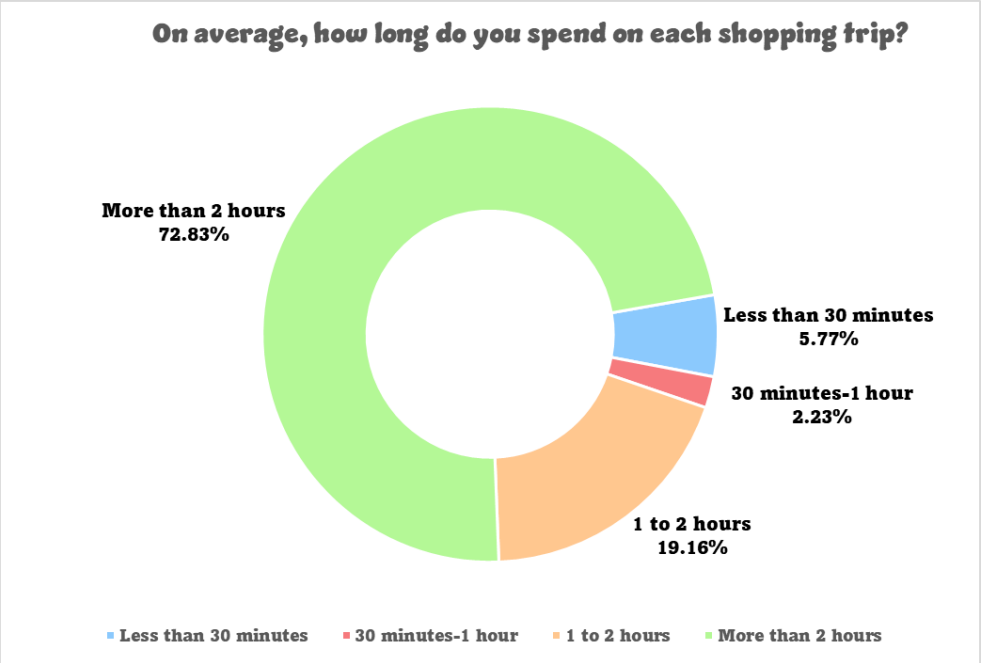

Figure 4.9. Duration of Each Shopping Trip of Respondents

According to Figure 4.9, 35.30% (N=145) of respondents said they spent 1 to 2 hours shopping each time. On each shopping trip, 45.30% (N=186) of respondents spend between 30 and 1 hour. On each shopping trip, 7.80% (N=32) of respondents spend less than 30 minutes. On each shopping trip, 11.70% (N=48) of respondents spend more than 2 hours.

4.1.2.4 Frequency of Shopping

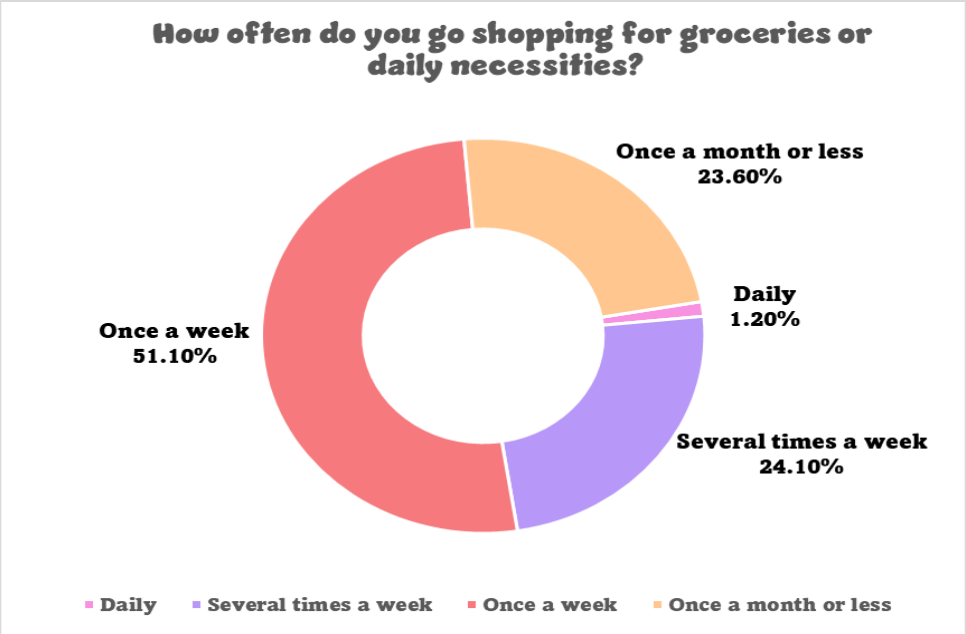

Figure 4.10. Frequency of Shopping of Respondents

According to Figure 4.10, 1.20% (N=5) of the respondents shop daily. Of the respondents, 23.60% (N=97) said they only shop once a month or less. Besides, 51.10% (N=210) shop once a week. 24.10% (N=99) shop several times a week.

