THE INFLUENCE OF INCOME LEVELS ON SMARTPHONE PURCHASE BEHAVIOR AMONG MALAYSIAN GEN Y

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THE INFLUENCE OF INCOME LEVELS ON SMARTPHONE PURCHASE BEHAVIOR AMONG MALAYSIAN GEN Y

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ABSTRACT

This research explores the factors influencing smartphone purchasing behavior among Malaysian Generation Y, with a specific focus on income levels as a moderating variable. Despite existing research on smartphone purchasing behavior in Malaysia, particularly using the Theory of Planned Behavior (TPB), there remains a significant research gap regarding the impact of income levels on this relationship. This study aims to explore this overlooked factor, as income level may act as a moderating factor between product characteristics, social factor, and purchasing behavior. The study employed a deductive research approach, collecting primary data from 384 respondents using systematic random sampling. A self-administered online questionnaire comprising 44 items, including demographic information, was used. A pilot study was conducted to ensure the instrument's validity. Data analysis was performed using SPSS, applying multiple regression analysis. The results reveal that product features, brand familiarity, and peer influence are significant antecedents of smartphone purchasing behavior among Generation Y, with product attributes emerging as the strongest predictor. However, income levels moderate the impact of these factors on purchasing decisions. Specifically, while friends' recommendations, brand associations, and product features strongly influence purchase behavior, their effects vary depending on the buyer's income level. Higher or lower income levels shape the extent to which these factors impact the final purchasing decision, underscoring the role of income in influencing consumer behavior within this demographic. The research findings highlight the importance of tailoring marketing strategies for Generation Y who are the largest demographic of smartphone consumers in Malaysia the study concludes with recommendations for businesses to enhance their marketing strategies and conduct further research to gain deeper insights into Generation Y's purchasing patterns and spending behaviour in the smartphone market.

Keywords: Smartphone, Generation Y, Malaysia, Marketing, Purchasing Behavior

ABSTRAK

Kajian ini meneroka faktor-faktor yang mempengaruhi tingkah laku pembelian telefon pintar dalam kalangan Generasi Y Malaysia, dengan tumpuan khusus kepada tahap pendapatan sebagai pemboleh ubah pemoderat. Walaupun terdapat kajian sedia ada mengenai tingkah laku pembelian telefon pintar di Malaysia, terutamanya menggunakan Teori Tingkah Laku Terancang (TPB), masih terdapat jurang penyelidikan yang signifikan berkenaan dengan impak tahap pendapatan terhadap hubungan ini. Kajian ini bertujuan untuk meneroka faktor yang diabaikan ini, kerana tahap pendapatan boleh bertindak sebagai faktor pemoderat antara ciri-ciri produk, faktor sosial, dan tingkah laku pembelian. Kajian ini menggunakan pendekatan penyelidikan deduktif, mengumpul data utama daripada 384 responden menggunakan pensampelan rawak sistematik. Soal selidik dalam talian yang dikendalikan sendiri yang terdiri daripada 44 item, termasuk maklumat demografik, telah digunakan. Kajian perintis telah dijalankan bagi memastikan kesahan instrumen tersebut. Analisis data dilakukan menggunakan SPSS dengan menerapkan analisis regresi berganda. Hasil kajian mendapati bahawa ciri-ciri produk, keakraban jenama, dan pengaruh rakan sebaya adalah anteceden penting kepada tingkah laku pembelian telefon pintar dalam kalangan Generasi Y, dengan atribut produk muncul sebagai peramal terkuat. Walau bagaimanapun, tahap pendapatan memoderatkan impak faktor-faktor ini terhadap keputusan pembelian. Secara khususnya, walaupun saranan rakan, hubungan dengan jenama, dan ciri-ciri produk memberi pengaruh yang kuat terhadap tingkah laku pembelian, kesan mereka berbeza-beza bergantung kepada tahap pendapatan pembeli. Tahap pendapatan yang lebih tinggi atau lebih rendah menentukan sejauh mana faktor-faktor ini mempengaruhi keputusan pembelian akhir, yang menekankan peranan pendapatan dalam mempengaruhi tingkah laku pengguna dalam demografi ini. Penemuan kajian menekankan kepentingan untuk menyesuaikan strategi pemasaran bagi Generasi Y yang merupakan demografi pengguna telefon pintar yang terbesar di Malaysia. Kajian ini berakhir dengan cadangan kepada perniagaan untuk meningkatkan strategi pemasaran mereka dan menjalankan kajian lanjut untuk mendapatkan pandangan yang lebih mendalam mengenai corak pembelian dan tingkah laku perbelanjaan Generasi Y dalam pasaran telefon pintar.

Kata Kunci: Telefon Pintar, Generasi Y, Malaysia, Pemasaran, Tingkah Laku Pembelianl

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

SMEs	Small and Medium Enterprises
WOM	Word of Mouth
eWOM	Electronic Word of Mouth
OB	Organizational Behavior
PB	Purchase Behavior
BB	Buying Behavior
PF	Product Features
SF	Social Factors
BN	Brand Name
P	Prices
A	Aesthetics
IL	Income Level
Gen-Y	Generation Y
SET	Social Exchange Theory

LIST OF APPENDICES

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

In the era of globalization, almost everyone owns a Smartphone or mobile device, a testament to the rapid and successful development of innovative technology in the Smartphone industry. This success has led to the sudden emergence of new Smartphone corporations from China, such as Huawei, Xiao Mi, Vivo, Oppo, and others. These new entrants from China have intensified global competition in the Smartphone market share and challenged the monopoly of established leaders like Samsung and Apple.

The fierce competition in the Smartphone industry has many positive impacts on consumers (Aditya, Zakaria, Azzali, & Jambli, 2024), with each corporation vying to create and introduce new features into their products. All Smartphone manufacturers are eager to innovate and develop new products to attract and retain both existing and new customers.

The emergence of new and successful Smartphone companies can be attributed to their effective marketing strategies that influence consumer purchasing behavior. Effective marketing is clear and engaging, drawing customers to receive the messages conveyed by marketers. Therefore, Smartphone marketers should understand the trends and the actual needs and wants of customers to ensure that their products consistently meet customer expectations. Generally, customer purchase behavior involves studying how, when, what, and why people buy (Alam et al., 2024). These five stages, which encapsulate the activities preceding and

succeeding the actual transaction, are typically experienced by customers as they decide on their purchases.

Furthermore, numerous researchers contend that various factors influence Smartphone customers' purchasing behavior, including product characteristics, brand name, social factors, price, and aesthetics. Most research has been conducted in Western countries and advanced economies. However, literature from Asia, specifically Malaysia, is limited in scope, the number of variables considered, and its nature (Al Koliby & Rahman, 2018; Azam, 2024).

This study's goal is shed light on the mobile preferences and purchasing behaviors of Malaysian customers, information that is vital for both academics and industry professionals. Academically, an overview of the Malaysian Smartphone industry provides a basis for structuring further studies. Practically, industry players such as Smartphone manufacturers, app developers, and others will find the data invaluable for strategizing marketing campaigns and preparing for future developments (Khoret al., 2024).
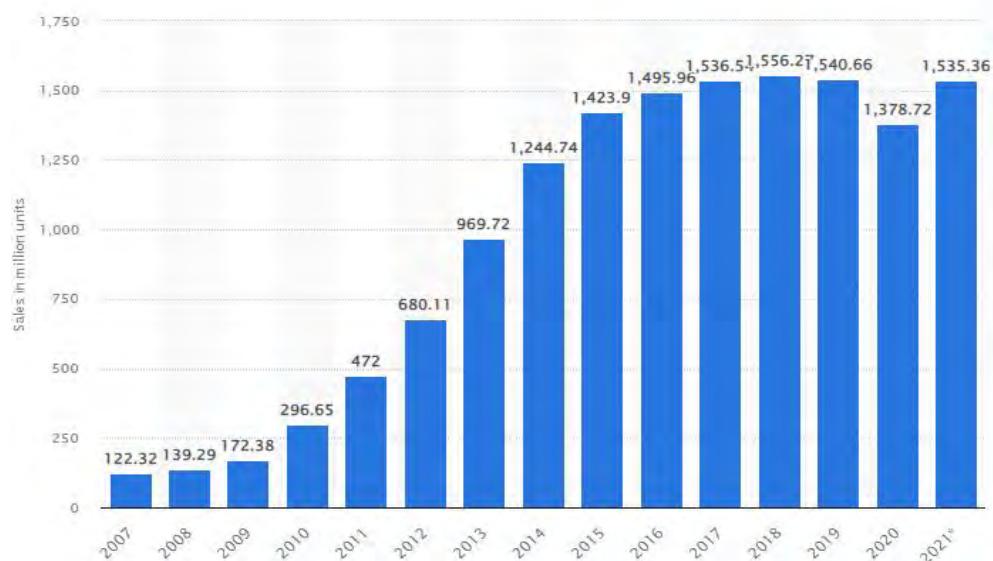
Figure 1.1 Smart phones sales volume-worldwidefrom2007-2021(million units)

Sources: Statista (2021)

In the current Smartphone market, competitors include Samsung, Apple, Huawei, Xiaomi, Oppo, LG, Lenovo, ZTE, Vivo, Sony, RIM, Nokia, among others, each with their own market share and coverage information (Statista, 2021). Smartphone marketers are known for offering a variety of models and series to cater to customers with different income levels (Ruankham, 2024). Additionally, the Smartphone industry is experiencing significant transitions in the telecommunication market, notably the shift from 4G to 5G.
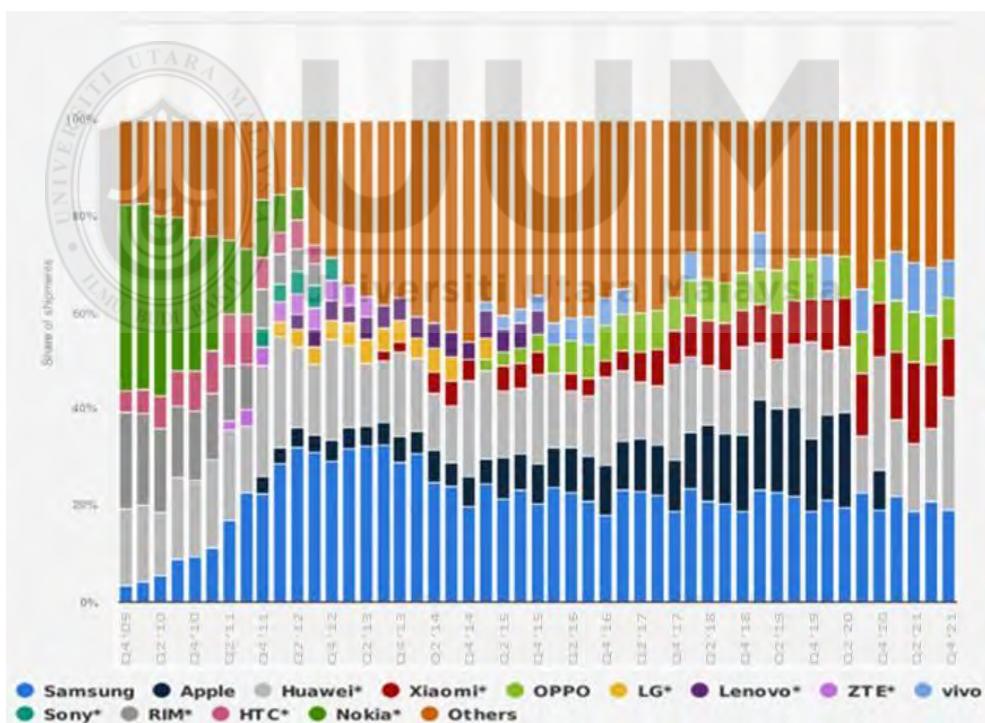
Figure 1.2 The Competitors in Smartphone Market

Source: Statista (2021)

According to MCMC (2018), Smartphone user penetration in Malaysia increased from 75.9% in 2017 to 78.0% in 2018. Factors such as affordable devices, subsidies,

fierce competition among service providers, and reasonable service plans have been identified as drivers of this growth. The increase in the use and reliance on Smartphone-based applications has also contributed to this expansion ((Lu & Xie, 2024).

Smartphone adoption is a driving force behind technological advancement as the world becomes more interconnected. In recent years, an increasing number of people in emerging economies have gained access to Smartphones. The proliferation of affordable mobile phone models and the reduction in service plan costs in the Asia-Pacific region have spurred Smartphone adoption. The number of Smartphone users in Malaysia is estimated to reach 28.8 million in 2021, with projections indicating an increase of 1.74 million by 2025, attributed to the country's growing population (statista.com, 2024).
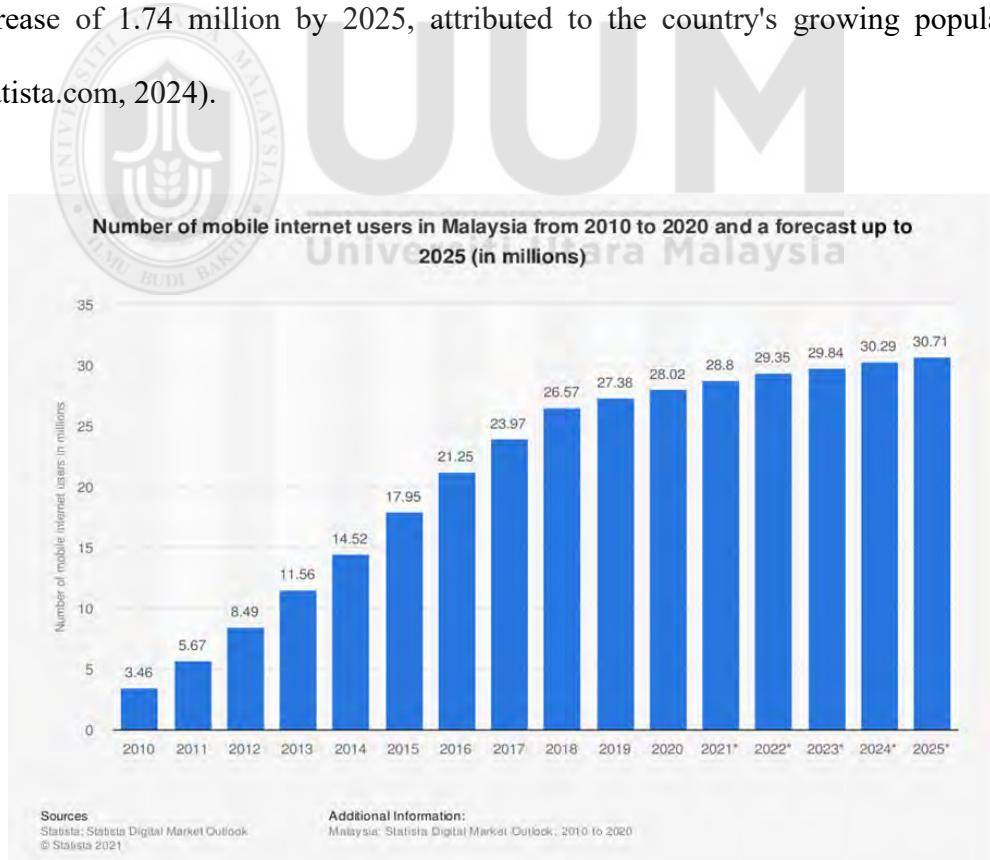
Figure 1.3 Smartphone holders' internet usage in Malaysia (30.71m-2025)

Source: Statista (2021)

1.2 Problem Statement

The increasing competition among Smartphone brands, driven by a rise in Smartphone sales, is a significant issue for established brands. As noted by Goldman Sachs Research's Rod Hall (2018) and Nan & Ismail (2024), the growing presence of new Smartphone companies has fragmented the market, leading to a decline in market share for well-established brands. In Malaysia, top vendors have seen their market shares decrease as the "flagship Smartphone war" intensifies (Ling, Govindan, & Radhakrishnan, 2018; Baharum et al., 2023). Furthermore, Malaysians tend to upgrade their Smartphones more frequently than other technological devices, increasing the likelihood of switching brands when upgrading (Ling et al., 2018).

