

**Consumer Behaviour and Disposition Decisions:
The Why and How of Smartphone Disposition**

Abstract

Although scholars describe consumer behaviour as a process of acquisition, consumption, and disposition, limited research is done on disposition decisions in the context of emerging economies. This paper looks into the early work of Jacoby et al. (1977) and the recent seminal work of Cruz-Cardenaz and Arevalo-Chavez (2017) to determine the relationships between external influences and disposition decisions on smartphone. In particular, it investigates the effect of brand, price, usefulness, compatibility, product attachment and social influence on three types of disposition decisions. A quantitative approach using a self-administered survey was appropriated. The questionnaire was distributed at the universities in Malaysia, and was subsequently collected from those sites with an acceptable response rate. Partial least squares structural equation modeling (PLS-SEM) was utilized to perform path modelling analysis. The results show that usefulness, product attachment, and compatibility have positive effects on students' decisions to keep their smartphones. While low product attachment and social influence affect them to dispose their smartphones temporarily, the depreciation of value causes them to discard smartphones permanently. Remarkably, brand and price have no significant impact on disposition decisions, indicating that the function of the smartphone, rather than the device itself, matters more in disposition decisions. The study thus provides more insights into disposition decisions and its implications on consumer behaviour.

Keywords: Disposition decisions; Consumer Behaviour; Smartphone; PLS-SEM

1. Introduction

Communication is ubiquitous in all walks of life. Evidently, smartphone has emerged as one of today's most widely used products. Smartphone provides communication service by carrying out several functions of computers and telephones (Thaichon et al., 2016). Evidently consumers are changing from ordinary traditional mobile phones to smartphones not only in developed countries but also developing ones (Wong, 2011). According to the Ministry of Communication (2011) and Malaysian Communication and Multimedia Commission (2014), Malaysia, with 144% mobile penetration, outpaces Indonesia, Thailand, and even the United States. Observers expect this figure to further increase in the coming years, suggesting the high adoption and usage of smartphone in developing economies.

University students have been the largest contributors to increasing smartphone sales (Jacob and Isaac, 2008). Each of them usually owns at least one smartphone. With this technology, they surf the internet, check their email, and connect with peers on the go (Thaichon et al., 2016). In addition, Holley and Dobson (2008) acknowledge that the ever-increasing demands and changing technology dynamics in university environments mean a likely increase in blended learning methods. McKenzie et al. (2013) point out that blended learning models offer a good number of benefits. By integrating technology with traditional face-to-face pedagogical methods, universities can meet economic challenges whilst managing student demands for increased flexibility. Hence, smartphone has a particularly big impact on students and institutions of higher learning (Jacob and Isaac, 2008; The New Media Consortium, 2011).

As electronic device usage has proliferated in recent years, consumers are also disposing of more electronic devices and smartphones than ever before (World Bank, 2004). Since 1980s, consumers have discarded nearly 800 million cell phones (Susu, 2017). In the Malaysian scenario, the total electronic waste generated in Malaysia comprised approximately 10–15% of the total generated scheduled waste (Fatimah et al., 2014). Additionally, manufacturers and dealers of smartphones have also developed strategies to encourage frequent upgrades, feeding on consumers' conditioned responses and leading to over consumption and electronic waste (Wilhelm, 2012). By inference, university students' disposed smartphones represent a significant portion of the total.

Understanding consumer behaviour in various aspects is an ongoing interest among researchers (Luarn and Lin, 2005; Nijssen et al., 2017; Premkumar and Rajan, 2017). Researchers typically treat acquisition and consumption as the two most important aspects of consumer behaviour and therefore study these topics extensively (Premkumar and Rajan, 2017; Thaichon et al., 2014; Ting et al., 2018). Consequently, scholars focus less on disposition which is the third aspect of consumer behaviour (Lastovicka and Fernandez, 2005; Paden and Stell, 2005; Price et al., 2000; Young and Wallendorf, 1989). Given the magnitude of smartphone consumption and electronic waste in Malaysia, it is surprising that little is known about why and how consumers dispose smartphones in the context of developing economies. In particular, when a smartphone is discarded, it is unclear which aspects of smartphone cause the consumer to make such decision (Al-Jumeily et al., 2014; Martinho et al., 2017). Building upon the early work of Jacoby et al. (1977) and the recent seminal work of Cruz-Cardenaz and Arevalo-Chavez (2017), the present study attempts to perpetuate and extend the existing literature by looking into smartphone users' disposition decisions in Malaysia, with a focus on university students who own at least a smartphone. Practical implications for

managers and marketers as well as directions of future research pertaining to consumer disposition behaviour would also be provided.