4.2 Reliability Test

4.2.1 Reliability Analysis of Pilot Study

Table 4.1:

Reliability Analysis of Pilot Study

Variables	Cronbach Alpha	Number of Items	Strength of Association
Functional Value (FV)	0.614	5	Fair
Emotional Value (EV)	0.751	4	Good
Social Value (SV)	0.838	5	Good
Epistemic Value (EP)	0.697	4	Fair
Conditional Value (CV)	0.652	4	Fair
Intention to Use (I)	0.667	5	Fair

Before formally releasing the survey for respondents to complete, a pilot test was carried out to assess the consistency of each measurement question. According to the results, social value (SV) and emotional value (EV) exhibit strong dependability, with Cronbach's Alpha values of 0.838 and 0.751, respectively. In contrast, the related fair reliability values for functional value (FV), conditional value (CV), epistemic value (EP), and intention to use (I) were 0.614, 0.697, 0.652, and 0.667. Yet, it is still usable in exploratory research. Overall, this suggests that the measurement items are consistently sufficient.

4.2.2 Reliability Analysis of Actual Study

Table 4.2:

Reliability Analysis of Actual Study

Variables	Cronbach Alpha	Number of Items	Strength of Association
Functional Value (FV)	0.767	5	Good
Emotional Value (EV)	0.805	4	Very Good
Social Value (SV)	0.815	5	Very Good
Epistemic Value (EP)	0.767	4	Good
Conditional Value (CV)	0.760	4	Good
Intention to Use (I)	0.844	5	Very Good

The reliability analysis for actual study shows that all twenty-seven measurement items from five consumption value dimensions and intention to use have resulted in an average of the Cronbach Alpha value that is higher than the threshold of 0.7, which indicates that they were designed appropriately and reliably. The Cronbach alpha value for functional value (0.767), epistemic value (0.767), and conditional value (0.760) was considered good and reliable. While for emotional value (EV), social value (SV), and intention to use (I) were 0.805, 0.815, and 0.844, indicating that the result of these three dimensions was very strong reliability.

4.3 Inferential Analysis

4.3.1 Pearson Correlation Analysis

Pearson correlation analysis was used to analyze the relationship between the variables.

Table 4.3:

Correlation between Functional Value (FV) and Intention to Use (I)

Variable	Intention to Use	Functional value
Intention to Use	1	0.597
Functional value	0.597	1
Significance	<.001	

Based on Table 4.3, there is a significant correlation between functional value (FV) and intention to use (I), r (411) = 0.597, p < .001. As such, functional value (FV) positively correlates with Gen Z's intention to use smart trolley.

Table 4.4:

Correlation between Emotional Value (EV) and Intention to Use (I)

Variable	Intention to Use	Emotional Value
Intention to Use	1	0.652
Emotional Value	0.652	1
Significance	< .001	

Based on Table 4.4, there is a significant correlation between emotional value (EV) and intention to use (I), r (411) = 0.652, p < .001. This indicates that emotional value (EV) positively correlates with Gen Z's intention to use smart trolley.

Table 4.5:

Correlation between Social Value (SV) and Intention to Use (I)

Variable	Intention to Use	Social Value
Intention to Use	1	0.645
Social Value	0.645	1
Significance	< .001	

Based on Table 4.5, there is a significant correlation between social value (SV) and intention to use (I), r (411) = 0.645, p < .001. This shows that social value (SV) positively correlates with Gen Z's intention to use smart trolley.

Table 4.6:

Correlation between Epistemic Value (EP) and Intention to Use (I)

Variable	Intention to Use	Epistemic Value
Intention to Use	1	0.672
Epistemic Value	0.672	1
Significance	< .001	

Based on Table 4.6, there is a significant correlation between epistemic value (EP) and intention to use (I), r (411) = 0.672, p < .001. This means that epistemic value (EP) positively correlates with Gen Z's intention to use a smart trolley.

Table 4.7:

Correlation between Conditional Value (CV) and Intention to Use (I)

Variable	Intention to Use	Conditional Value
Intention to Use	1	0.688
Conditional Value	0. 688	1
Significance	< .001	

Based on Table 4.7, there is a significant correlation between conditional value (CV) and intention to use (I), r (411) = 0.688, p < .001. Thus, conditional value (CV) positively correlates with Gen Z's intention to use smart trolley.

4.3.2 Multiple Regression Analysis

4.3.2.1 Model Summary

Table 4.8:

Model Summary

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	0.788	0.621	0.616	0.41972

a. Predictors: (Constant), FV, EV, SV, EP, CV

b. Dependent Variable: I

The model summary table is used to evaluate the explanatory power, predictability, and overall model fit. The R-squared value of 0.621 indicates that all five consumption value dimensions account for 62.1% of the variation in intention to use smart trolleys. This suggests that the model captures a large portion of the factors influencing behavioral intention. The correlation between predictors and dependent variables is also strong (R = 0.788). The standard error of 0.41972 means a reasonably modest prediction error, and the adjusted R-squared value of 0.616, which is quite close to the original R-squared, further validates that the model is dependable and not overfitted.