The influence of income level on Smartphone purchasing behavior also plays a critical role, with those having higher incomes opting for premium brands with the latest features, while lower-income consumers prioritize a balance between price and functionality (Ling et al., 2018; Sia, Saidin, & Iskandar, 2023). Additionally, mobile commerce, fueled by Smartphone, has emerged as a dominant e-commerce model, contributing to heightened competition. However, market saturation and the durability of quality Smartphones have slowed global growth despite the introduction of advanced technologies (Aziz & Nasir, 2024).

Success in the Smartphone industry is closely tied to consumer satisfaction, influenced by factors such as brand, features, aesthetics, social factor, and price (Aditya et al., 2024). However, affordability, largely determined by income levels, remains a critical factor in consumer decision-making, making it important to understand how income levels impact purchasing behavior. A 2019 Statista survey in

Malaysia confirmed that income levels significantly affect Smartphone ownership, with higher-income groups having greater access to premium devices.

Despite existing research on Smartphone purchasing behavior in Malaysia, particularly using the Theory of Planned Behavior (TPB), there remains a significant research gap regarding the impact of income levels on this relationship. Studies by Hassan & Rahman (2018), Nan & Ismail (2024), and others have shown that attitudes, subjective norms, and perceived behavioral control are key determinants of Smartphone purchase intentions. However, none of these studies have considered income level as a variable in their analyses. Research by Siew et al. (2019), Baharum et al. (2023), and Sia, Saidin, & Iskandar (2023) similarly neglected the role of income in their TPB-based studies of Malaysian university students' Smartphone purchasing behavior.

This gap is critical, as income level may act as a mediating factor between product characteristics, social factor, and purchasing behavior. Addressing this gap will contribute to a more comprehensive understanding of how Generation Y in Malaysia makes Smartphone purchasing decisions, particularly in relation to income levels and the TPB framework. This study aims to explore this overlooked factor, providing valuable insights for both academia and industry.

1.3 Research Questions

In addressing the problem discussed, this study aims to explore the following research questions:

1.	Does the brand name influence purchase behavior towards Smartphones among Malaysian Generation Y?

2.	To what extent do product features influence purchase behavior towards Smartphones among Malaysian Generation Y?

3.	Do social factors influence purchase behavior towards Smartphones among Malaysian Generation Y?

4.	Does price influence purchase behavior towards Smartphones among Malaysian Generation Y?

5.	Does aesthetics influence purchase behavior towards Smartphones among Malaysian Generation Y?

6.	Does income level moderate the relationship between brand name, product features, social factors, price, aesthetics, and purchase behavior towards Smartphones among Malaysian Generation Y?

1.4 Research Objectives

To fulfill the aims of the study, the research objectives are outlined as follows:

1.	To investigate the influence of brand names on purchase behavior toward Smartphones among Malaysian Generation Y.

2.	To examine the extent to which product features impact purchase behavior toward Smartphones among Malaysian Generation Y.

3.	To assess the impact of social factors on purchase behavior toward Smartphones among Malaysian Generation Y.

4.	To explore the effect of pricing on purchase behavior toward Smartphones among Malaysian Generation Y.

5.	To evaluate the role of aesthetics in purchase behavior toward Smartphones among Malaysian Generation Y.

6.	To examine the moderating effects of income levels on the relationships among brand names, product features, social factors, prices, aesthetics, and purchase behavior toward Smartphones among Malaysian Generation Y.

1.5 Significant of the Study

The primary aim of this study is to elucidate the relationship between product-related and social factors and the Smartphone buying behavior of Generation Y consumers in Malaysia. This research will not only validate the importance of Smartphone purchase behavior among this demographic but will also benefit marketers targeting the Malaysian Smartphone market. The significance of this study for Smartphone marketers lies in its potential to unravel the purchasing patterns of young adults based on several factors: product features, brand name, social factor, price, and aesthetics.

Furthermore, this research may guide Smartphone manufacturers in understanding user tendencies and enhancing the efficacy of their marketing strategies. The findings and insights gained from this study could serve as a valuable secondary data source for future scholars interested in this subject area. The implications of this research extend beyond providing direction to the Smartphone industry; it sets a precedent for other technology manufacturers about the importance of product attributes such as brand name, social factor, pricing, and aesthetics in shaping Smartphone purchasing decisions.

From a theoretical standpoint, the Theory of Planned Behavior (TPB) has been extensively applied to predict and explain Smartphone purchasing behaviors among Generation Y in Malaysia. Several studies, including those by Chang et al. (2018); Shamsudin et al. (2019) and Aziz, & Nasir, (2024) have affirmed the significant impact of attitudes, subjective norms, and perceived behavioral control on the intent to purchase Smartphones.

Positive attitudes and a sense of control over purchasing decisions are linked to higher Smartphone adoption rates. Subjective norms have also been identified as crucial in influencing purchasing decisions, and price as a notable obstacle to Smartphone adoption within this demographic (Nguyen et al., 2020). These findings have profound theoretical implications and can aid marketers and policymakers in crafting effective strategies to foster Smartphone adoption among Generation Y in Malaysia (Wong et al., 2018; Aditya, E. W., et al. 2024).

In terms of practical significance, exploring how the Theory of Planned Behavior influences Smartphone purchasing decisions among Generation Y in Malaysia holds tangible benefits for industry and policy. Comprehending the determinants of their purchasing behaviors is essential for creating marketing strategies that resonate with their needs and preferences. Research indicates that attitudes, subjective norms, perceived behavioral control, price, product features, and social factorare key factors affecting Smartphone adoption among this group (Kurniawan et al., 2018; Baharum, Z., et al., 2023).

Marketers are encouraged to emphasize the utility and affordability of Smartphones and to harness social factor to broaden their market reach. Additionally, policymakers are urged to design user-friendly Smartphones with features tailored to user needs and preferences, alongside policies that mitigate adoption barriers (Tan et al., 2018; Sia, Saidin, & Iskandar, 2023). The outcomes of this research have the potential to shape marketing strategies and policies that promote Smartphone adoption among Generation Y in Malaysia.

1.6 Scope of Study

The purpose of this study is to investigate how social factor and product-related factors affect Malaysian Generation Y's Smartphone purchasing habits. Target respondents of the current study are Malaysians who belong to the Generation Y cohort. Questionnaires that self-administered participants will use to gather data. With social factor, brand, price, features, and aesthetics among the independent variables, the research will center on Smartphone purchasing behavior as the dependent variable. To find out if it modifies the relationship between the independent variables and the dependent variable in this study, income level will also be investigated as a mediating variable.

1.7 Definition of Variables

Table1. 1
Definitions of key terms

Variable Name	Definition	Source	Variable type
Consumer Purchase Behavior (CPB)	CPB refers to the behavior that consumers show when searching for, purchasing, using, assessing, and disposing of goods and services.	Vinyncida& Sihombing, (2013)	Dependent variable
Product Features (PF)	Product features refer to a trait that attributes from a product meet the satisfaction level of customer's need and want through using, utilizing, and owning of the product.	Kotler, Armstrong & Gary, (2017)	Independent variable
Brand Name (BN)	Brands are more than just names and symbols. It also is a component of connecting the relationship between the company and customers.	Kotler and Armstrong, (2012)	Independent variable

11

Variable Name	Definition	Source	Variable type
Social Factors (SF)	Social factors indicate that one person influences another person in terms of feelings, attitude, thoughts, behavior, intentionally or unintentionally.	Mei, Chow, et al., (2012)	Independent variable
Price (P)	Price is an amount of money that is charged for products and services as a cost that customers exchange for the benefits of having.	Kotler and Armstrong, (2012).	Independent variable
Aesthetics (A)	Aesthetic refers to the styling or changing the physical appearance and presentation of products; it can be an element of raising the competitive market and encouraging customers to purchase the products.	Leelakuthamit &Hongcharu, (2012).	Independent variable
Income Level (IL)	Income is the amount of money a person earns. Whatever a person buys are a reflection of his or her financial condition.	Nagarkotti (2014).	Moderator Variable

1.8 Summary

In conclusion, this chapter has provided a comprehensive overview of the research. It is imperative to understand the impact of various factors, particularly product features, brand name, social considerations, pricing, and aesthetics, on Smartphone purchasing behavior. The researcher has formulated a problem statement, research questions, the purpose of the research, the significance of the study, and the scope of the study within this chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the researcher will review the relevant literature about this study and outline the theoretical framework employed in the research. The literature evaluations concentrate on the elements of product attributes, brand name, social factors, price, aesthetics, and income level in customer purchase behavior. Additionally, the development of hypotheses is explained and discussed to synthesize the relationships among the variables.

2.2 Underpinning Theories

The current study is underpinned by several well-established theories that collectively explain the factors influencing consumer purchasing behavior, particularly in the context of Smartphones. Among these, the Technology Acceptance Model (TAM), introduced by Davis (1989), provides a robust framework for understanding how product features shape consumer decisions. TAM posits that two primary factors—perceived usefulness and perceived ease of use—drive consumers' intentions to adopt new technology. In the context of Smartphones, product features such as processing power, camera quality, battery life, and software capabilities significantly influence consumers' perceptions of a device's usefulness. Consumers are more likely to purchase Smartphones that offer functionalities that enhance productivity, communication, or entertainment experiences. Supporting this, Li and Yeh (2010) demonstrated that product features related to user interface and connectivity are critical in shaping consumer preferences. As technology evolves,

features like 5G connectivity, AI-powered applications, and seamless integration with other devices become increasingly significant in driving purchasing decisions.

Additionally, social factors play a pivotal role in consumer behavior, as explained by the Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975). According to TRA, individuals' behaviors are shaped by their attitudes and subjective norms, which are the perceived social pressures to engage or not engage in a particular behavior. In the context of Smartphone purchasing, subjective norms often manifest through influences from peers, family, and broader societal trends. Research by Taylor and Todd (1995) underscores the importance of social factors in technology adoption, showing that consumers often follow the recommendations of their social circle when making high involvement purchasing decisions. For example, consumers frequently rely on their peers' or family members' opinions when choosing a Smartphone brand, particularly well-established brands like Apple and Samsung, where the brand name serves as a strong signal of quality and status. This social validation plays a critical role in consumer decision-making processes, especially in markets where branding is central to consumer identity.

The Consumer Decision-Making Model (Blackwell, Miniard, & Engel, 2006) further complements these theories by providing a structured understanding of how consumers process information about product features, price, and aesthetics. This model describes the multi-stage process consumers undergo when evaluating and choosing products, starting from problem recognition, followed by information search, evaluation of alternatives, purchase decision, and post-purchase behavior. Consumers often weigh aesthetic appeal, brand reputation, and price when evaluating Smartphones. For many, aesthetic appeal, such as the design, color, and overall look

14

of the phone, is closely tied to their personal identity and social image, which enhances the attractiveness of certain brands. At the same time, price becomes a crucial factor, particularly when consumers have varying levels of income. Higher-income consumers may prioritize premium features and aesthetics, while those with lower incomes are more likely to focus on obtaining the best possible value for their money, striking a balance between price and desired features.

Maslow's Hierarchy of Needs (1943) offers further insight into the role of income levels and brand name in influencing consumer behavior. Maslow's theory suggests that consumers' purchasing decisions are motivated by their needs, which range from basic physiological requirements to higher-order needs such as esteem and self-actualization. For consumers with higher income levels, purchasing a premium Smartphone not only fulfills practical communication needs but also serves as a means of achieving social status and esteem. High-end Smartphones, such as the latest models from Apple or Samsung, can symbolize success and accomplishment, fulfilling consumers' desire for recognition and status. Conversely, consumers with lower income levels may prioritize more basic functionalities, such as communication and connectivity, and seek affordable options that meet their essential needs. This aligns with Self-Concept Theory (Sirgy, 1982), which posits that consumers select products that reflect or enhance their personal identity. For these consumers, brand name and aesthetics can provide a sense of personal satisfaction or self-expression, further influencing their purchasing decisions.

In conclusion, this study draws upon a combination of the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Consumer Decision-Making Model, and Maslow's Hierarchy of Needs to offer a comprehensive understanding of

the factors influencing consumer purchasing behavior in the Smartphone market. Product features and social factors shape consumers' attitudes and intentions, while brand name, aesthetic appeal, price, and income levels further inform their decision-making processes. Together, these theories provide a multi-faceted view of how consumers navigate complex choices in the competitive Smartphone industry, balancing the desire for advanced features, social validation, personal identity, and financial considerations. This understanding is critical for businesses aiming to align their product offerings with consumer expectations in an ever-evolving technological landscape.

2.3 Consumer Purchasing Behavior

In Malaysia, Generation Y citizens, defined as individuals born between the 1978 and 1994, are currently aged between 27 to 41 years. Also known as "Millennials" or "Gen Y," they are a significant demographic group due to their size and potential impact on industries like technology and consumer sectors. Generation Y in Malaysia is characterized as tech-savvy, highly educated, and urban-oriented, with a focus on work-life balance and personal development (Saw, & Tin, 2023). They are known for their diverse values, preferences, and behaviors, which influence the country's social and economic landscape. Kotler and Keller (2012) noted that there are five stages customers go through before and after an actual purchase in the consumer behavior model: need awareness, information search, alternative evaluation, purchase decision, and post-purchase behavior. Kotler (2014) stated that consumers play an important role in purchasing products for personal consumption. Meanwhile, Blackwell, Miniard, and Engel (2016) agreed that consumers go through these five stages when intending to purchase certain goods.

Blackwell et al. (2016) and Saw, & Tin, (2023) indicated that individual and environmental factors impact consumer buying behavior. Individual factors stem from perception, learning, demographics, knowledge, attitudes, personality, beliefs, and lifestyles. Environment is an uncontrollable aspect affecting individual purchase decisions, with reference groups, culture, family, home, and socioeconomic status all impacting consumer behavior. These factors are determinants in selecting products and services.

Moon (2014) and Azhar, M., et al., (2023) described that how consumers develop, adapt and applying strategies for decision-making are crucial issues in consumer behavior. According to Kotler (2015), comprehending consumer behavior entails looking at how customers use and acquire goods and services to fulfill their requirements and desires. According to Solomon (2016); Abdullah, B. S., et al., (2023), marketers see consumer behavior as a result of interactions that take place between producers and consumers when they are making a purchase. However, marketers recognize that consumer behavior is an ongoing process that does not conclude with the transaction.

Large corporations are keen to understand consumer purchase decisions: what, where, how, when, and why they buy. Each individual's perception of products and services is unique (Kotler & Keller, 2015). Sanderson (2012) and Teo, & Wong, (2023) proposes that marketers need to understand target customers' buying processes, characteristics, beliefs, values, attitudes, and lifestyles to enhance marketing strategy effectiveness. Consequently, traditional marketing strategies are giving way to e-marketing strategies, capturing young adults' attention without hard-selling through salespeople.

Consumer behavior models help corporations influence buyer decision-making through advertising efforts. Kotler et al. (2016) and Ahmad, et al., (2024) stated that the 4Ps (price, product, promotion, and place) are fundamental elements of the marketing mix. Additionally, macro-environment factors like political, economic, social, and technological elements influence consumer purchasing behavior. The 4Ps and macro-environment factors impact consumer behavior as they enter the 'black box' of consumer choice. Consumers process these factors to select and respond to their preferred products, brands, dealers, purchase timing, and quantity.