2. Literature Review

2.1 Disposition Behaviour

The study of consumer behaviour builds on various scientific paradigms emerging from the early 1960's (Assael, 1984; Nelson, 1970). Consumer behaviour refers to the buying patterns of an individual person or group of consumers, including spending units such as households or families (Mandel et al., 2017). Research in this area focuses on the factors that lead spending units to act as they do. Consumer behaviour is also defined as the decision-making process of individuals on spending funds on items of consumption (Schiffman and Kanuk, 2000). However, according to Jacoby (1977), consumer behaviour is not only about buying (or acquisition), spending and consumption, but also disposition of goods and services by individuals. Accordingly, Engel, Blackwell and Miniard's (1986) works since 1980s emphasize the internal cohesion of the decision-making process, defining it as the act of individuals involved directly in obtaining and using economic goods and services as well as post-purchase behaviour and divestment. It can be surmised that disposition is a post-purchase or post-consumption process which is very much an integral part of consumer behaviour (Al-Jumeily et al., 2014; Martinho et al., 2017).

Many recent studies of consumer behaviour still focus predominantly on expanding and improving on existing theories pertaining to consumer acquisition and consumption (Nijssen et al., 2017; Premkumar and Rajan, 2017; Thaichon et al., 2014). Acquisition and consumption are regarded as major contributing factors to purchase behaviour, and core marketing subjects (Arnould and

Thompson, 2005). Naturally and inevitably, the third aspect of consumer behaviour, disposition, receives far less attention and is even ignored. Jacoby and his colleagues (1977) claimed disposition behaviour as an essential component of consumer behaviour. Accordingly, Hanson (1980) asserted that disposition behaviour has a strong impact on consumers' subsequent acquisition and consumption intentions. These studies highlight the relevance of disposition behaviour in understanding consumer behaviour and thus the need for further investigation to empirically demonstrate its importance in different contexts.

2.2 Disposition Decisions

Consumer disposition is an attempt by a consumer to get rid of an item that has outlived its intended purpose (Jacoby et al., 1977; Norum, 2017; Raghavan, 2010). Jacoby et al. (1977) provided a useful summary: consumers who want to dispose of a product can (1) keep the product for certain purposes, (2) temporarily get rid of the product, and (3) permanently get rid of the product. These three disposition decisions are thus adopted as the outcome variables of the present study.

Keeping the product suggests that consumers may continue to use the product for its intended purpose or for a function other than its originally intended purpose. Consumers may also store the product for later personal use or for someone else who may need it (Agrawal et al., 2016). Getting rid of a product temporarily can involve renting or loaning the product to someone else (Philip et al., 2015). Although consumers no longer possess the product, they still own it. Getting rid of a product permanently involves a number of alternatives. For example, consumers may abandon or discard the product. The former refers to a socially unacceptable method of disposal, such as littering, while the latter refers to a socially acceptable disposition approach, such as using a trash

can (Albinsson and Perera, 2009). Secondly, consumers may decide to recycle the product, breaking it down and reusing the ingredients to make something new (Agrawal et al., 2016). A third option is to sell the product directly to other consumers at a yard sale, or to an intermediary such as a pawn shop (Paden and Stell, 2005). This option involves a transference of ownership. Finally, consumers can give away the product, perhaps as a gift or a charitable donation (Jacoby et al., 1977). This option also requires a surrender of ownership.