4.3.2.2 ANOVA Result

Table 4.9:

ANOVA Result

Model	Sum of Squares	DF	Mean Square	F	Significance
Regression	116.822	5	23.364	132.630	0.000
Residual	71.345	405	0.716		
Total	188.167	410			

a. Dependent Variable: I

b. Predictors: (Constant), FV, EV, SV, EP, CV

The purpose of the ANOVA test is to ascertain if there is a significant or insignificant relationship between the five consumption value dimensions and the intention to use smart trolleys. According to the ANOVA results ($F = 132.630$, $p < 0.001$), the regression model is statistically significant, indicating that the intention to use smart trolleys is significantly predicted by each of the five consumption value dimensions (FV, EV, SV, EP, and CV).

4.3.2.3 Coefficient of Equation

Table 4.10:

Coefficient of Equation

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Significance
	B	Standard Error	Beta		
(Constant)	0.407	0.149		2.724	0.007
FV	0.066	0.047	0.064	1.414	0.158
EV	0.114	0.048	0.117	2.360	0.019

SV	0.213	0.035	0.252	6.026	0.000
EP	0.241	0.049	0.231	4.961	0.000
CV	0.265	0.045	0.273	5.937	0.000

a. Dependent Variable: I

The multiple regression analysis provides insights into the contribution of each consumption value dimension to the intention to use smart trolleys. As shown in Table 4.10, four of five independent variables significantly affect the intention of Malaysian Generation Z to use smart trolleys. These include emotional, social, epistemic, and conditional value. Functional value ($\beta = 0.064$, $p = 0.158$) is positive but does not statistically significantly influence intention to use. The conditional value ($\beta = 0.273$, $p = 0.000$) is found to be the strongest significant positive effect on intention to use smart trolleys. Social value ($\beta = 0.252$, $p = 0.000$), epistemic value ($\beta = 0.231$, $p = 0.000$), and emotional value ($\beta = 0.117$, $p = 0.019$) all have a significant positive effect on intention to use smart trolleys. This study examined the values most important to Gen Z respondents, finding that conditional value ranked highest, followed by social value and epistemic value, with emotional value ranking last. As the functional value showed insignificance, it was excluded from the equation. Hence, the explanation of the multiple regression equation is as follows:

$$I = 0.407 + 0.114(EV) + 0.213(SV) + 0.241(EP) + 0.265(CV)$$

CHAPTER 5: DISCUSSIONS, IMPLICATIONS, AND CONSLUSION

5.0 Introduction

Chapter 5 will provide a detailed discussion of the findings in Chapter 4, including limitation implications, and recommendations for further research. Additionally, there will be a comprehensive discussion at the conclusion.

5.1 Discussion of Major Findings

Table 5.1:

Summary of Hypothesis Testing Results

Hypothesis	Significance (p-value)	Result
H1: Functional value positively influences Generation Z's intention to use smart trolleys.	0.158	Not supported
H2: Social value positively influences Generation Z's intention to use smart trolleys.	0.019	Supported
H3: Emotional value positively influences Generation Z's intention to use smart trolleys.	0.000	Supported
H4: Epistemic value positively influences Generation Z's intention to use smart trolleys.	0.000	Supported
H5: Conditional value positively influences Generation Z's intention to use smart trolleys.	0.000	Supported

The findings show that functional value had a positive ($\beta = 0.064$) but statistically insignificant influence ($p = 0.158$) on the intention to use the smart trolley. The positive coefficient suggests that the functionality aspect of the smart trolley, such as performance, usefulness, and efficiency, is associated with a higher intention to use. Still, they are not the main drivers influencing Gen Z's decision and intention to use. This result contrasts with prior studies of Roy et al. (2018) and Han et al. (2017), highlighting that functional benefits play an important role in technology adoption. The research done by Conrad and Dillon (2020) stated that the relative practical benefits of technology may be more relevant during the initial stage of adoption. The influence of its practical benefits on usage intention tends to decrease when the user becomes more familiar with the technology. This indicates that only the functional benefits themselves may not be influential enough to shape the consumers' usage intention toward the smart trolley. Also, it explains why Generation Z consumers may perceive smart trolley features and functionality as a basic expectation and necessity rather than as a value-added feature (Wang et al., 2025).

On top of that, the findings show that Gen Z's intention to use smart trolleys was positively and significantly impacted by emotional value (p-value 0.019, $\beta = 0.117$, $t = 2.360$). This shows that Gen Z is more likely to use smart trolleys when they can create feelings of enjoyment, excitement, and satisfaction when shopping with smart trolleys. According to the findings, the second hypothesis (H2) is validated and consistent with earlier studies (Chandran et al., 2019; Zaki & Broujerdi, 2020; Rao et al., 2024) that stress the significance of emotional engagement in technology use and the influence of emotional feelings on consumers' behavioral intention toward new technologies. Besides, the findings suggest Gen Z may be more inclined to embrace new retail technologies based on positive emotions rather than just functional characteristics. Although emotional value was not the strongest predictor in this study, it still had a significant effect, in which positive feelings would lead to encouraging adoption. This aligns with Lee et al. (2010), who pointed out that emotions can connect with consumers' needs with behavioral responses, hence shaping their willingness to engage in using smart trolleys.