Ahmad, et al., (2024) described a five-stage purchasing decision process for consumers. First, consumers identify and compare their current and ideal states to recognize their real needs and wants. Customers' needs are influenced by environmental factors such as salesperson persuasion and purchase timing. Second, consumers search for information about preferred products through various channels like media and personal contacts. Third, consumers process collected information to identify alternative brands. Fourth, consumers purchase the product that meets their satisfaction. Finally, customers evaluate the product post-purchase based on satisfaction or dissatisfaction.

2.4 Product Features

Product features are defined by the qualities of goods that satisfy customers through ownership, use, and application (Kotler et al., 2017; ElSayad and Mamdouh 2024). Smartphones' features have evolved, including AI software, large touch screens, extended battery life, high internal specs, and more. Battery life plays a significant role, as it allows longer usage without repeated charging, a crucial factor for consumers. USB connectors for Smartphones have also evolved, with USB-C cables

used by various manufacturers offering benefits like smaller size, faster charging, and adaptability. In Europe, USB-C has been sanctioned as a universal cable for Smartphones, facilitating purchase and sharing among users of different brands. The design of Smartphones has also evolved, with manufacturers aiming for visually appealing devices with edge-to-edge screens, notches, and rounded edges. Overall, a feature is a product quality that appeals to customers, fulfilling their needs and desires (Tan, 2024).

Smartphones comprise both hardware and software functions. Hardware includes the physical components like the body, weight, and dimensions. Design and color are also hardware, affecting the phone's external appearance. Conversely, software encompasses all programs, instructions, and documentation (Lee-Yee et al., 2013; Maula and Albari (2024). This includes the operating system, storage, and apps, with various software options available on the market. Smartphones have surpassed feature phones in interactivity, with the ability to install third-party apps. Consumers' preferences for Smartphones over feature phones are not only due to calling and messaging capabilities. Differences in camera quality, storage space, operating speed, internet connectivity, size, and physical appearance may also influence consumer interest.

2.5 Brand Name

As demonstrated by Savitri et al. (2021), brand name has a strong influence on Smartphone consumer purchase behavior. The term "brand name" refers to a name, term, symbol, or feature that distinguishes a company or product in the market. It is a link between the company and consumers (Li et al., 2021). Brands impact female buyers more than male buyers (Azad and Safaei, 2012). Bhattacharya and Mitra

(2012) and Munikrishnan et al. (2024) noted that brands have a greater influence on individuals with lower purchasing power. Product performance, quality, after-service, and associated social status are considered when purchasing branded products. Liu and Liang (2014) found that consumers are willing to spend more on their preferred Smartphone brand, focusing less on price and features than on the brand itself.

Dastan and Gecti (2014) mentioned that brand trust influences Smartphone buyers. Suki (2013) stated that Smartphone brand impact is crucial for enhancement among Malaysians. Aghdaie & Honari (2014) and ElSayad and Mamdouh (2024) proposed that valuable brands reduce the risk of buying low-quality products and save decision-making costs. Keller and Lehmann (2016) agreed that a trusted brand signifies quality and trust, facilitating consumer choice. Keller and Lehmann (2016) also suggested that brands can remind consumers of their overall past experiences with a product. Consumers have various brand preferences but limited decision-making time. Thus, brand distinctiveness aids in risk-reduced, expectation-aligned decisions.

Kotler (2013) suggested that a trademark is a name, term, sign, symbol, or design, or a combination of these, used to identify a seller's or a group of sellers' goods and set them apart from rivals. Ambler (2013) noted that, after customers, a company's brand is regarded as its most valuable asset. Few authors (Fritz et al. 2024)suggested that a name, term, sign, symbol, or design, or a combination of them, can be used as a trademark to identify the goods or services of a seller or group of sellers and set them apart from rivals. According to Ambler (2013), a company's brand is regarded as its second most valuable asset, after its customers.

2.6 Social Factors

Social factors refer to the capacity of one individual to influence another in terms of emotions, attitudes, thoughts, and behaviors, intentionally or unintentionally (Mei, Chow, et al., 2012). Social factors are attributed to influences from family members, friends, colleagues, peers, and others. Ting et al. (2011) and Abdullah, S. I. N. W., et al., (2024)

mentioned that an effective way to influence more university students to use Smartphones is through increased advertising efforts such as positive word-of-mouth amongst friends and family. According to Park et al. (2013), social factors may also be a major element in cellphone usage because individuals do not make decisions in isolation. Family, friends, social roles, and status are factors that influence consumer behavior, according to Kotler and Armstrong (2012) and Anuar, N. A. N., et al., (2024).

There are many Smartphone brands like Samsung, Apple, Huawei, Lenovo, Xiaomi, LG, ZTE, Oppo, Vivo, etc., each with loyal customers. Mokhlis et al. (2012) showed that personal recommendations and social factors significantly affect Smartphone consumers' purchase behavior.Ernest et al. (2012) and same Alam, S. S., et al., (2024) observed that Malaysians' purchase decisions are influenced by both direct and indirect role models, with indirect role models, such as celebrities, having a higher impact than direct ones, such as parents, in Smartphone decision-making. Mudondo (2014) mentions that social factors have a direct impact on behavioral intentions.

Farzana (2012) and Sharma, M., et al., (2024) noted that in the purchase of high-involvement goods, consumers' behavior is often shaped by others, particularly

21

family members. Rashotte (2017) elaborates that social factor, through the persuasion of friends, family, peers, and salespeople, will intentionally or unintentionally alter an individual's feelings, thoughts, behaviors, and attitudes toward a product. Communication among individuals creates a variety of opinions, comments, and perspectives toward a product.

Nelson & McLeod (2015) indicate that media, parents, and peers affect consumers' choices in selecting or purchasing a Smartphone. Nowadays, people can easily create accounts on online social networks such as Facebook, Twitter, WeChat, WhatsApp, Instagram, etc., and not only find data on Smartphones but also obtain feedback and product reviews from other users. Social factors are associated with the way different people impact one's feelings, beliefs, and behavior (Mason et al., 2017; Fadzilah, A. H. H., et al., 2024).

Mei et al. (2012) suggest that it is probable that an individual will adopt specific attitudes, feelings, behaviors, and thoughts due to social factors. Schiffman et al. (2015) discuss the influences of social class, culture, and subculture as less tangible but significant internalized factors that impact consumers' willingness to evaluate and use goods. Social norms and the expectations of others are two main forces that influence consumers' attitudes towards brands (Jamil and Wong, 2012; Anuar, N. A. N., et al., 2024). Auter (2017) stated that friends and family members are significant social factors in advertising and promoting the sale of Smartphones. Consumers may also be susceptible to social factors through recognition, observation, or expectation of decisions made by others in relation to Smartphones (Suki and Suki, 2017; Anuar, N. A. N., et al., 2024).

2.7 Price

In essence, price is the sum of money that is charged for a good or service. In a broader sense, it symbolizes the total value that consumers give up in order to reap the rewards of possessing or utilizing a good or service (Xiao, Yang, and Iqbal, 2018). According to research, price has the biggest impact on consumers' intentions to make purchases (Rakib, 2019; (Tariq, Ramayah, Griffiths, Ariza-Montes, & Han, 2024). Moreover, it is among the most important variables influencing a company's market share and profitability. The only component of the marketing mix that brings in money is price; the other components are expenses.

Price directly affects a company's bottom line. More importantly, as part of a company's overall value proposition, pricing is critical in creating customer value and shaping buyers' purchase intentions. Price is a primary consideration for many shoppers when purchasing a Smartphone (Tran, 2018; Mohd & Najimudin, 2024). Price is the cost that consumers can most readily assess, thus playing a pivotal role in their decision-making. The global demand for Smartphones is rapidly expanding, influenced by various factors, including price. Price directly influences customer purchase intentions (En and Balakrishnan, 2022; Tay, 2024). Shoppers deliberate whether to purchase a particular product or a similar one at a lower price, thereby positively influencing behavioral intentions.

Price is a tangible indicator that customers use to form expectations. In the Smartphone market, the prices of different Smartphones vary. Some are expensive, while others are more affordable. Pricing and customer satisfaction are positively correlated. If a customer is happy with a product, they will frequently pay a higher price for it. In addition, some purchase pricey Smartphones as a way to flaunt their

social standing (Gao, Cheah, Lim, Ng, Cham, & Yee, 2024). Because price contributes to the development of a brand's reputation among consumers, price level has been demonstrated to have a positive impact on behavioral intentions. Regarding the intention of customers to make purchases, this is a crucial matter. When two products have comparable features, the customer is more likely to choose the one with the lower price. Consumers also consider and evaluate the price policy and promotions of each company when purchasing the same product. Therefore, lower prices are an effective strategy to attract customers.

2.8 Aesthetics

Choi (2012) highlights that cellphones with excellent performance and a streamlined interface design help users efficiently manage their daily tasks. Customers are particularly satisfied with the information hierarchy and visual display elements, especially when using their Smartphones for searching information, communication, and entertainment. Additionally, research by Dahlgaard et al. (2016) and Tulasi et al. (2024) suggests that consumers' emotional responses are significantly shaped by the visual design of their Smartphones, with studies indicating that men tend to prefer black Smartphones and view them as important accessories. Page (2013) emphasizes the importance of ergonomic features, such as swipes and swift keys, which enhance usability compared to the ordinary typing speeds found on traditional keyboards. Further, Page (2014) and Jasim, Hussein, and Mohammed (2023) argue that an effective User Interface (UI) design not only improves users' awareness of Smartphone applications but also enhances their understanding of the product's themes, thereby building user capability. Swilley (2012) and Tulasi, Ashiaby, Kodua,

Ahlijah, and Agyeman-Duah (2024) also stress that aesthetics extend beyond visual appeal to engage other senses, such as touch and even taste.

This shows that product features and aesthetic elements, though distinct, work in tandem to attract consumers. While features like usability and performance meet functional needs, aesthetic aspects like visual design and sensory engagement create an emotional connection, influencing purchase decisions. Together, they create a holistic product experience that appeals to both the rational and emotional sides of the consumer.

2.9 Income Levels

Income is the sum of money or resources that an individual or household receives from various sources, including wages, salaries, bonuses, tips, commissions, and government assistance. It is a measure of a person's or household's financial resources and is crucial in determining their standard of living, purchasing power, and economic well-being. Purchasing behavior is invariably linked to an individual's financial condition or income level. Those with greater spending power usually purchase costlier and superior goods compared to those with moderate or lower incomes. What one buys reflects their financial status (Nagarkotti, 2014; Soo & Gong, 2023). For instance, a person with a high income might afford and opt for luxury products, while a person with a lower income may choose less expensive items over luxury ones. Consequently, a buyer's purchase decision is influenced by their economic circumstances. A consumer's purchasing power is strongly associated with their personal expenditure when in a favorable economic state (Chong, Yap, Lim, & Teen, 2023).

2.10 Why to study buying patterns of Generation Y?

Understanding the buying patterns of Generation Y (millennials) is crucial for businesses aiming to thrive in the modern market. This demographic, typically born between 1981 and 1996, has distinct preferences and behaviors that significantly impact retail trends. Millennials are tech-savvy and frequently use mobile devices for shopping. This has led to the growth of mobile and social commerce, necessitating that businesses optimize their online presence and user experience for mobile users highlighted by ecommerce specialist Sofia Carvalho e Pereira (blog.lengow.com, 2023). Generation Y is known for being thoughtful buyers who value brand authenticity and social responsibility over tradition. This means brands must focus on building a strong, value-driven identity to attract and retain millennial customers (Imarc, 2023). One of the primary reasons millennials shop online is the ease of comparing product attributes. They appreciate transparency and detailed product information, which means businesses must ensure their online platforms provide comprehensive and easily accessible product details (Agrawal, D.K., 2022).

Gen Y consumers are influenced by brand, style, price, and social identity. Understanding these factors can help retailers tailor their marketing strategies to meet the specific preferences of millennials (Valaei, and Nikhashemi, 2017). Millennials represent a significant portion of the consumer market, making it vital for online retailers to understand their profile and buying patterns. This understanding can inform better product offerings, marketing strategies, and customer engagement practices (Quintal et al., 2016). By comprehensively understanding and responding to the buying patterns of Generation Y, businesses can effectively cater to this influential demographic, enhancing customer satisfaction and driving sales growth.

2.11 Development of Hypothesis

2.11.1 Product Features and Consumer Purchasing Behavior

Oulasvirta, Wahlström, and Ericsson (2011) report that Smartphones currently possess substantial features that can replace various gadgets, such as a clock, camera, and more. Ling et al. (2016) identified five main design elements that attract customers and encourage purchases, including high megapixel cameras, voice-controlled calling, internet surfing, wireless networking, and full-view display screens. Additionally, Mudondo (2014) and Rahlin et al. (2024) stated that age is an important factor to consider as it fosters technological innovation, particularly among the young generation.

Kotler & Armstrong (2017) argue that the younger generation possesses strong purchasing power for electronic gadgets, especially Smartphones, which can influence the market share. This is attributed to their high awareness of technological developments in Smartphones. Mei, Chow, Chen, Yeow, & Wong (2012) and Munikrishnan et al. (2024) proposed that Smartphones separate software from hardware. The software includes the processor, chipset, RAM, and built-in storage, while hardware, such as the body, size, weight, color, and design, are tangible. In this technological era, users' desire for Smartphones in terms of technology is growing.

The iPhone, for example, is renowned for its high-resolution screens and offers a broad array of features including instant messaging, mobile web browsing, numerous applications, picture messaging, email, video and audio playback, GPS, games, video camera, and picture and video editing (Persaud and Azhar, 2012; Tan 2024). Users focus not only on camera megapixels but also the operating system (OS) (Mei, Chow,

et al., 2012). Consumers select products primarily based on features that create specific advantages leading to desired outcomes, influenced by personal values (Mei, Chow, et al., 2012; Maula and Albari 2024).

Typically, buyers compare the features of Smartphones to assess competitive brands (Chow et al., 2012). Since product features affect purchasing decisions, marketers need to take heed of them. Thus, it can be posited that Smartphone features have influenced the shopping habits of Generation Y in Malaysia. Features such as internet connectivity, Bluetooth, video, color design, media player, touchscreen, memory storage, size, camera, loudspeaker, and weight are common in all Smartphones, according to Fritz et al. (2024)

MCMC (2017) and similarly ElSayad and Mamdouh (2024) posits that Malaysian users pay more attention to messaging, browsing, music, video, gaming, photography, navigation, and other activities. A high percentage of Malaysian users engage in text messaging, voice notes, voice calls, video calls, social networking, internet browsing, recreation, and navigation. This indicates that many Gen-Y individuals in Malaysia are attracted to Smartphones with appealing features. Based on the aforementioned and the observed patterns, the following hypothesis is proposed:

Hypothesis 1: Product features significantly influence the purchasing behavior of Generation Y in Malaysia.

2.11.2 Brand Name and Consumer Purchasing Behavior

A company's brand, which conveys the essence of what a service or product means to customers, is its most valuable asset. A brand encompasses more than just its name

and logo; it also represents the business-customer relationship (Kotler et al., 2010; Tan, 2024). The brand name directly influences customers' judgments of product quality. Satisfied customers spread positive word-of-mouth, arousing curiosity and prompting others to purchase the brand (Azad et al., 2012; ElSayad and Mamdouh 2024). Marketers strive to build brand equity to gain customer preference and loyalty, improving consumer responses. Brand equity reflects the added value customers assign to products and services and may mirror their behavior when engaging with the brand.

A brand differentiates a seller's goods or services through a word, phrase, symbol, design, or other features. Certain cultural and demographic groups may be drawn to a specific brand and show a preference for it over others. Smartphone users may develop an interest in the latest brand that incorporates product improvements. Regarding gender, the brand has a stronger impact on women than on men (Lee-Yee et al., 2013; Maula and Albari 2024). Moreover, lower-income consumers are more influenced by brand behavior due to limited purchasing power and poor after-sales service (Munikrishnan et al. 2024). It shows that brand may influence purchasing decisions, warranting further research into the impact of factors like brand association, brand equity, and brand awareness on the purchasing decisions of Generation Y in Malaysia.Thus, the following hypothesis is formulated:

Hypothesis 2: *The brand name influences the purchasing behavior of Generation Y in Malaysia.*

2.11.3 Social Factor and Consumer Purchasing Behavior

"Social elements, such as the customer's small groups, social roles, and family status," affect consumer behavior (Kotler et al., 2010; Abdullah, S. I. N. W., et al., 2024). Consumers are invariably influenced by their social groups during decision-making. Consumers in different social groups may respect and trust various influencers, such as professionals in specific industries, depending on various factors (Lee-Yee et al., 2013). Spouses, relatives, peers, and friends may influence Generation Y's Smartphone purchases.

First, when buying high-involvement items, consumers' behavior is influenced by others, particularly family members (Farzana, 2012; Fadzilah, A. H. H., et al., 2024). Second, people may develop an interest in a product simply because their peers, friends, or relatives use it. Community trends may also shape preferences for certain products (Osman et al., 2012; Alam, S. S., et al., (2024) Sharma, M., et al., 2024). Additionally, the younger population, which constitutes the majority of Generation Y, may emulate their peers and opt for trending items. Typically, our behavior and beliefs align with those around us, occurring spontaneously and automatically without any overt intention to change (Niosi 2021; Anuar, N. A. N., et al., 2024). This behavioral and belief change may reflect in our consumer preferences and choices. These factors may influence the consumer behavior of socially active Generation Y members in Malaysia. Hence, the following hypothesis is proposed.

***Hypothesis 3:** Social factors significantly influence the Smartphone purchasing behavior of Generation Y in Malaysia.*

2.11.4 Price and Consumer Purchasing Behavior

Price is the amount of money a client is willing to spend on goods and services they deem worthy. For different people, money can signify different values. Some might consider a product worthy despite a high price, while others might not find the same product worth the expense. Pricing can affect a customer's purchasing behavior(Gao, Cheah, Lim, Ng, Cham, & Yee, 2024). Various pricing strategies, such as promotional pricing, going-rate pricing, perceived value pricing, target-return pricing, and markup pricing, are currently used (Kotler et al., 2012). Discounts alter the price and thus can influence customer behavior. Generally, some demographics may be enticed by low prices, while others may perceive highly priced Smartphones as superior ((Tay, 2024).

Chow, M. M. (2011) noted that the price of goods is one of the factors examined for its effects on Smartphone demand. MCMC (2017) and(Tariq, Ramayah, Griffiths, Ariza-Montes, & Han, (2024) reported that Malaysians with no income (dependents) and those with an income level between RM1000 to RM3000 account for high percentages of hand phone users by monthly income in 2017, at 29.9% and 39.3% respectively. Dependents, or those reliant on family members for financial support, have the means to purchase Smartphones. This survey suggests that a higher income level does not necessarily equate to higher Smartphone consumption but does affect consumer decision-making on whether to proceed with the purchase. Therefore, the hypothesis is postulated as follows.

Hypothesis 4: The price of a Smartphone significantly influences the purchasing behavior of Generation Y in Malaysia.

2.11.5 Aesthetics and Consumer Purchasing Behavior

Wang et al. (2013) described aesthetics as stimuli that evoke cognitive and emotional responses. Landwehr et al. (2013) and (Tulasi, Ashiaby, Kodua, Ahlijah, & Agyeman-Duah, 2024) emphasized that leveraging an individual's favorable aesthetic response can aid in product differentiation and preference formation. Swilley (2012) mentioned three dimensions—product design, product color, and overall appearance—as individual perceptions of an object's aesthetics. Additionally, the overall appearance includes texture, beauty, and shape. Swilley (2012) later continued with the five basic factors of product color, touch, beauty, shape, and design. Karjalainen and Snelders (2012) and (Jasim, Hussein, & Mohammed, (2023)advised that companies should consider unique aesthetic dimensions of products, as this can help design more customized merchandise and better capture customers' purchasing behavior, especially in terms of visual appeal. Moon et al. (2013) and similarly (Majeed, Aftab, Arslan, & Shakeel, 2024) mentioned that companies implementing product development with special visual designs could reduce promotional costs.

Leelakulthanit & Hongcharu (2012) and Tulasi, Ashiaby, Kodua, Ahlijah, & Agyeman-Duah, (2024) stated that the aesthetic or design of the Smartphone is a consideration for consumers, associated with art, beauty, and taste in creation. Smartphone manufacturers believe that altering the physical appearance, packaging, and presentation of products can motivate and attract customers to purchase. Hence, the following hypothesis is presented.

Hypothesis 5: *The aesthetic nature of a Smartphone positively influences purchasing behavior among Generation Y in Malaysia.*

2.12 Effect of Moderating Variable

2.12.1 Product Features (PF) and Income Levels (IL)

Beyond being mere gadgets for calling and messaging, Smartphones have become more interactive, offering the capability to install third-party applications, unlike traditional feature phones (Ganlari, 2016; (Soo & Gong, 2023). The preference for Smartphones is not merely based on basic functions; they vary in features such as camera quality, storage space, operating speed, internet connectivity, as well as size and physical appearance. The variety of these elaborate features may influence a customer's interest. However, the more extensive the product features, the higher the potential cost of the gadget. As a result, income levels may restrict customers despite their desire for more sophisticated Smartphones.

Hypothesis 6: Income Level (IL) moderates the relationship between Product-Smartphone Features (PF) and Purchase Behaviors (PB) among Gen-Y in Malaysia.

2.12.2 Brand Name (BR) and Income Levels (IL)

A brand's complexity extends beyond its name and logo; it is integral to the business-customer relationship (Kotler et al., 2010; (Chong, Yap, Lim, & Teen, 2023). The brand name directly affects customers' perceptions of product quality. Smartphone users may gravitate toward the latest brand with improvements in certain product aspects. However, such improvements are often accompanied by higher prices. As a result, consumers' purchasing decisions may be affected by their income levels. This leads to the formulation of the seventh hypothesis.

Hypothesis 7: *Income Level (IL) moderates the relationship between Brand Name (BN) and Purchase Behaviors (PB) among Gen-Y in Malaysia.*

2.12.3 Social Factors (SF) and Income Levels (IL)

Rashotte (2017) indicated that social factors, such as persuasion by friends, family, peers, and salespeople, can intentionally or unintentionally change an individual's feelings, thoughts, behaviors, and attitudes toward a product. Communication among individuals generates a variety of opinions, comments, and perspectives toward the item. Likewise, these social factors influence Smartphone purchases in Malaysia.

However, prospective customers' income levels may limit Smartphone purchases despite social factor. Prospective Smartphone consumers may desire Smartphones due to social factors but be constrained by income levels (Hasbullah, Kiflee, Ramachandran, Anwar, & Sulaiman, 2023). Those with sustainable income may easily purchase Smartphones, while those with lower income may prioritize other needs. For instance, Statista's survey showed that the percentage of Malaysians with an income level of RM1000 and below does not compare to those earning RM5000 and above in terms of Smartphone purchases. The influence of social groups may lead a customer to seek more elaborate Smartphones. Improvements in features, brand transitions, and aesthetics often result in higher prices. Thus, the influence of social factors on Smartphone purchases may be moderated by the customers' income levels.

Hypothesis 8: *Income Level (IL) moderates the relationship between Social Factor (SC) and Purchase Behaviors (PB) among Gen-Y in Malaysia.*

2.12.4 Price (P) and Income Levels (IL)

Kotler and Armstrong (2012) noted that price significantly affects customers' purchasing decisions. Customers' willingness and ability determine the success of a transaction. While the price of commodities influences customers' willingness to buy, income levels affect their ability to make purchases (Au, 2023). Higher income levels can drive up prices due to increased product demand. People with higher incomes demand more because they can afford the commodities, which can lead businesses to set higher prices. Thus, higher income levels can lead to increased spending and demand, potentially raising prices.

Hypothesis 9: *Income Level (IL) moderates the relationship between Price (P) and Purchase Behaviors (PB) among Gen-Y in Malaysia.*

2.12.5 Aesthetics (A) and Income Levels (IL)

Wang et al. (2013) described aesthetics, such as product design and overall appearance, as stimuli that evoke cognitive and emotional responses. Landwehr et al. (2013) and Au, 2023) emphasized that appealing to an individual's aesthetic preferences can differentiate products and shape product preferences. Certain aesthetic elements, like the slimness of Smartphones, may command higher prices. However, the effect of aesthetic value may be moderated by customers' income levels. Higher income levels enable customers to afford products with more aesthetic value.

Hypothesis 10: *Income Level (IL) moderates the relationship between Aesthetics (A) and Purchase Behaviors (PB) among Gen-Y in Malaysia.*

2.13 Research Framework
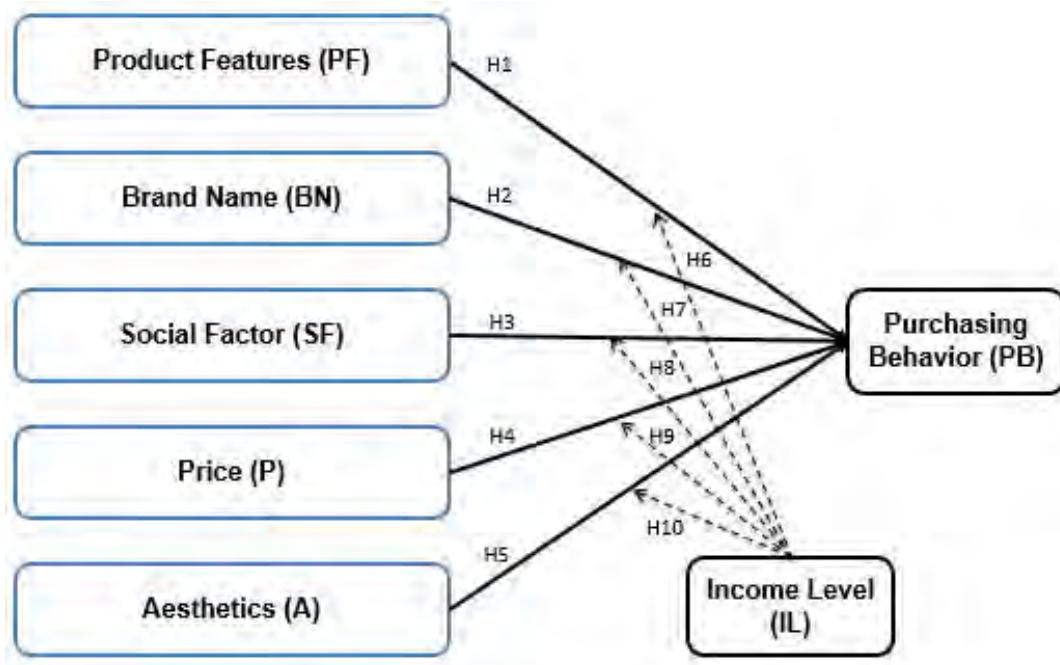
Figure 2.1 Research Framework

2.14 Conclusion

In conclusion, this chapter has provided explanations of the literature review and investigated the five independent variables—product features, brand name, social factors, price, and aesthetics—and one dependent variable. It has supported and explained the research framework with consumer purchase theory and psychology theory and has discussed the development of hypotheses.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter outlines the methodology employed in conducting the study, particularly the data collection and data analysis processes. It also details how data will be interpreted to provide elaborative responses to the research questions. Included in the chapter are the research design, instrumentation development, pilot testing, and techniques for data analysis.

3.2 Research Design

Welman, Kruger, & Mitchell (2015) describe research design as a comprehensive plan based on the respondents of a proposed study, the selection process, and the methods of data creation or gathering to carry out the research. Bless et al. (2016) defines research design as the execution process to investigate a specific hypothesis under given conditions. Hair, Bush, and Ortinau (2016) exemplify how study design aids in outlining the necessary procedures and techniques for data collection and analysis.

A research project should consider the data type, sampling methodology, sampling processes, design strategy, timeline, and budget. Burns and Bush (2012, p. 143) refer to research design as a set of master plans that guide decision-makers on methods and processes for collecting and analyzing required data. Similarly, Collis & Hussey (2013) describe research design as a detailed plan for conducting a research study.

Therefore, a blueprint is essential before implementing research to obtain accurate and reliable findings and to efficiently and effectively show the research progression.

3.3 Research Philosophy

Saunders et al. (2012) The two primary ways of thinking in the research paradigm are ontology and epistemology, which provide a thorough understanding of how knowledge is viewed and how we relate to it. Ontology is the study of the essence and characteristics of reality. Subjectivism and objectivism are the two aspects of ontology that Saunders et al. (2012) describe. According to objectivism, social entities exist in reality apart from social actors. Subjectivism, on the other hand, holds that social phenomena are the product of social actors' perceptions and behaviors. Consequently, the research objective of the writers is to comprehend and enlighten these disparate realities.

The relationship between the knower and what is knowable is the essence of epistemology, which is defined as what qualifies as legitimate knowledge in a field of study. The positivist method maintains the researcher's independence from the study participants and holds that accurate data can only be produced by observable or quantifiable events. This suggests using a deductive method to research, in which qualitative data is replaced by quantifiable observations, and the results are generalizable. (Wilson, 2014).

3.4 Research Approach

Exploratory research, also known as qualitative research, uses small sample sizes and refrains from making general conclusions, while the findings are not generalized to a larger population. Individual interviews, participations, and focus groups are

common methods of qualitative research. Conclusive research, or quantitative research, describes particular circumstances, analyzes specific relationships, and examines hypotheses. Burns & Bush (2012, p. 149) describe that conclusive research includes causal and descriptive research. This study has adopted a quantitative approach as it aligns with the research's aim to collect primary data through questionnaire surveys (Saunders et al., 2012; Creswell, 2007; Zikmund et al., 2012; 2013)

3.5 Research Strategy

Considering time and flexibility, this study adopts a single method to gather data—quantitative data through a questionnaire survey. Surveys are utilized to collect both qualitative and quantitative data. In line with the research objectives and to collect quantitative data, this study applies a web-based questionnaire survey. The focus is on Generation-Y citizens in Malaysia; hence data will be collected from this demographic. Therefore, this study employs conclusive/quantitative research to understand the Smartphone purchasing behavior of Generation-Y in Malaysia.

3.6 Instrumentation

DeVaus (2002) states that a questionnaire is a research instrument that includes a variety of data collection approaches, wherein each participant is asked the same set of pre-established questions. Burns and Bush (2014) mention that questionnaires include only two types of questions: open-ended and closed-ended. Open-ended questions do not provide participants with a set of answers to choose from, whereas closed-ended questions do. In this study, participants are required to select from the options provided by the questionnaires.

Burns and Bush (2016) argue that questionnaires or surveys are typically used to pose questions and receive responses from participants. This research's questionnaire consists of four sections: Section A, Section B, Section C, and Section D. The construction of the questionnaire is self-administered, meaning participants must answer based on the options given by the researcher. The questionnaire will be administered online via Google Forms, using a Five-point Likert Scale for sections.

Table 3.1
Likert point scale details

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

Five-scale scores (1= Strongly Disagree; 2= Disagree; 3= Mostly Agree; 4= Agree; 5= Strongly Agree) are used to evaluate satisfaction/consent to statements prepared in the form of a questionnaire, as detailed below in table 4.2

Table 3.2
Instrument design details

Section/Variable	Number of items	Sources
Section A: Demographic Information	4	
Section B: Independent Variables		
IV 1: Product Features	6	Jainarain, (2012) and Ting, D. H., Lim et al (2011).
IV 2: Brand Name	6	Tee, Benjamin and Behrooz (2013).
IV 3: Social Factors	5	Chun, H., Lee, H., & Kim, D. (2012).
IV 4: Price	6	Cheong and Park , (2015.
IV 5: Aesthetics	5	Filieri R, Lin Z. (2017)

Section/Variable	Number of items	Sources
Section C: Moderating Variables	6	
-Income Levels		(Jamalova& Constantinovits, 2019)
Section D: Dependent Variables	6	
Consumer Purchasing Behavior		Ting, D. H., Lim et al (2011).