The hypothesis H3 was supported as the findings pointed out that social value and the intention to utilize the smart trolley were significantly and favorably correlated (p-value = 0.000, β = 0.252, t = 6.026). In accordance with earlier studies (Han et al., 2017; Bhukya & Paul, 2023), the findings show that social image and norms influence tech adoption. Besides, social value plays as the second most significant predictor in influencing the Gen Z intention to use a smart trolley. Thus, Generation Z consumers' intention to use smart trolleys is influenced by the perceived social approval, recognition, or social acceptance from peers and society. Using smart trolleys could be seen by Gen Z as a way of engaging in modern lifestyle trends and gaining social acceptance (Yue et al., 2024). In other words, when using smart trolleys enhances their image and sense of belonging, they tend to increase their inclination toward the use of smart trolleys.

The result indicated that epistemic value positively (β = 0.231) and significantly impacts Malaysian Gen Z's intention to use smart trolleys; consequently, the hypothesis H4 is supported in this study. It corresponds with prior findings (Adapa et al., 2020; Schultz & Zacheus, 2024; Fazal-e-Hasan et al., 2021), which highlight that curiosity, novelty, and the desire for new experiences drive intention. This research reveals that Generation Z consumers as digital natives, are actively looking for novel shopping experiences; hence, they are more inclined to try smart technologies to satisfy their interest in new experiences (Jaganathan et al., 2024).

From the findings above, the hypothesis H5 is supported with a conditional value that positively and significantly impacts Gen Z's intentions to use a smart trolley (p-value < 0.05, β = 0.273, t = 5.937). Positive coefficients indicate the positive relationship between situational or contextual factors that positively and significantly shape Gen Z's decision and intention to adopt smart shopping trolleys during their shopping experience. The result aligns with previous research (Ramayah et al., 2018; Chen & Chang, 2023), which points out the significance of contextual or positive effects in consumer behavior. It explained that when Gen Z discovers that smart trolleys might help them or create with additional advantage in certain shopping circumstances, they may be more willing to use a smart trolley. Lin and Huang (2012) and Pandey et al. (2018) further confirmed that when

technologies are associated with attractive offers and promotion deals or a favorable shopping environment, as well as helping consumers to save time during shopping, the consumers' willingness to use it will increase. In the case of Gen Z, these results demonstrated that their decision to use smart trolleys was not dependent on the inherent value of smart trolleys themselves, but also largely because of the external contextual and situational factors during the shopping moment.

5.2 Implications of the Study

5.2.1 Theoretical Implications

This study applies the Theory of Consumption Values (TCV) in a new environment of smart retail technology by examining how various consumption values affect Malaysian Generation Z customers' decision to use smart trolleys. By applying it to the Malaysian retail context with more specifically with smart trolleys, this study successfully demonstrated that the Theory of Consumption Values (TCV) is reliable and relevant enough in describing the behavioural intention of Malaysian Gen Z consumers through five value dimensions. Throughout this study, the researcher better understands which consumption values consumers prioritize the most and can capture the different motivations behind the behavioral intention of Generation Z consumers.

Additionally, these findings demonstrated that Generation Z's intention to use smart trolleys is positively and strongly influenced by social, emotional, epistemic, and conditional value. This aligned with the Theory of Consumption Value's proposition in which consumers' decisions and behaviors are shaped by different value dimensions. Besides, this study strengthens the claims that every individual's decision is influenced differently by various values, as everyone has their own perspective,

situation, needs, and desires (Mason et al., 2023). In contrast, the findings in this study also indicated that behavioral intention is not significantly predicted by functional value. It challenges most existing research that suggests functional values hold the traditional dominance in the framework of the Theory of Consumption Value. Also, it points out that other aspects like epistemic, social, emotional, and conditional value should be given more emphasis in the smart trolley adoption context, while the functional aspects were viewed as basic requirements rather than stimulating their usage.

In summary, this study goes beyond existing theories by showing how the Theory of Consumption Values may be applied to smart trolleys and identifying the potential shortcomings regarding assumptions about functional value. This study confirms other four dimensions are increasingly important in analyzing Gen Z consumers' behavior and intention towards new retail technologies. Ultimately, this research advances the theoretical foundation for consumer behavior in smart trolley adoption by revealing, through different value dimensions, across different consumer groups and within diverse national contexts.

5.2.2 Practical Implications

The findings of this research have some practical implications for Malaysian retailers, technology developers, and governments. The regression results provide guidance for practitioners to prioritize resources and set strategies according to the significant level of each value dimension to adapt and design smart trolleys that fit well with Gen Z preferences and needs.