Sources: Author

Table 3. 3
Details of items used in instrument of the study

S/N	**Section A:** Demographic Information
1	**Gender:** Male/Female
2	**Age:**<19, 19-31, 32-41, 42 and above.
3	**Education:** SPM/ STPM/ A-Level/ Foundation/ Diploma/ UEC Undergraduate (bachelor's degree) Postgraduate (master's degree or PhD)
4	**Occupation:** Students Employees Self-employed
	Section B: Part 1- Product Features
1	I am willing to pay extra for Smartphone with good camera quality.
2	I think that battery life is important to me when choosing a Smartphone.
3	I am willing to pay extra for Smartphone with extended battery life.

4	I think that voice assistant features on Smartphone is important to me when choosing a Smartphone.
5	I think that screen size and resolutions is a crucial factor to me when choosing a Smartphone.
6	Overall, I am willing to pay more for Smartphone that provides better product features that fulfil my specific needs for a Smartphone.

Part 2- Brand Name

1	The brand image and reputation of a Smartphone company is an important factor in my decision to purchase a Smartphone.
2	I am more likely to buy a Smartphone from a well-known brand.
3	I think a well-known Smartphone brand indicates high quality of Smartphone products.
4	I believe a well-known Smartphone brand is more reliable.
5	I am more likely to trust a well-known Smartphone brand.
6	I am more likely to switch to a well-known Smartphone brand if it offers better features

Part 3- Social Factors

1	The social pressure from peers and family members influences my decision to purchase a Smartphone.
2	The opinions of my friends and family members influence my choice of Smartphone brand.
3	The reviews of my friends and family members affect my choice of Smartphone brand.
4	The ability to stay connected with friends and family through social media and messaging apps is an important factor in my decision to purchase a Smartphone.
5	I am more likely to purchase a Smartphone that has been positively reviewed on social media.

Part 4- Price

1	I believe the price of a Smartphone is reflective of its quality.
2	The price of a Smartphone is the most important factor to me when making a purchase decision.
3	I consider the price of a Smartphone as an indicator of its technological advancement.
4	I am more likely to purchase a Smartphone if it is offered at a discounted price.

| 5 | The price of a Smartphone is the most crucial factor compared to other factors when deciding a purchase. |
| 6 | The price of a Smartphone is most important to me than its design and appearance. |

Part 5- Aesthetics

1	The design of a Smartphone is an important factor in my decision to purchase.
2	The appearance of a Smartphone is an important factor to me when considering a purchase.
3	The color of a Smartphone affects my purchasing decision.
4	I think that the placement and size of the camera on a Smartphone affect its overall aesthetic appeal.
5	The overall aesthetics of a Smartphone matters to me when considering a purchase.

Section C: Income Level

1	I am more likely to purchase a Smartphone with advanced features if my income level is high.
2	My income level influences my willingness to pay for Smartphone with better features.
3	My income level affects the brand of Smartphone I purchase.
4	My income level plays a significant role in my decision to purchase a Smartphone.
5	My income level affects my choice between purchasing a new or refurbished Smartphone
6	I consider my income level before deciding to purchase a Smartphone with a contract or without a contract.

Section D: Dependent Variables (Purchase Behavior)

1	I am confident that buying a Smartphone will make my life easier in certain ways.
2	I believe that purchasing a Smartphone will provide convenience to me in my daily life.
3	I feel a sense of satisfaction when I purchase the latest model of a Smartphone.
4	I feel that owning a Smartphone is an essential part of my daily life.
5	I believe that owning a Smartphone can help me to accomplish my daily tasks more efficiently.
6	I believe that owning a Smartphone will improve my productivity.

3.7 Pilot Test

Bradley (2017) mentions that a pilot test is the best method to examine whether a questionnaire functions as intended. Schwab (2015, p. 47) stresses the importance of pilot testing on individuals similar to those who will ultimately complete the survey. The purpose of a pilot test, according to Saunders et al. (2012), is to refine and evaluate the questionnaire's reliability and validity. Changes resulting from the pilot test can enhance response rates, reduce missing data, and increase the number of valid responses in the final questionnaire (Schwab, 2015). Malhotra et al. (2012, p. 477) suggest that a sample size ranging from 15 to 30 subjects is optimal for executing a pilot test. Watson et al. (2017) underline the significance of conducting a pilot test to identify whether concepts have been adequately conveyed and to detect potential flaws in the measurement instrument. Thirty (30) respondents were randomly selected for the pilot test. The outcomes were collected and examined to ensure validity and reliability before distributing the questionnaire to the actual sample at mass level. Further to this, thee thirty responses were not included in the main data sheets and kept separate

3.8 Data Collection

3.8.1 Primary Data

Giri & Banerjee (2016) define primary data as data obtained directly from the industry under study for the intended purpose, collected from the original source. Kavmark, Powers, & Sandahl (2012) state that primary data is tailored to the goals of a research project, and thus the data collected is directly relevant to the investigation. Driscoll (2011) explains that primary research aims to understand communities,

44

people, and cultures through questionnaires, interviews, statistical analysis, and observations. Burns & Bush (2014) recommend transforming the study's objectives into specific questions, standardizing them to ensure participants respond to the same stimuli, encouraging collaboration, maintaining engagement, and keeping records for the research. Questionnaires serve multiple purposes, including research and facilitating data analysis. Various data collection methods, such as self- and person-administered surveys, can be employed.

Hair et al. (2016, p. 205) mention that in self-administered surveys, respondents complete the questionnaire without the presence of the researcher. The advantages include broader access, anonymity, comparatively low cost, and allowing participants to complete the questionnaire at their own pace (Hair et al., 2016, p. 205). The use of a questionnaire survey in this study ensures standardized data collection and facilitates administration and analysis (Burns & Bush, 2012, p. 267). Cooper & Schindler (2014, p. 96) note that original data are often the most reliable as they have not been altered or interpreted by third parties.

3.9 Population

The Generation Y population in Malaysia, comprising individuals born between 1982 and 2004 (ages 19 to 41), is known for its affinity for technology and perceived technological competence. As per the Department of Statistics Malaysia (2022), Malaysia has a population of 32.7 million, with Generation Y constituting 33% of the total, according to United Nations (2022) statistics. This amounts to approximately 9.81 million Generation Y citizens.

Given the significant influence of Generation Y on Smartphone purchasing behavior and the projected increase in this demographic, the research aims to understand this generation's impact on the Malaysian Smartphone market. Sekaran and Bougie (2010) suggest using sample analysis for analyzable and meaningful data. A sample size of 384 respondents, representing the upper echelon of the Generation Y population, is considered, in line with Krejcie and Morgan's (1970) recommendation for populations exceeding 100,000 (N<100,000, S=384). Google Forms and questionnaires will be prepared for these 384 respondents to participate in the survey.

3.10 Sampling

Zikmund et al. (2012) defines sample as a portion of the target population that is used to produce findings that can be applied to the entire population. Probability and non-probability techniques are the two primary types of sampling techniques. Every subject in a probability sampling has an equal chance of being selected. However, non-probability sampling was used because of the study's emphasis on Malaysians in Generation Y, time and financial constraints, and convenience considerations. Sekaran (2013) emphasizes the importance of representative samples for the broader population's interests.

3.10.1 Sampling Method

Convenience sampling, part of non-probability sampling, is chosen for its cost-effectiveness and easy availability. The method involves quickly locating and gathering participants relevant to the research question. In this case, Generation Y Malaysians are identified as the target population. Participants will be recruited through online networks such as WhatsApp, Facebook, Instagram, and WeChat.

Eligibility will be confirmed by clarifying whether participants fall within the Generation Y age range.

Table 3.4
Sample size table drawn by Krejcie and Morgan (1970)

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	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	12	420	201	1400	302	8000	367
55	48	190	127	440	204	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	**100000**	**384**

Where; N= Population& S= Sample

3.11 Technique of Data Analysis

Once collected, data will be organized and processed for statistical analysis using the SPSS program. The techniques used will include reliability analysis, descriptive analysis, correlation analysis, and multiple regression analysis.

3.11.1 Cronbach's Alpha Result of Variables from Previous Study

Questionnaire development for this research is based on previous studies, with Cronbach's Alpha analysis used to assess the reliability and validity of the relationship between questions and variables. Previous studies have shown high reliability with Cronbach's Alpha greater than 0.7.

Table 3.5
Summary of Alpha values of the study variables in earlier studies

Variables	Instruments	Cronbach's Alpha	Sources
Dependent Variable	Smartphone Purchase Behavior	>0.7	Ting, D. H., Lim et al (2011)
Independent Variable	Product Features	>0.7	Jainarain, (2012) and Ting, D. H., Lim et al (2011)
	Brand Name	>0.7	Tee, Benjamin and Behrooz -2013
	Social Factors	>0.7	Chun, H., Lee, H., & Kim, D. -2012
	Price	>0.7	Cheong and Park, (2015)
	Aesthetics	>0.7	Filieri R, Lin Z. (2017)
	Income levels	>0.7	Rashotte (2017)

Source: Research author

3.11.2 Reliability Analysis

Sekaran (2013) states that reliability testing measures consistency over time. Cronbach's alpha, as described by Hair et al. (2012), is acceptable for social science research when it exceeds 0.70. This test is often used for surveys with Likert-type questions contributing to a composite score.

Table 3.6
Details of threshold/acceptable standards-Acceptance level of Alpha values

Serial	Alpha Coefficient Range	Indication
1	<0.6	Poor
2	0.7	Moderate
3	0.8	Good
4	0.9	Excellent

Source: Researcher

3.11.3 Descriptive Statistics

Descriptive statistics provide accurate representations of individuals, events, or conditions. Measures of central tendency include mode, median, and mean. Descriptive analysis facilitates data interpretation and summary, using averages, standard deviations, frequencies, and ranges.

3.11.4 Multiple Regression Analysis

The linear relationship between one dependent variable and several independent variables is examined using multiple regression analysis. It offers details on each coefficient's statistical significance as well as the kind and strength of the correlations.

3.12 Summary

Chapter 3 has detailed the methodology, data collection, and analysis procedures. The research uses quantitative methods to develop questionnaires for data collection, employing simple random sampling. The next chapter, Chapter 4, will continue the discussion.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter delineates the analysis of data garnered from 384 respondents who have acquired Smartphones within Malaysia. A plethora of statistical assays, inclusive of multilinear regression analysis, were employed to ascertain the interrelations amongst the variables and to determine the significance of their correlation coefficients.

4.2 Data screening

4.2.1 Reliability analysis

The results of the reliability analysis, as delineated in Table 4.1, demonstrate that all variables manifest Cronbach's alpha values surpassing the established reliability criterion of 0.7.

Table 4.1
Reliability (Cronbach's values) results

Variable	Number of items	Cronbach's alpha (α)
Product Features	6	0.717
Brand Name	6	0.76
Social Factor	5	0.846
Price	6	0.845
Aesthetics	5	0.869
Income Level	6	0.786
Purchase Behavior	6	0.8521

4.2.2 Normality test

Hair, Sarstedt, Ringle, and Mena (2012) emphasize the importance of assessing dataset normality. Normality tests, which evaluate kurtosis and skewness values, deem datasets normally distributed if the Z-scores for kurtosis and skewness fall within ±1.960, with significance values below 0.05 ($p < 0.05$).

According to Domick and Hensen (1994), multivariate analysis measures the variance between the observed and predicted scores of the dependent variable. A fundamental tenet of this approach is the concept of normality. Normality testing is still an essential step in statistical testing and multivariate data analysis, even though PLS-SEM is meant to provide accurate model estimates in situations of extreme non-normality (Reinartz, Haenlein, & Henseler, 2009). Social science research has widely embraced it, incorporating measures such as skewness, kurtosis (Domick& Hansen, 1994; Hair et al., 2010), and visual tools like stem-and-leaf plots, normal Q-Q plots, and Kolmogorov-Smirnov tests (Mooi & Sarstedt, 2011). Chernick (2011) emphasizes the significance of research findings in multivariate analysis and how relationships can be distorted by non-normal variable distribution. As a result, before doing any analysis, researchers must ensure that their data are normal (Hair et al., 2014).

According to Armstrong and Overton (1977), normality tests estimate the likelihood that an underlying random variable has a normal distribution in addition to assessing how well a normal distribution fits a given set of data. Depending on how one understands probability, there are various ways to interpret these tests, which are a part of the model selection process. They assess how well a normal model fits the

51

data in the context of descriptive statistics; if the fit is inadequate, a normal distribution may not be able to adequately describe the data. (Hair et al, 2007).

Furthermore, Ethington, Thomas, & Pike (2002) describe a linearity test as one that identifies the dependency of the relationship between independent and dependent variables, thereby predicting the direction of the hypothesis—with positive values indicating positive relationships. To ensure the most accurate equation representation when multiple independent variables are involved, Hair et al. (2006) recommend using partial regression plots. In this study, normal distribution curves are depicted and summarized in the appendices. The histogram distribution aligns with the normal curve (see Appendix 1), indicating that all study variables are normally distributed.

4.2.3 Demographic table

The demographic details of the respondents are presented in Table 4.2.

Table 4.2
Demographical (Gender) results

Description		Frequency	Percent
	Male	287	75
Valid	**Female**	97	25
	Total	384	100

Table 4.2 indicates that the study included 287 male respondents and 97 female respondents. This reveals that 75% of the participants were male, while the remaining 25% were female, as also depicted in Figure 4.1.
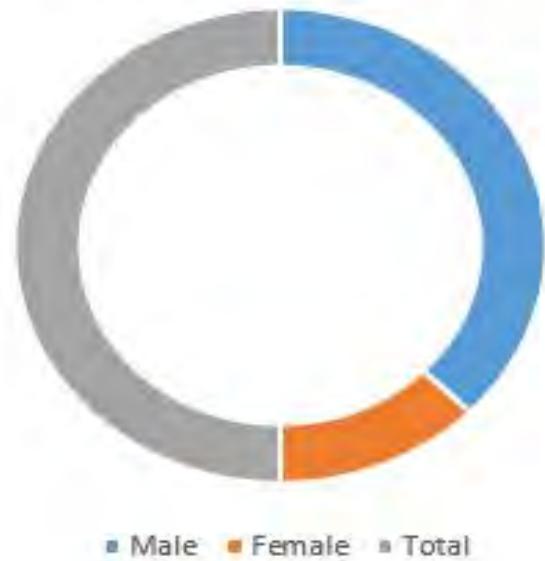
Figure 4.1 Demographical (Gender) results

Table 4.3
Demographical (Age) results

	Age		
	Age	Frequency	Percent
Valid	**29-32**	14	4
	33-36	70	18
	37-40	183	48
	41-45	117	30
Total		384	100

Table 4.3 indicates that the selected sample for the study consisted of 384 individuals,

who were grouped by age. The age distribution was as follows: there were 14

individuals aged 29-32, 70 individuals aged 33-36, 183 individuals aged 37-40, and

117 individuals aged 41-45 years. This is also demonstrated in Figure 4.2.
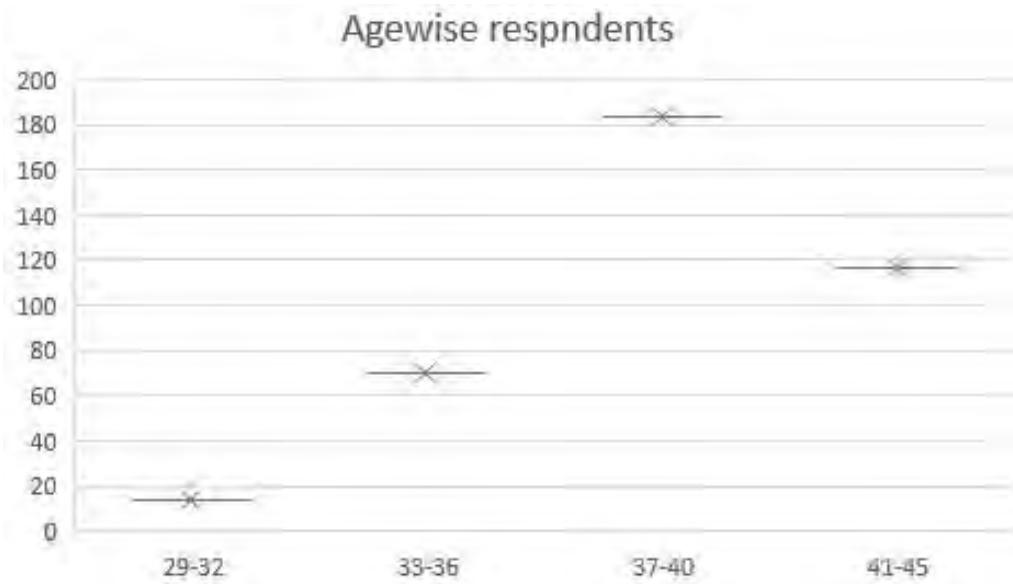
Figure 4.2 Demographical (Gender) results

Table 4.4
Demographical (Education) results

	Education		
	Description	**Frequency**	**Percent**
	SPM/ STPM/ A-Level/ Foundation/ Diploma/ UEC	5	1
Valid	Undergraduate (bachelor's degree)	150	39
	Postgraduate (master's degree or PhD)	229	60
	Total	**384**	**100**

Table 4.4 illustrates the distribution of the selected sample in the study based on their qualifications. These qualifications include SPM / STPM/A-Level / Foundation / Diploma / UEC, an undergraduate (bachelor's degree), a postgraduate (master's degree or PhD), and others. Specifically, there were 5 individuals with qualifications categorized as "others," 150 with undergraduate qualifications, and 229 with postgraduate qualifications. This is also demonstrated in Figure 4.3.