5.2.2.1 Conditional Value

In fact, the regression results reveal that the conditional value with a β = 0.273 is the strongest driver for Gen Z consumers' intention to use smart trolleys. This suggests that various factors that might benefit customers in certain circumstances have a significant impact on Gen Z's intentions. Hence, all parties involved should prioritize these value dimensions more than others. Based on the survey results, giving clear instructions on how to operate smart trolleys increases their likelihood of usage; therefore, practitioners should provide clear and comprehensive tutorials for first-time users. This indicates that when users understand its operation, they will not be frustrated and will increase their willingness to use it. Besides, retailers may design special promotions or exclusive offers only for smart trolley users during peak hours to encourage usage rate. Context-based promotion and special sales promotion to the smart trolley users can more effectively promote consumer use (Chandon et al., 2000; Grewal et al., 2017). Additionally, retailers should highlight the quick checkout for customers in a hurry. The government and policymakers could collaborate with retailers to vigorously promote special events like digital discount day or smart shopping week. This not only assisted in encouraging young people to try using a smart trolley but also supported and aligned with Malaysia's digital economy transformation agenda (MyDIGITAL Corporation, 2025).

5.2.2.2 Social Value

The results show that social value (β = 0.252) was exerted as a second-prioritizing value dimension among five values. This indicates that Generation Z emphasized social interaction and peer influence to shape their usage intention. Also, it reflects Gen Z values the shared experience, group participation, and social recognition within their social circles. Technology can enhance these value dimensions by designing interactive features that encourage social interaction. Technology developers can incorporate the

team-based reward system or leaderboards displayed on a smart trolley or mobile apps. It can be utilized to show the top users based on the frequency of smart trolley usage or points earned through payment via smart trolleys. By this, retailers can introduce peer-based challenges to allow consumers to compete with friends against other shoppers. Not necessarily have to be a competition; consumers could also collaborate with friends to accumulate a specific purchase amount through shopping with a smart trolley to earn rewards. This peer-based and group team challenges can foster a sense of belonging, stimulate collective value, drive for friendly and positive competition, as well as public recognition, which can actively motivate Gen Z consumers to use smart trolleys (Varshney et al., 2024). Other than that, retailers may consider organizing in-store shopping events such as group shopping promotions or "friend referral" programs to encourage group adoption. While for the policy makers and government, they should organize more awareness campaigns to highlight the social connection and community engagement.

5.2.2.3 Epistemic Value

As epistemic value was found to be a moderate predictor that drives Gen Z consumers to use smart trolleys more. Therefore, stimulating individuals' novelty and curiosity is important for practitioners. From the retailer's perspective, retailers should regularly upgrade smart trolleys and introduce innovative features to maintain interest and attract new users to try them out. For retailers or wholesalers who would like to introduce a smart trolley, marketers should utilize unique, innovative, and modern marketing campaigns when informing their consumers about the introduction of a smart trolley. Furthermore, inviting Gen Z consumers to participate in beta testing or pilot programs can help spark their exploratory interest, foster a sense of involvement, and, simultaneously, help consumers better understand smart trolleys. It also allows consumers to voice their opinion and feedback that could spark greater interest among more people

(Garnefeld et al., 2021; Sabatini et al., 2023). From a broader perspective, government agencies should offer trial programs in public locations so that users may see the advantages and practicality of new technology.

5.2.2.4 Emotional Value

The emotional value was the weakest driver for Gen Z's intention to use a smart trolley among the four significant predictors. While it is not a strong predictor, it should still influence Gen Z's behavior and intention; hence, practitioners should ensure smart trolleys always appear to provide strong emotional support and positive feelings to the users. In addition, technology developers should make smart trolley interfaces more visually appealing, such as adding seasonal themes or animation on the smart trolley interface to enhance their enjoyment. Retailers should incorporate personalized greetings for every consumer. This could allow consumers to feel cared for and recognized by the retailers, improving customer satisfaction and decision quality (Hu et al., 2021). Besides, retailers should provide product recommendations based on consumers' preferences as personalized product recommendations can evoke positive emotions, drive behavioral intention, and show a smart trolley humanization system (Pappas et al., 2014). A technology developer could add stress-reducing features like user-friendly navigation, a simple checkout process, and a help button for assistance. Integration of these features improves the overall shopping experience and satisfaction and sustains the consumer's continuous intention to use smart trolleys.

5.2.2.5 Functional Value

Even though the findings show that functional value is an insignificant predictor that facilitate Generation Z's intention to use smart trolleys, it still positively correlates with their intention. This suggests that smart trolleys'

performance and efficiency are still important. Hence, every developer and retailer should still ensure that the systems remain reliable, efficient, and user-friendly, as it was viewed as the basic expectation and requirement towards the smart trolley. From a marketer's and government perspective, they should prioritize other value dimensions, while the functional aspect of the smart trolley emphasizes functionality to support usage.

5.3 Limitations of the Study

This study has several limitations even though it looks at how consumer values affect Gen Z's intention to use smart trolleys. First, the Theory of Consumption Values (TCV), which includes functional, emotional, social, epistemic, and conditional values, is the exclusive focus of this study. However, there may be more external factors, such as brand trust, environmental concerns, and familiarity with technology, that would affect Gen Z's desire to use the smart trolleys and were not addressed in this study. Secondly, another limitation for this research was gender imbalance. The study's results show that 72.50% (N=298) of respondents were female and 27.50% (N=113) were male. This indicates that more female than male respondents. The study's results may be insignificant in this case because there aren't enough male perspectives.

5.4 Recommendations of Study

In order to strengthen and improve the current findings, this study offers few suggestions for further research. Future study is recommended to go over the Theory of Consumption Value by incorporating digital self-efficacy, perceived usage cost, lifestyle compatibility, social impact, and security concerns in consideration of limits and changing needs of Gen Z consumers. For example, Reddy (2025), social influence, perceived cost, self-efficacy, and compatibility are important factors in Gen Z's adoption of mobile banking in the United States.

According to Saputra (2024), the study highlighted that key factors influencing Gen Z's adoption behaviour include technological accessibility, peer influence, usability, security, and value-added services. Next, the use of quota sampling is then recommended for future study. Quota sampling can force researchers to clarify the amount, increase different perspectives, and potentially boost the study's significance (Moser, 1952). The use of quota sampling can help in maintaining gender balance. Future studies can capture more diverse perspectives and boost the study's significance by establishing the number of male and female respondents (Yang & Banamah, 2014). In conclusion, in order to improve Gen Z's comprehension of smart trolleys, future study needs to take these recommendations into account.

5.5 Conclusion

Lastly, conclude by explaining how Gen Z's consumption patterns and values determine the application of technology in retailing through theoretical and practical recommendations. Moreover, the study further enhances our understanding of technology adoption among young consumers and determines key determinants of effective innovation in the retailing industry.

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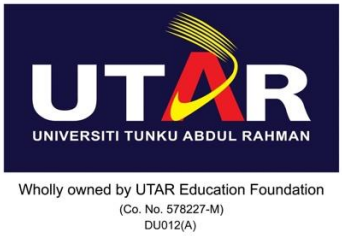
Appendices

Appendix 1: Research Instrument



Universiti Tunku Abdul Rahman

("The Influence of Consumption Values on Malaysian Generation Z's Intention to Use Smart Trolleys ")

Instructions:

1. There are **NINE (9)** sections in this questionnaire. Please answer ALL questions in
   ALL sections.
2. Completion of this form will take you less than 10 minutes.
3. The contents of this questionnaire will be kept **strictly confidential**.

Voluntary Nature of the Study

Participation in this research is entirely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. There is no foreseeable risk of harm or discomfort in answering this questionnaire. This is an anonymous questionnaire; as such, it is not able to trace response back to any individual participant. All information collected is treated as strictly confidential and will be used for the purpose of this study only.

I have been informed about the purpose of the study and I give my consent to participate in this survey.
YES (/) NO ( )

Note: *If yes, you may proceed to next page or if no, you may return the questionnaire to researchers and thanks for your time and cooperation.*

The Concept of Smart Trolley.

A smart trolley is a technology-enhanced shopping cart equipped with features such as a touch screen, self-checkout system, product scanner, shopping list, navigation, or product recommendations. It is designed to improve the shopping experience and increase efficiency for customers.

Section A: Screening Questions

Please place a tick for each of the following:

A1. Are you a Malaysian?
a) Yes
b) No (The questionnaire ends here, thank you for your participation)

A2. Do you belong to Generation Z (born between 1997 and 2012)?
a) Yes
b) No (The questionnaire ends here, thank you for your participation)

A3. Are you familiar with smart trolleys? (eg: seen them online or in store)
a) Yes
b) No (The questionnaire ends here, thank you for your participation)

Section B: Demographic Information

Please place a tick for each of the following:

B1: Gender
a) Male
b) Female

B2: Age
a) 18-20
b) 21-23
c) 24-26
d) 27-28
e) 29-30

B3: What is your highest level of education?
a) Primary school
b) Secondary school
c) College / Pre-university
d) Bachelor's Degree
e) Master's Degree
f) Doctorate's Degree

B4: Where are you currently residing?
a) Perlis
b) Kedah
c) Perak
d) Penang
e) Selangor
f) Negeri Sembilan
g) Melaka
h) Johor
i) Kelantan
j) Terengganu
k) Pahang
l) Sabah
m) Sarawak
n) Kuala Lumpur
o) Putrajaya
p) Labuan

B5: What is your current employment status?
a) Student
b) Self-employed
c) Company employee
d) Unemployed
e) Other

B6: What is your monthly income or pocket money?
a) Below RM1,000
b) RM1,000 - RM2,000
c) RM2,001 - RM3,000
d) RM3,001 - RM4,000
e) RM4,001 - RM5,000
f) RM5,001 - RM6,000
g) Above RM6,000

Section C: General Information on Shopping Behavior

This section would like to understand your shopping behavior. Please select the option that best suits your shopping behavior.

C1: Have you used any smart technologies while shopping? (eg. Self-checkout machines, smart trolleys, shopping apps)
a) Never
b) Occasionally
c) Frequently

C2: How comfortable are you with using smart technologies when shopping?
a) Very uncomfortable
b) Uncomfortable
c) Neutral
d) Comfortable

e) Very comfortable

C3: On average, how long do you spend on each shopping trip?
a) Less than 30 minutes
b) 30 minutes to 1 hour
c) 1 to 2 hours
d) More than 2 hours

C4: How often do you go shopping for groceries or daily necessities?
a) Daily
b) Several times a week
c) Once a week
d) Once a month or less

The following sections consist of various constructs that influence the behavioral intention to use. Please select the most appropriate option that best indicates your agreement level with the following statements.