54
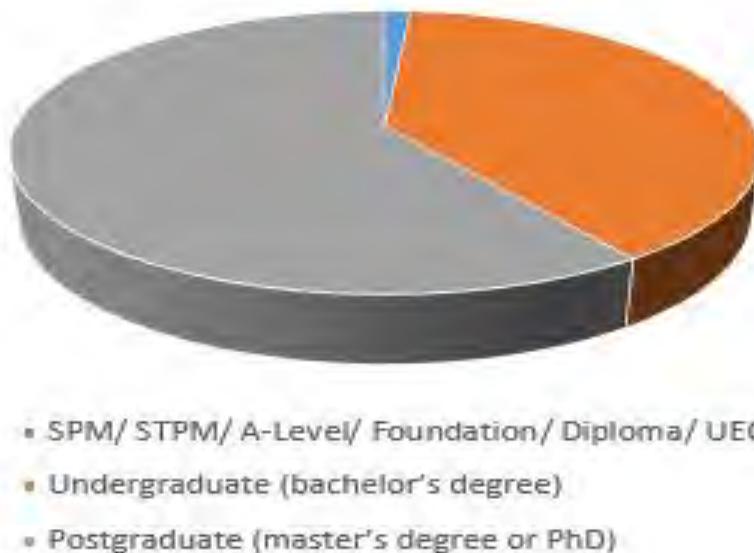
Figure 4.3 Demographical (Education) results

Table 4.5
Demographical (Occupation) results

Occupation			
		Frequency	**Percent**
	Students	3	1
Valid	Employees	130	34
	Self employed	251	65
	Total	384	100

Table 4.5 demonstrates the distribution of respondents in terms of their occupation, as also presented in Figure 4.4. According to Table 4.5, the majority of the respondents are self-employed.

55
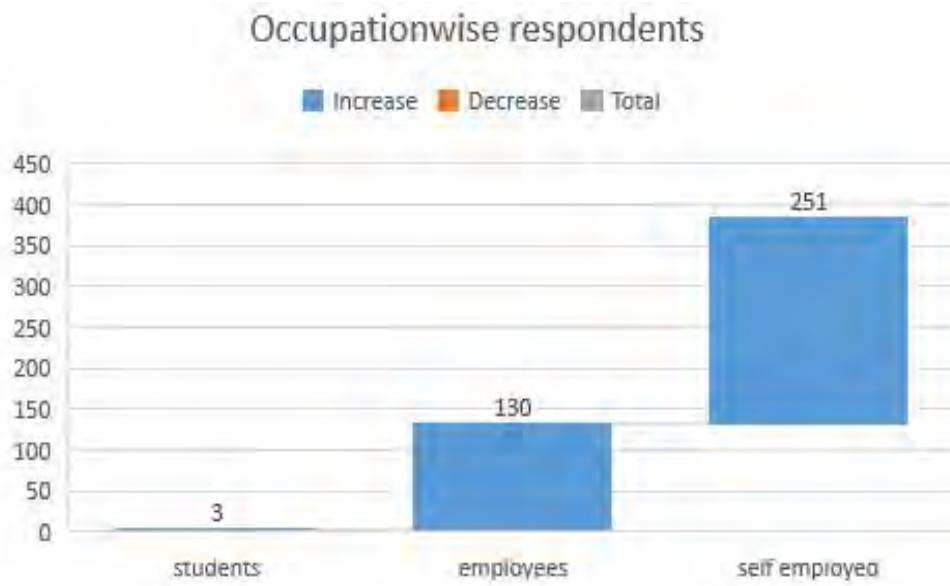
Figure 4.4 Demographical (Gender) results

4.3 Descriptive Statistics

The descriptive statistics provide an overview of the central tendency measures. Key descriptive statistics are summarized in Table 4.6. The highest mean value is observed in the income level, while the lowest mean value is found in product features. Additionally, the highest standard deviation occurs in the income level, and the lowest standard deviation is observed in the price.

Table 4.6
Descriptive resultsof the study

Descriptive Statistics			
	Mean	**Std. Deviation**	**N**
Product feature	3.19	4.08524	384
Brand name	3.2642	0.66714	384
Social factor	3.2469	0.71802	384
price	3.2608	0.66257	384
aesthetics	3.2609	0.66834	384
Purchasing behavior	3.261	0.66519	384
Income level	3.2911	0.71756	384

In this study, the correlation analysis reveals the relationships between variables. The results indicate a positive association among all the study variables, suggesting they move in the same direction. These associations are as follows, in the specified sequence: Purchasing Behavior (PB), Product Feature (PF), Aesthetics (A), Social Factor (SF), Price (P), and Brand Name (BN).

Table 4.7
Correlation results of the study

	Product feature	**Brand name**	**Social factor**	**price**	**aesthetics**	**Purchasing behavior**	**Income level**
	Correlations						
Product feature	1						
Brand name	.796**	1					
Social factor	.812**	.911**	1				
price	.734**	.917**	.812**	1			
aesthetics	.861**	.934**	.835**	.819**	1		
Purchasing behavior	.80**	.812**	.841**	.891**	.857**	1	
Income level	.546**	.867**	.726**	.872**	.846**	.891**	1

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

4.4 Multicollinearity Test

The degree to which an independent variable's variance is inflated as a result of its correlation with other independent variables is indicated by its VIF (variance inflation factor) value, which serves as a proxy for multicollinearity. Multicollinearity is also shown by the tolerance value, which is the VIF's inverse.

The cut-off points for tolerance and VIF are set at 0.10 and 10, respectively. There may be little to no multicollinearity if the VIF value is closer to 1. Table 4.8 presents a summary of these results (Hair et al., 2010).

Table 4.8
Multicollinearity test results of the study

Constructs	Tolerance	VIF
Product feature	0.295	2.401
Brand name	0.252	3.711
Social factor	0.286	2.451
price	0.295	2.419
aesthetics	0.252	3.806
Purchasing behavior	0.283	2.443
Income level	0.297	2.811

According to some authors, a high correlation between the study's constructs causes collinearity. The process of assessing collinearity in a structural model is similar to that of assessing a formative model in that the Tolerance and VIF values are used to assess the collinearity of each predictive variable in the model. Each predictor's construct needs to meet two requirements: a VIF of less than five and a tolerance of 0.20 or higher (>0.20) (Hair et al., 2010). According to Hair et al. (2014), exogenous or predictive constructs should be removed if they fail to meet the VIF and Tolerance values' requirements. , combined to create a single construct, or changed to create higher-order constructs in order to address collinearity problems. No collinearity issues were discovered, based on the findings compiled in this study's Table 4.8.

4.5 Multiple Regression Analysis

The study utilized multiple regression analysis to determine the values of the variables. This method was applied to examine the impact of the predictor (independent) variables—Product Features, Brand Name, Social Factors, Price, and Aesthetics—on the dependent variable, Purchase Intentions. The analysis revealed the strength of the relationships individually. In addition, the collective impact was also examined using the adjusted R-squared values. The multiple regression analysis identified Purchase Behavior, Product Features, Aesthetics, Social Factors, Price, and Brand Name as the most significant predictors of the decision to purchase a Smartphone. The results are summarized in Table 4.9 & Table 4.10.

Table 4.9
Model Summary of the study

R Square	Adjusted R Square	Std. Error of the Estimate
0.57	0.442	0.00418

Table 4.10
Regression Results of the study

ANOVA[b]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	248.51	9	33.214	36580	.000[a]
1 Residual	0.42	375	0.001		
Total	248.93	384			

a. Predictors: (Constant), Product feature, Brand name, social factor, Price, Aesthetics

59

b. Dependent Variable: Purchase Behavior

Table 4.9 shows the model summary and the model's R square (R^2) value, which is 0.442 for the model with price, aesthetics, social factor, brand, and product characteristic as independent variables. With a standard error of 0.00418 the estimate is within allowable bounds.

Table 4.11
Regression results (direct relationship) of the study

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	0.122	0.004		12.001	0.001
	Product feature	0.195	0	0.133	8.121	0
	Brand name	04497	0.059	0.354	53.781	0
	Social factor	0.784	0.01	0.1867	107.531	0
	price	0.101	0.02	0.137	11.121	0.001
	aesthetics	0.654	0.01	0.321	48.021	0

Coefficients [a]

a. Dependent Variable: Purchase Behavior

4.6 Direct relationships

The results related to Hypothesis 1 (H1) indicate a significant correlation between decisions about Product Features (PF) and Purchasing Behavior (PB). The results

indicated p < 0.01 and r = 0.80, signifying a positive relationship between product features and purchasing behavior. Previous studies have also supported and reaffirmed this hypothesis. Furthermore, the beta coefficient is positive (B = 0.133), and the t statistic exceeds the threshold, with 8.121 > 1.96.

Bhattacharya and Mitra (n.d) found that product features slightly influence consumer buying behavior and have a more significant impact on men than on women. Another study demonstrated that product features strongly influence purchasing decisions, as consumers trust multiple features and believe that features reflect lifestyle and social status. Therefore, it is concluded that a significant positive relationship exists between Product Features (PF) and Purchasing Behavior (PB).

There is a strong correlation between Brand Name (BN) and Purchase Behavior (PB), according to Hypothesis 2 (H2). A positive relationship was indicated by p < 0.01 and r = 0.812 in the results. H2 is accepted because the t-statistic is substantially above the cutoff point (53.781 > 1.96) and the beta coefficient is positive (B = 0.354). This result is in line with earlier studies. The dependence of college students on Smartphones and their purchasing behavior were found to be significantly correlated by Ding et al. (2011) and Suki and Suki (2013), who also concluded that there was a significant positive correlation between brand and purchasing behavior (PB).

For Hypothesis 3 (H3), the findings indicate a significant correlation between Social Factors (SF) and Purchasing Behavior (PB), with p < 0.01 and r = 0.841. This suggests that the variables are positively related. The beta coefficient is positive (B = 0.1867), and the t statistic is well above the threshold, with 107.531 > 1.96, confirming H3. Previous studies corroborate this, with one indicating that "high

61

dependence on Smartphones tends to be assessed based on past experience to determine future purchase behavior" (Ding et al., 2011). Suki and Suki (2013) also noted a strong relationship between dependence on Smartphones and purchasing behavior, solidifying the significant positive relationship between Social Factors and Purchasing Behavior (PB).

The results for Hypothesis 4 (H4) establish a significant correlation between Price (P) and Purchasing Behavior (PB). The results showed $p < 0.01$ and $r = 0.891$, again reflecting a positive correlation. The beta coefficient is positive (B = 0.137), and the t statistic is above the threshold, with $11.121 > 1.96$. H4 is accepted, supported by a study by Chew (2012), which found that price significantly impacts Smartphone purchasing behavior in the Malaysian population. Therefore, a significant relationship exists between Price and Purchasing Behavior (PB).

Finally, Hypothesis 5 (H5) results show a significant correlation between Aesthetics (A) and Purchasing Behavior (PB). The findings indicated $p < 0.01$ and $r = 0.857$, implying a positive correlation. The beta coefficient is positive (B = 0.321), and the t statistic is significantly above the threshold, with $48.021 > 1.96$, leading to the acceptance of H5. Prior studies have supported this, noting that aesthetics, which include both hardware and software functionality, significantly influence Smartphone purchases. It is concluded that there is a significant positive relationship between Aesthetics and Purchasing Behavior (PB).

4.7 Indirect relationships

According to the findings related to Hypothesis 6 (H6), Product Feature (PF) and Purchase Behavior (PB) decision-making are significantly positively correlated. As a

result of the moderating variable Income Level (IL) being included, the new values from the original calculation are now (B = 0.217, t = 33.21). The hypothesis is supported by these results, which clearly imply that income level (IL) moderates the relationship between product feature (PF) and purchasing behavior (PB) decisions.

Regarding Hypothesis 7 (H7), the findings show a significant positive coefficient between Brand Name (BN) and Purchase Behavior (PB) decision. With Income Level (IL) added as a moderating variable, the new values differ from the previous calculation, now showing (B = 0.298, t = 101.21). These results confidently indicate that Income Level (IL) moderates the relationship between Brand Name (BN) and Purchase Behavior (PB) decisions, which supports the acceptance of Hypothesis 7.

The results for Hypothesis 8 (H8) reveal a significant positive coefficient between Social Factor (SF) and Purchase Behavior (PB) decision. After considering Income Level (IL) as a moderating variable, the figures have altered from the original calculation to (B = 0.561, t = 58.51). Based on these findings, it can be concluded that Income Level (IL) has a moderating effect on the relationship between Social Factor (SF) and Purchase Behavior (PB) decisions, leading to the acceptance of Hypothesis 8.

Lastly, the results for Hypothesis 9 (H9) indicate a significant positive coefficient between Price (P) and Purchase Behavior (PB) decision. With the addition of Income Level (IL) as a moderating variable, there is a change from the initial values to (B = 0.321, t = 17.09). This demonstrates that Income Level (IL) moderates the relationship between Price (P) and Purchase Behavior (PB) decision, leading to the acceptance of Hypothesis 9.

Table 4.12
Regression results (indirect relationship) of the study

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.232	0.005		5.321	0
	Product feature	0.321	0	0.217	33.21	0
	Brand name	0.419	0.005	0.298	101.21	0
	Social factor	0.611	0.005	0.561	58.51	0
	Price	0.414	0.005	0.321	17.09	0
	Aesthetics	0.599	0.005	0.511	13.87	0

a. Dependent Variable: Purchase Behavior

The results provided in Tables 4.10 and 4.11 regarding Hypothesis 10 (H10) indicate that there is a significant positive coefficient between Aesthetics (A) and Purchase Behavior (PB) decision. After introducing Income Level (IL) as a moderating variable, the new values show a change from the previous calculation to (B = 0.511, t = 13.87). These results allow us to conclude with confidence that Income Level (IL) moderates the relationship between Aesthetics (A) and Purchase Behavior (PB), supporting the acceptance of Hypothesis 10.