Section D: Functional Value

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
D1: I believe the smart trolley will run without errors.					
D2: I think that the smart trolley's screen is straightforward to operate and clear.					
D3: I believe that smart trolleys provide clear and accurate information while shopping.					
D4: I believe using a smart trolley can help me save time during checkout.					
D5: I believe smart trolleys are more convenient than traditional shopping carts.					

Section E: Emotional Value

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
E1: I think my shopping experience will be happier if I use a smart trolley					
E2: This smart trolley would make my shopping experience feel good.					
E3: Using a smart trolley makes shopping feel less stressful.					
E4: Using a smart trolley would make my shopping experience more enjoyable.					

Section F: Social Value

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
F1: Using the smart trolley makes me feel like I'm a part of a creative community.					
F2: I think that being able to use a smart trolley will make me feel proud around other people.					
F3: Using smart trolley would make me feel more accepted.					
F4: I am more willing to use a smart trolley if my friends or family members use it.					
F5: I would feel more up-to-date or modern by using a smart trolley.					

.

Section G: Epistemic Value

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
G1: I believe that using a smart trolley will provide me with a new shopping experience.					
G2: I believe that taking a smart trolley will fulfil my desire to try something new.					
G3: I believe that using a smart trolley is an excellent opportunity to learn about the newest developments in shopping technology.					
G4: The smart trolley aroused my curiosity.					

Section H: Conditional Value

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
H1: I believe I will use a smart trolley if there is a comprehensive tutorial given.					
H2: I am more willing to use a smart trolley during peak hours.					
H3: I prefer using a smart trolley when I am in a hurry.					
H4: I would choose to use a smart trolley when I'm unfamiliar with the store.					

Section I: Intention to Use

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
I1: I would use a smart trolley during my shopping experience.					
I2: I would visit a store that provides smart trolleys for its customers.					
I3: I would make a purchase from a store that provides shoppers with smart trolleys.					
I4: I intend to use the smart trolley for future shopping.					
I5: I plan to recommend the use of smart trolleys to my friends and family.					

End of Questionnaire

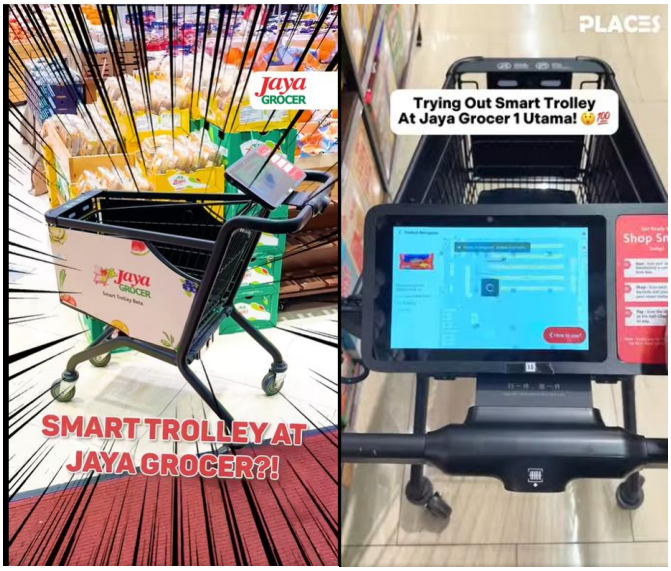
We are pleased to inform you that your responses have been successfully recorded. Your input is invaluable to our research, and we sincerely appreciate your thoughtful contributions.

Thank you once again for taking the time to participate in our survey. Your support in helping us advance academic knowledge is deeply appreciated.

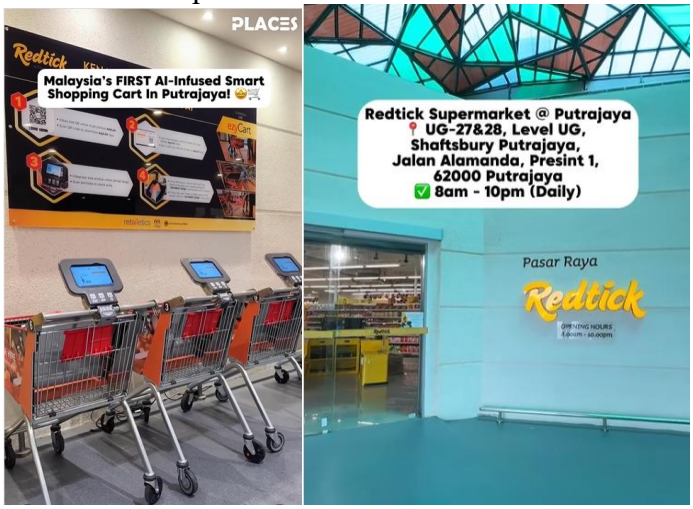
Thank you and have a great day!