By having a look at the table 4.9 it can be said that all the five independent variables collectively define dependent variables up to 44% while the rest of the 56% of variable in dependent variable is because of some other factors that are not under the scope of this study.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Introduction

As the study's conclusion, this section provides a discussion of the findings that were covered in the earlier sections. Along with outlining the study's shortcomings, it also considers the theoretical and practical ramifications of the findings and makes recommendations for future research directions. In addition, the information gathered in the earlier chapters is compiled and synthesized in this chapter, turning it into insightful knowledge.

5.2 Discussion on findings

As time progresses, Smartphone features are becoming increasingly popular. Customers are showing a growing demand for Smartphones that can provide excellent experiences to enhance both their professional and leisure time. The rising demand for mobile smart features has successfully attracted several major phone manufacturers to enter this market segment. Consequently, a study investigating the factors influencing customer purchase behavior towards feature-rich Smartphones is beneficial for phone manufacturers aiming to profit in the mobile/cellular market.

To test the hypotheses stated in earlier chapters, data were collected in Malaysia from individuals who have purchased or have experience using Smartphones. Self-administered questionnaires were distributed among selected respondents, and data from 384 respondents were collected.

The data collected were analyzed using a normality test, correlation, and multiple regression analysis. The results of the normality test indicated that each variable is normally distributed, as confirmed by graphical methods. The common method variance results showed that there is no common method bias, as the variance of the dataset is below 50%. Moreover, the multicollinearity test revealed that there is no multicollinearity within the dataset, since all independent variables have a tolerance value greater than 0.20 and a VIF less than 5. Additionally, the results of the multivariate outlier test indicated that there are no outliers, as no data point exceeds the threshold based on the Chi-Square distribution table, and the degree of freedom is also within standard limits.

The multiple regression analysis results pointed out that five independent variables—Product Feature, Brand Name, Social Factor, Price, and Aesthetics—have a significant influence on the dependent variable, which is purchase behavior towards Smartphones. Furthermore, the mediating impact of income level was examined to determine whether income level causes any differences in the given relationships. It was found that income level does moderate relationships.

The impact of income level on the antecedents of purchase behavior towards Smartphones in Malaysia can be analyzed through various factors that influence consumer decision-making. To effectively moderate this impact, firms need to categorize the target audience into different income brackets. For example, manufacturing firms can segment into low-income, middle-income, and high-income groups. This segmentation allows firms to assess differences in purchase behavior among these income segments. Firms must consider perceived value against the cost that customers pay for Smartphones, and how income level affects this perceived

value. High-income individuals may prioritize features, performance, and brand reputation, whereas low-income consumers may focus more on price and basic functionality.

Firms also need to understand the purchase motivation of customers. Analyzing the motivations behind Smartphone purchases among different income groups can provide insights into consumer behavior. For instance, high-income individuals may be driven by the latest technology and features, while low-income consumers may prioritize affordability and basic communication needs. The impact of social factors on purchase behavior must also be considered. High-income consumers may be influenced by their social circles and lifestyle expectations, whereas low-income individuals may base decisions on practicality and peer recommendations.

Access to information is another important aspect for firms to consider, as it affects how income level influences information-gathering about Smartphone options. High-income individuals may have greater access to resources, while low-income consumers may depend more on word-of-mouth or limited online sources.

To effectively moderate the impact of income level on purchase behavior towards Smartphones in Malaysia, manufacturing firms should conduct thorough market research, surveys, and data analysis. They should also employ statistical techniques to quantify relationships between income and purchase behavior. This will help firms to tailor marketing strategies and product offerings to different income segments effectively.

Based on the results of this study, the independent variables demonstrate a significant relationship with purchase behavior towards Smartphones. Hence, there is a

substantial link between product features and purchase behavior towards Smartphones. Karen Lim Lay-Yee (2013) has asserted that product features significantly influence customer purchase behavior decisions regarding Smartphones. Furthermore, Dziwornu (2013) highlighted that consumers who focus on product features, such as design and special attributes, allow these aspects to sway their purchase decisions towards mobile phones.

Additionally, the results of this study support earlier research by Osman et al. (2012) and Leelakulthanit and Hongacharu (2012) suggesting that Smartphone features have a major influence on purchasing behavior. To draw in consumers and sway their decisions to buy, the Smartphone manufacturing sector should prioritize enhancing features like speed and graphic quality. As a result, the features of a product are very important in determining how consumers will behave when making Smartphone purchases.

Furthermore, when customers purchase Smartphones, the brand name may not be considered as crucial compared to other aspects such as the phone's functionality and specifications. Additionally, many people in Malaysia may not be fully aware of or exposed to the range of Smartphones available. They might struggle to discern the various advantages and disadvantages of each brand. To address this, manufacturers could conduct roadshows or marketing campaigns that focus on conveying their brand's messages to customers. The primary goal of these campaigns is to educate customers about the benefits of their Smartphones and how they differ from other brands. Such initiatives could lead to customers becoming more attuned to Smartphone brands in the future.

The relationship between price and Smartphone purchasing behavior is not as strong as it is for other antecedents of purchasing behavior. While price is not the primary factor influencing Smartphone purchasing behavior, some researchers have found that price is a significant factor (Yu and Lee, 2014). Furthermore, customers usually compare Smartphones based on features and aesthetics rather than price when making a purchase, according to the consumer decision process model. Additionally, the target respondents for this research, aged between 29-45, which constitutes the study generation, are usually the decision-makers in selecting a Smartphone, although the actual buyer could be a third party, such as parents. Manufacturers might consider implementing value-based pricing on their Smartphones, a strategy that prices products based on the perceived value to the customer rather than the cost of the product. If manufacturers can provide sufficient value in their Smartphones commensurate with the price, customers may continue to purchase them, thereby allowing the manufacturer to garner more profit.

Lim et al. (2013) stated that social factor is positively related to purchase behavior regarding Smartphones. Furthermore, Ibrahim et al. (2013) also indicated that social factor was positively related to the purchase behavior of Smartphones, though the strength of the relationship is moderated. Their research focused on individuals aged 29-45 years. Additionally, Park et al. (2013) suggested that "social factor can be a key factor in Smartphone usage since the decision to use Smartphones extends beyond individual independent decision-making." Ting et al. (2011) concluded that "buyers' dependency on Smartphones, which is influenced by social factors, is positively associated with purchase behavior." Hence, social factor significantly affects customer purchase behavior towards Smartphones, ultimately influenced by the income level of the buyer in one way or another.

5.3 Implication

5.3.1 Theoretical implication

Most previous studies have focused on customer purchase behavior within the telecom manufacturing industry, particularly concerning cellular phones. However, there is a noticeable gap in the literature when it comes to investigating the factors that influence Smartphone purchasing behavior specifically. This study aims to address that gap. Recognizing the shortfall in existing research, further investigation into customer purchase behavior towards Smartphones was necessary. According to the literature review conducted for this study, limited research has been devoted to understanding customer purchase behavior in the context of Smartphones.

This study provides a new framework that can serve as a valuable resource for future authors and researchers. The framework has been developed based on a thorough literature review and current research needs concerning consumer buying patterns in the telecom industry. The research framework draws on several well-established theories, including the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Consumer Decision-Making Model, and Maslow's Hierarchy of Needs.

The study offers insights into the specific factors influencing Smartphone purchasing behavior among Generation Y in Malaysia, which can help refine existing theories on consumer behavior, particularly in the context of technology adoption and usage among younger demographics.

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This study provides a new framework that can serve as a valuable resource for future authors and researchers. The framework has been developed based on a thorough literature review and addresses current research needs related to consumer buying patterns within the telecom industry. This research framework draws on well-established theories, including the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Consumer Decision-Making Model, and Maslow's Hierarchy of Needs.

In particular, this study also addresses a key gap in the literature by examining the influence of income level on Malaysian customers' Smartphone purchasing behavior. The relationship between income and other key predictors of Smartphone purchase intentions has not been sufficiently explored. By analyzing income as a moderating variable between the independent predictors (such as brand name, product features, and social influence) and the dependent variable (purchasing behavior), this study adds a valuable layer of understanding to the existing body of knowledge. This examination enriches the comprehension of marketing researchers and practitioners

regarding how income levels shape Smartphone purchase behavior and decision-making processes.

Additionally, the study offers insights into the specific factors influencing Smartphone purchasing behavior among Generation Y in Malaysia, which can help refine existing theories on consumer behavior, particularly in the context of technology adoption and usage among younger demographics. By incorporating variables such as brand concern, convenience, perceived usefulness, and social factors, this framework provides a more comprehensive understanding of what drives Smartphone purchasing intentions among this demographic.

5.3.2 Managerial implication

This study enables Smartphone manufacturers to identify significant factors influencing customer purchase behavior towards Smartphones among Generation Y in Malaysia. Additionally, manufacturers can gain insights into factors such as product features, brand name, social factor, and price that affect purchase behavior. The study's results are crucial for manufacturers, who can assess the impact of income level on buying behavior and may use it to formulate the most suitable marketing strategies to target their customers and achieve a higher return. The study can serve as a reference for manufacturers in designing their Smartphones, as the research reflects the current demands of Smartphone customers.

Businesses can tailor their marketing strategies to better address the preferences and concerns of Generation Y in Malaysia, focusing on aspects such as brand image, product features, and convenience to enhance their appeal.

Smartphone manufacturers can utilize these insights to develop products that align with the expectations of this demographic, emphasizing innovative features and brand reliability to drive purchase intentions.

Retailers can improve the online shopping experience by ensuring their mobile applications are user-friendly and perceived as useful, thereby increasing the likelihood of purchase among Generation Y consumers.

Leveraging social media and influencer marketing can significantly impact the purchasing decisions of Generation Y, suggesting that companies should engage more actively on these platforms to enhance their market presence.

5.4 Limitation of the study

The study employed analytical techniques, including multiple regression analysis and the normality test, to examine and assess the variables influencing consumers' Smartphone purchase behavior as well as the moderating effect of income level on the associations between the antecedents of purchasing behavior. Nevertheless, as the paragraph that follows shows, this study has a number of limitations.

The first limitation of the study is that it only focuses on individuals who belong to Generation Y in Malaysia. The generation gap may influence the results of the study. Furthermore, the research is solely centered on Malaysia. If the research were conducted in different neighboring countries, the results might vary. Therefore, future researchers may expand the research to determine whether the results of this study are applicable in different contexts.

The second limitation is the time constraint. Due to the limited time frame, this research is a cross-sectional study where data were collected at one point in time only. For more accurate and reliable results, future researchers are advised to carry out a longitudinal study. This is because data collected at different points in time will provide more accurate results. Additionally, purchasing behavior may be influenced by many other factors, such as social media advertisements and packaging, which were not considered in this study. If these factors significantly influence the purchase behavior of a certain group, they may be considered in future studies.

5.5 Recommendation

To positively influence future research, the following suggestions are offered to researchers.

It is advised that researchers broaden the scope of their investigations to incorporate more independent factors that might influence Smartphone purchasing decisions. A small number of independent variables, including brand, price, social factor, and product features, were the main focus of this study. The findings showed that 41% of the variation in Smartphone purchase behavior can be explained by the R-squared value. As a result, in order to fully comprehend the variables influencing Smartphone purchases, researchers should look into more possible variables. Furthermore, this study suggests incorporating other moderating variables to examine the antecedents and their relationships with purchase behavior. Mediators could also be introduced to distinguish between direct and indirect impacts. Additionally, researchers can reference the results of this study to assist in their research on Smartphones.

The second suggestion is that future studies should adopt a longitudinal design, allowing researchers to spend more time on the research. Researchers are encouraged to conduct studies that involve data collection at different time intervals, rather than a single point in time, to obtain more reliable and precise results.

Lastly, it is recommended that future researchers gather data from other neighboring countries of Malaysia to obtain a holistic perspective of this region. This study was limited to Malaysia, which constrains the generalizability of the results. If researchers were to collect data from neighboring countries, they would acquire a more general dataset, which would enhance the accuracy and applicability of the study.

5.6 Conclusion

Research indicates that the majority of Smartphone users prioritize product features. Smartphone vendors should investigate which features are most desired by users, such as higher camera resolution, improved and faster operating systems, sleeker and lighter designs, and other software and hardware innovations. By enhancing product features and providing the desired functionalities, manufacturers can assist Smartphone vendors in increasing their sales and profits. According to research findings, convenience is the second most important consideration for users, indicating that people purchase Smartphones for the convenience they offer.

With a Smartphone, tasks can be completed more quickly, eliminating the need for users to carry a laptop, as the Smartphone fulfills many of the same functions. Smartphone vendors could aim to make devices more user-friendly by improving

battery life, offering slightly larger screens, and ensuring that Smartphones are easy to use in various settings.

In terms of factors influencing the willingness of respondents to purchase Smartphones, it is concluded that all the study factors considered in this research influence consumer buying intentions. It was also found that these factors are moderated by consumers' income levels, affecting their purchasing behavior. The respondents in this study come from diverse backgrounds and hold beliefs that impact their purchase decisions. Additionally, as discussed earlier, the income level is a critical factor in influencing purchasing behavior.

The third consideration when deciding to purchase a Smartphone is the brand. For Smartphone vendors, establishing a strong brand image is essential, which can be achieved through market-leading innovations or a unique selling proposition. However, building a brand is not only about the Smartphone product itself; vendors could also consider other approaches, such as excellent customer service and social responsibility initiatives. A strong, internationally recognized brand engenders greater trust and is perceived as more reliable by users. This trust is followed by dependency, with findings suggesting that dependency on a Smartphone influences purchasing decisions. For some users, this dependency may extend to feeling insecure without their device.

While income level alters the relationships among the antecedents and purchase behavior, it is not the primary factor influencing purchase decisions. Smartphone vendors could focus on innovating features that foster user reliance. For example, features like alarms, maps, document storage, and contact lists make Smartphones

indispensable, particularly for salaried employees who need access to documents and drivers who rely on maps.