Appendix 2: Supporting Evidence of Smart Trolley Implementation in Selected Retailers from Social Media

2.1 Jaya Grocer



2.2 Redtick Supermarket



2.3 AEON

Appendix 3: Adapted Measurable Variable Items for Questionnaire

Variables	Measurement Item	Sources
Section D (Functional Value)	1. I believe the smart trolley will run without errors. 2. I think that the smart trolley's screen is straightforward to operate and clear. 3. I believe the smart trolleys provide clear and accurate information while shopping. 4. I believe using a smart trolley can help me save time during checkout. 5. I believe smart trolleys are more convenient than traditional shopping carts.	(Suki, 2016)
Section E (Emotional Value)	1. I think my shopping experience will be happier if I use a smart trolley. 2. This smart trolley would make my shopping experience feel good. 3. Using a smart trolley makes shopping feel less stressful. 4. Using a smart trolley would make my shopping experience more enjoyable.	(Wang et al., 2013; Suki, 2016; Kim et al., 2016)
Section F (Social Value)	1. Using the smart trolley makes me feel like I'm a part of a creative community. 2. I think that being able to use a smart trolley will make me feel proud around other people. 3. Using smart trolley would make me feel more accepted. 4. I am more willing to use a smart trolley if my friends or family members use it. 5. I would feel more up-to-date or modern by using a smart trolley.	(Wang et al., 2013; Suki, 2016)

Section G (Epistemic Value)	1. I believe that using a smart trolley will provide me with a new shopping experience. 2. I believe that taking a smart trolley will fulfil my desire to try something new. 3. I believe that using a smart trolley is an excellent opportunity to learn about the newest developments in shopping technology. 4. The smart trolley aroused my curiosity.	(Wang et al., 2013; Suki, 2016)
Section H (Conditional Value)	1. I believe I will use a smart trolley if there is a comprehensive tutorial given. 2. I more willing to use smart trolley during peak hours. 3. I prefer using a smart trolley when I am in a hurry. 4. I would choose to use a smart trolley when I'm unfamiliar with the store.	(Wang et al., 2013; Suki, 2016)
Section I (Intention to use)	1. I would use a smart trolley during my shopping experience. 2. I would visit a store that provides smart trolleys for its customers. 3. I would make a purchase from a store that provides shoppers with smart trolleys. 4. I intend to use the smart trolley for future shopping. 5. I plan to recommend the use of smart trolleys to my friends and family.	(Wang et al., 2013; Kim et al., 2016)

Appendix 4: SPSS Output – Reliability Test for Pilot Study & Actual Study

	Pilot Study	Actual Study
FV	**Reliability Statistics** Cronbach's Alpha: .614 N of Items: 5	**Reliability Statistics** Cronbach's Alpha: .767 N of Items: 5
EV	**Reliability Statistics** Cronbach's Alpha: .751 N of Items: 4	**Reliability Statistics** Cronbach's Alpha: .805 N of Items: 4
SV	**Reliability Statistics** Cronbach's Alpha: .838 N of Items: 5	**Reliability Statistics** Cronbach's Alpha: .815 N of Items: 5
EP	**Reliability Statistics** Cronbach's Alpha: .697 N of Items: 4	**Reliability Statistics** Cronbach's Alpha: .767 N of Items: 4
CV	**Reliability Statistics** Cronbach's Alpha: .652 N of Items: 4	**Reliability Statistics** Cronbach's Alpha: .760 N of Items: 4
I	**Reliability Statistics** Cronbach's Alpha: .667 N of Items: 5	**Reliability Statistics** Cronbach's Alpha: .844 N of Items: 5

Appendix 5: SPSS Output – Pearson Correlation Analysis

Correlations

		FV	EV	SV	EP	CV	I
FV	Pearson Correlation	1	.671**	.600**	.606**	.596**	.597**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	411	411	411	411	411	411
EV	Pearson Correlation	.671**	1	.608**	.681**	.664**	.652**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	411	411	411	411	411	411
SV	Pearson Correlation	.600**	.608**	1	.551**	.570**	.645**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	411	411	411	411	411	411
EP	Pearson Correlation	.606**	.681**	.551**	1	.672**	.672**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	411	411	411	411	411	411
CV	Pearson Correlation	.596**	.664**	.570**	.672**	1	.688**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	411	411	411	411	411	411
I	Pearson Correlation	.597**	.652**	.645**	.672**	.688**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	411	411	411	411	411	411

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

Appendix 6: SPSS Output – Multiple Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.788[a]	.621	.616	.41972

a. Predictors: (Constant), FV, EV, SV, EP, CV

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	116.822	5	23.364	132.630	.000[b]
	Residual	71.345	405	.176		
	Total	188.167	410			

a. Dependent Variable: I

b. Predictors: (Constant), FV, EV, SV, EP, CV

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.407	.149		2.724	.007		
	FV	.066	.047	.064	1.414	.158	.460	2.172
	EV	.114	.048	.117	2.360	.019	.382	2.621
	SV	.213	.035	.252	6.026	.000	.534	1.874
	EP	.241	.049	.231	4.961	.000	.431	2.323
	CV	.265	.045	.273	5.937	.000	.441	2.267

a. Dependent Variable: I