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APPENDICES

Appendix 1:

Appendix A: List of Research Topics to Determine Independent Variables and Dependable Variable					
No	Authors	Year	Research Topic	Variables	Conclusion
1	1. Karen Lim Lay-Yee 2. Han Kok-Siew 3. Benjamin Chan Yin-Fah	2013	Factors Effecting Smartphone Purchase Decision Among Malaysian Generation Y. (Malaysia)	Purchase Decision (DV) 1. brand concern 2. convenience concern 3. dependency concern 4. price concern 5. product feature concern 6. social factors concern	The result of this study mentions that all of the independent variables (brand concern, convenience concern, dependency concern, price concern, product feature concern, social factors concern) have significant relationship to the dependent variable (purchase decision). The leading factors are product feature, convenience and brand which are 0.777, 0.660 and 0.659 respectively.
2	1. Azira Rahim 2. Siti Zaharah Safin 3. Law Kuan Kheng 4. Nurliyana Abas	2015	Factors Influencing Purchasing Intention of Smartphone among University Students.	Purchasing Intention(DV) 1. Product Features 2. Brand Name 3. Social factors	The findings of this study show that three of the independent variables (Product features (0.359), Brand name (0.280) and

			4. Products Sacrifice	Socialfactors (0.307)) have significant relationship to the dependent variable. In contrast, product sacrifices have not significant relationship to the purchasing intention.
	5. Siti Meriam Ali		(Malaysia)	
3	1. Norazah Mohd Suki (Malaysia)	2013	Students' demand for Smartphones Structural relationships of product features, brand name, product price and social factors.	Demand for Smartphones (DV)	The results of this results described that all of the independent variables (product features (0.639), brand name (0.633), product price (0.500) and social factors (0.542)) have significant relationship to the dependent variable (demand for Smartphones).
				1. Product Features	
				2. Brand Name	
				3. Product Price	
				4. Social factors	
4	1. Sata, M.	2013	Factors Effecting Consumer Buying Behaviour of Mobile Phone Devices. (Italy)	Mobile Phone Buying Decision (DV)	As per the results of this research show that only three independent variables (Price (0.900), Durability (0.557), and Product feature (0.876)) have significant relationship to
				1. Price	
				2. Social Factors	
				3. Durability	
				4. Brand Name	
				5. Product Features	

No	Authors	Year	Title	Variables	Findings
				6. After Sales	the dependent variable. In contrast, another three independent variables (Social factor (0.461), Brand name (0.555), and After sales service (0.454) have significant relationship to the dependent variable.
5	1. OroseLeelakulthanit 2. BoonchaiHongcharu	2012	Factors Influencing Smartphone Repurchase. (Thailand)	Decision customer repurchase Smartphone (DV) 1. Price 2. Voice quality 3. Communication 4. Information 5. Design 6. Social Network 7. Online buying 8. Enjoyment 9. Learning 10. Brand reputation	The results show that only 4 independent variables included (Price, Design, Learning and Brand reputation) have significant relationship to the decision customer repurchase Smartphone. In contrast, 7 others independent variables (voice quality, communication, information, social network, online buying, enjoyment and expressive) have no significant relationship to the decision customer

				repurchase Smartphone.
			11. Expressive	
6	1. Ayodele 2. Adeola Adetola 3. Chioma DiliIfeanyichukwu	2016	Factors Influencing Smartphone Purchase Behaviour Among Young Adults in Nigeria.	Purchase behaviour Of Smartphone (DV) 1. Feature 2. Price 3. Brand 4. Social 5. Aesthetic	The results of this study show that only three independent variables p-value less than 0.01 (product features, price and aesthetics) have significant relationship to the dependent variable. In contrast, Brand name and social factors have no significant relationship to the dependent variable.
7	1.Norazah Mohd Suki	2013	Students' dependence on Smartphones: The influences of social needs, social factors and convenience. (Malaysia)	Purchase Behaviour (DV) 1. Social Needs 2. Social factors 3. Conveniences 4. Dependency on Smartphones (moderators)	The results of this study indicate that social need (0.866), social factors (0.164), and dependency (0.911) have significant relationship to the purchase behaviour. In contrast, convenience (0.107) has no significant relationship to the purchase behavior.

				Purchase intention (DV)	The findings of this study where aesthetic has direct significant relationship to the purchase intention. Then, the moderate variables such as social value and emotional value have indirect significant relationship to the purchase intention. In contrast, functional value has no indirect significant relationship to the purchase intention.
8	1.SamrandToufani et al	2017	The importance of aesthetics on customers' intentions to purchase Smartphones. (Australia)	Aesthetics (IV)	
				1. Functional value	
				2. Social Value	
				3. Emotional Value	
				(Moderator variables)	
9	1. Puneet Walia	2017	Analysis of factors influencing consumer purchase decision of cellular phones. (India)	Cellular Phone Purchase Decision (DV)	The findings show that price (0.816), durability (0.557) and features (0.900) p-value less than 0.01 which mean have significant relationship to the cellular phone purchase
	2.LalitSingla			1. Price	
				2. Durability	
				3. Features	
				4. External Appearance	
				5. Brand Name	

#	Authors	Year	Title	Variables	Findings
				6. Handle Ability	decision. In contrast, external appearance (0.555), brand name (0.461) and handle ability (0.454) p value more than 0.01 which mean have no significant relationship to the cellular phone purchase decision.
10	1.NushratShabrin 2. Sarod Khandaker 3. Chan Kit Hie 4. Teresa Susila	2017	Factors effecting Smartphone purchase decisions of generation Y. (Malaysia)	Generation Y Smartphone Purchase (DV) 1. Brand 2. Convenience 3. Dependency 4. Price 5. Product feature 6. Social factors 7. Social needs	The findings show that brand (0.159), product features (0.344) and social factors have significant relationship to Smartphone purchase intention. In contrast, convenience, dependency, price and social needs have no significant relationship to the Smartphone purchase intention.
11	1. Chew Jing Qun 2. Lee Jia Howe 3. Lim Chee Thai 4. Loke Wei Wen	2012	Exploring the factors effecting purchase intention of Smartphone : A study of young	Purchase Intention (DV) 1. Price 2. Compatibility 3. Relative advantage	The findings show that price (0.489), compatibility (0.633) and social factors (0.612) p-value less than 0.05

	5. Wong Teik Kheng		adults in university Tunku Abdul Rahman, Perak Campus, Malaysia 4. Social factors	which mean have significant relationship to Smartphone purchase intention. In contrast, relative advantage (0.215) p-value more than 0.05 has no significant relationship to the Smartphone purchase intention.
12	1. Lim Phey Ling 2. Poon Khai Lang 3. Tee Cai Fong 4. Thamil Selvan a/l Perinpajothi	2015	The factors effecting consumers purchase intention towards Smartphone brand: A study of young female adult consumers.	Purchase Intention (DV) 1. Brand image 2. Pricing 3. Product feature 4. Peer influence	The findings show that all of the independent variables (brand image (0.359), pricing (0.254), product feature (0.335) and peer influence (0.328)) have significant relationship to Smartphone purchase intention.
13	1. Cheng Hui Ying 2. Huang Wan Ee 3. Lum Sin Yin 4. Tan Yi Jie	2013	Purchasing behaviour on Smartphone. (Malaysia)	Purchasing behaviour (DV) 1. Friends and family 2. Social factors 3. Product features 4. Branding	The findings show that friend and family (-0.035), product features (0.654) and branding (0.513) have significant relationship to purchasing behaviour. In contrast, social factors (0.169) has no significant relationship to purchasing behavior.

				Consumer Choice of Mobile Phone (DV)	The results have shown that the mean result which is leading factors are innovative features, personal recommendation, price, durability and portable aspects, follow by the post sales service, media influence and image.
14	1. SafiekMokhlis 2. Azizul Yadi Yaakop	2012	Consumer Choice Criteria in Mobile Phone Selection: An Investigation of Malaysian University Students.	1. Innovative features	
				2. Image	
				3. Price	
				4. Personal Recommendation	
				5. Durability and Portable aspects	
				6. Media Influences	
				7. Post-sales Service	
15	1. Uddin, Lopa &Oheduzzaman, Nusrat Zahan Lopa 2. Md. Oheduzzaman	2014	Factors Effecting Customers' Buying Decisions of Mobile Phone: A Study On Khulna City, Bangladesh.	Customers' buying decisions of mobile phone (DV)	The finding of this study show the result of naming of factors which are the leading factors are Physical attributes, Pricing, Charging and Operating facilities, Size and weight, Friends' and colleagues' recommendations Neighbors' recommendations, Advertising.
				1. Physical attributes	
				2. Pricing	
				3. Charging and Operating facilities	
				4. Size and weight	
				5. Friends' and colleagues' recommendations	
				6. Neighbors' recommendations	
				7. Advertising	
16	1. Vishesh 2. Prof Sanjiv Mittal	2018	Factors effecting consumer buying behaviour towards	Mobile phone buying decision (DV) 1. Price advantage	The findings show that p-value less than 0.01 Price advantage, Brand & Marketing,

			2. Physical dimensions	Recommendation and reviews, Speed and Performance, Battery life, Camera quality and exchange possibility have significant relationship to the mobile phone buying decisions. In contrast, Physical dimension, Availability and Design & Color have no significant relationship to the mobile phone buying decisions.
	3. Dr Shivani Bali		mobile phones. (India)	3. Brand & Marketing	
				4. Recommendation & Review	
				5. Speed & Performance	
				6. Battery life	
				7. Camera quality	
				8. Availability	
				9. Design &Colour	
				10. Exchange possibility	
17	1. Thanh-Tuyen Tran	2018	Factors effecting the purchase and repurchase intention Smartphones of Vietnamese staff.	Purchase Intention (DV)	The findings indicate that p-value less than 0.05 Price (0.744), Brand (0.200), Design (0.374) and Feature (0.329) have significant relationship to the purchase intention. In contrast, quality (0.452) has no significant relationship to the purchase intention.
				1. Price	
				2. Brand	
				3. Design	
				4. Quality	
				5. Feature	
18	1. Dr. S. K. Kaushal	2016	Factors affecting the purchase intention of Smartphone : A study of young	Purchase Intention (DV)	The findings signify that p-value less than 0.05 dependency (0.256), compatibility (0.710) and
	2. Rakesh Kumar			1. Relative advantage	
				2. Convenience	

			consumers in the City of Lucknow.	3. Dependency	social factors (0.141) have significant relationship to the purchase intention. In contrast, p- value more than 0.05 relative advantage (0.913), product features (0.765), Brand name (0.393) and Price (0.053) have no significant relationship to the purchase intention.
				4. Compatibility	
				5. Social factors	
				6. Product Features	
				7. Brand Name	
				8. Price	
19	1. Rabi Singh Thokchom	2011	The rise of an apparatgeist : factors effecting Bangkok based consumers' purchase intention for Smartphones.	Purchase Intention (DV)	The findings indicate that p-value less than 0.05 Perceived ease of use (0.577), Perceived usefulness (0.660), Brand image (0.794), Product knowledge (0.678) and Price (0.791) have significant relationship to the purchase intention.
				1. Perceived ease of use	
				2. Perceived usefulness	
				3. Brand image	
				4. Product knowledge	
				5. Price	

104

Appendix 2: Questionnaire

Respected participant

Date:

Subject:*Invitation for participation in Online Questionnaire filling on "Influence of the Theory of Planned Behavior Towards the Smartphone Purchasing Behavior Among Generation-Y in Malaysia"*

I hope this letter finds you in good health and high spirits. I am writing to request your participation in a survey for which an online questionnaire designed to explore the influence of the Theory of Planned Behavior on the Smartphone purchasing behavior of Generation-Y in Malaysia.

The study aims to understand the various factors, including attitudes, social norms, and perceived behavioral control, that influence Smartphone purchasing decisions among this demographic. Your insights and experiences are invaluable to this research, and your participation will significantly contribute to a better understanding of consumer behavior in the context of Smartphone purchases. The questionnaire is designed to be concise and user-friendly, ensuring that it will take only a few minutes of your time to complete. Your responses will be kept confidential and used solely for academic purposes. To participate, please click on the provided link. Should you have any questions or need further information, please do not hesitate to contact me.

Thank you in advance for your time and contribution to this important research. Your participation is greatly appreciated.

Yours sincerely,

WANG ZIHAO

Research Scholar

Ghazali Shafie Graduate School of Government)

UUM College of Law, Government and International Studies (UUM COLGIS)

Universiti Utara Malaysia 06010 UUM Sintok

S/N	Q/N	Section A: Demographic Information (Please Select the relevant option)	
1	1	**Gender:**	
		Male	
		Female	
2	2	**Age:**	
		29-32	
		33-36	
		37-40	
		41-45	
3	3	**Education:**	
		SPM/ STPM/ A-Level/ Foundation/ Diploma/ UEC	
		Undergraduate (bachelor's degree)	
		Postgraduate	
4	4	**Occupation:**	
		Students	
		Employees	
		Self-employed.	
Section B (1=Strongly Disagree, 2= Disagree, 3=Neutral, 4=Agree, 5= Strongly Agree)			
Part 1- Product Features			
5	1	I am willing to pay extra for Smartphone with good camera quality.	1 2 3 4 5

			1	2	3	4	5
6	2	I think that battery life is important to me when choosing a Smartphone.	1	2	3	4	5
7	3	I am willing to pay extra for Smartphone with extended battery life.	1	2	3	4	5
8	4	I think that voice assistant features on Smartphone is important to me when choosing a Smartphone.	1	2	3	4	5
9	5	I think that screen size and resolutions is a crucial factor to me when choosing a Smartphone.	1	2	3	4	5
10	6	Overall, I am willing to pay more for Smartphone that provides better product features that fulfil my specific needs for a Smartphone.	1	2	3	4	5
Part 2- Brand Name							
11	1	The brand image and reputation of a Smartphone company is an important factor in my decision to purchase a Smartphone.	1	2	3	4	5
12	2	I am more likely to buy a Smartphone from a well-known brand.	1	2	3	4	5
13	3	I think a well-known Smartphone brand indicates high quality of Smartphone products.	1	2	3	4	5
14	4	I believe a well-known Smartphone brand is more reliable.	1	2	3	4	5
15	5	I am more likely to trust a well-known Smartphone brand.	1	2	3	4	5
16	6	I am more likely to switch to a well-known Smartphone brand if it offers better features	1	2	3	4	5
Part 3- Social Factors							
17	1	The social pressure from peers and family members influences my decision to purchase a Smartphone.	1	2	3	4	5
18	2	The opinions of my friends and family members influence my choice of Smartphone brand.	1	2	3	4	5
19	3	The reviews of my friends and family members affect my choice of Smartphone brand.	1	2	3	4	5

20	4	The ability to stay connected with friends and family through social media and messaging apps is an important factor in my decision to purchase a Smartphone.	1	2	3	4	5
21	5	I am more likely to purchase a Smartphone that has been positively reviewed on social media.	1	2	3	4	5
Part 4- Price							
22	1	I believe the price of a Smartphone is reflective of its quality.	1	2	3	4	5
23	2	The price of a Smartphone is the most important factor to me when making a purchase decision.	1	2	3	4	5
24	3	I consider the price of a Smartphone as an indicator of its technological advancement.	1	2	3	4	5
25	4	I am more likely to purchase a Smartphone if it is offered at a discounted price.	1	2	3	4	5
26	5	The price of a Smartphone is the most crucial factor compared to other factors when deciding a purchase.	1	2	3	4	5
27	6	The price of a Smartphone is most important to me than its design and appearance.	1	2	3	4	5
Part 5- Aesthetics							
28	1	The design of a Smartphone is an important factor in my decision to purchase.	1	2	3	4	5
29	2	The appearance of a Smartphone is an important factor to me when considering a purchase.	1	2	3	4	5
30	3	The color of a Smartphone affects my purchasing decision.	1	2	3	4	5
31	4	I think that the placement and size of the camera on a Smartphone affect its overall aesthetic appeal.	1	2	3	4	5
32	5	The overall aesthetics of a Smartphone matters to me when considering a purchase.	1	2	3	4	5
Section C: Income Level							
33	1	I am more likely to purchase a Smartphone with advanced features if my income level is high.	1	2	3	4	5

34	2	My income level influences my willingness to pay for Smartphone with better features.	1	2	3	4	5
35	3	My income level affects the brand of Smartphone I purchase.	1	2	3	4	5
36	4	My income level plays a significant role in my decision to purchase a Smartphone.	1	2	3	4	5
37	5	My income level affects my choice between purchasing a new or refurbished Smartphone	1	2	3	4	5
38	6	I consider my income level before deciding to purchase a Smartphone with a contract or without a contract.	1	2	3	4	5
Section D: Dependent Variables							
39	1	I am confident that buying a Smartphone will make my life easier in certain ways.	1	2	3	4	5
40	2	I believe that purchasing a Smartphone will provide convenience to me in my daily life.	1	2	3	4	5
41	3	I feel a sense of satisfaction when I purchase the latest model of a Smartphone.	1	2	3	4	5
42	4	I feel that owning a Smartphone is an essential part of my daily life.	1	2	3	4	5
43	5	I believe that owning a Smartphone can help me to accomplish my daily tasks more efficiently.	1	2	3	4	5
44	6	I believe that owning a Smartphone will improve my productivity.	1	2	3	4	5