2.3 Theoretical Underpinning

The recent work of Cruz-Cardenaz and Arevalo-Chavez (2017) as well as the early work of Jacoby et al. (1977) on consumer's disposition behaviour are adopted as the theoretical basis for the present study. Particularly, Cruz-Cardenaz and Arevalo-Chavez's (2017) seminal work assesses past 40 years of research on disposition of products and proposes a model that depicts how external influences and consumer's characteristics can affect consumer's disposition and post-disposition behaviours as shown in Figure 1. Integrated with Jacoby et al.'s (1977) work, six key external influences are selected to assess their respective relationship with three disposition decisions of smartphones, namely price, brand, compatibility, usefulness, social influence and product attachment due to their relevance to student's experience and developing economies. While price and brand of the smartphone are attributed to marketing influences, social influence is attributed to micro-environmental factors (Peter and Olson, 2005). Usefulness, compatibility and product attachment, in turn, are attributed to the product as a possession. Consumers' personal and psychological characteristics, nevertheless, are excluded from the investigation.

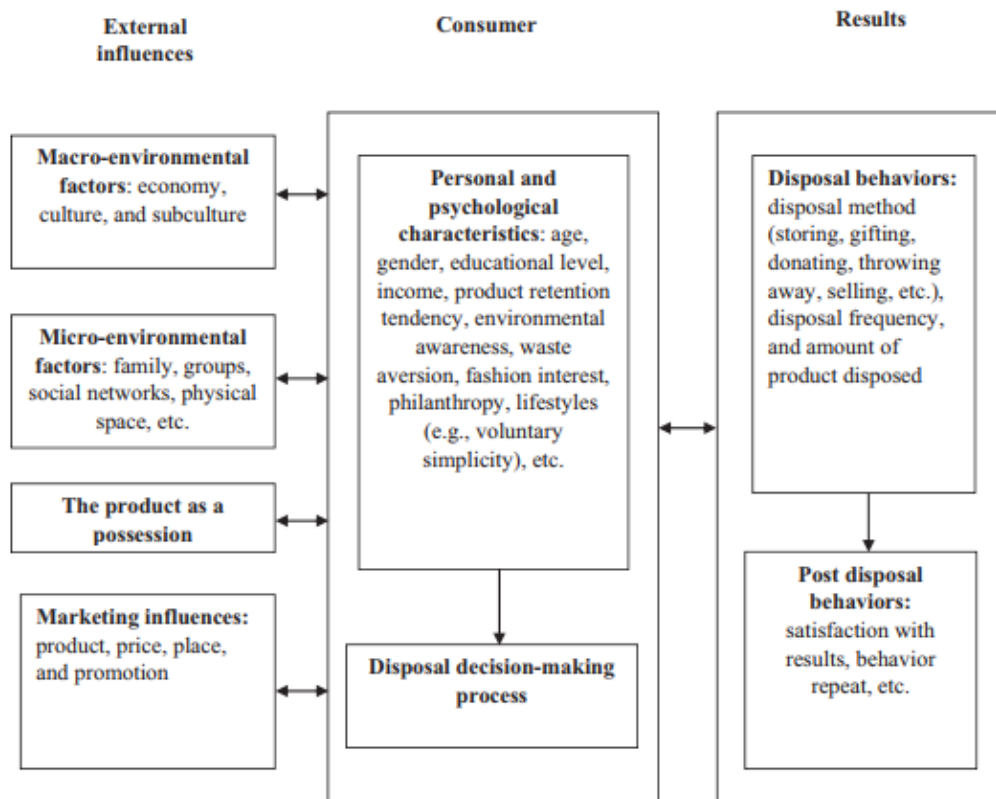


Figure 1: Model of consumer behaviour on product disposal
by Cruz-Cardenaz and Arevalo-Chavez (2017)

2.3.1 Price

Price is largely defined as the sum of money charged for a good or service, or the sum of values that consumers are willing to exchange for the benefit of using or owning a product (Graciola et al., 2018; Kim, 2019; Kotler and Armstrong, 2007). In other words, price is the perceived value of a good or service at the time of transaction. Price can change rapidly (especially compared to features and channel commitments) (Thaichon et al., 2016), and has been consistently found to have influence on consumers' buying decisions (Ferris et al., 1988; Godey et al., 2012; Lichtenstein et al., 1988).

In less developed countries, price is often the main factor influencing consumer's decision (Kim, 2019; Kotler and Armstrong, 2007). This corresponds to Gentry et al.'s (2001) findings which claim that consumers from developing countries appear to be more motivated by price when it comes to purchase intentions. More importantly, past studies have also shown that premature disposal frequency can be attributed towards price and quality consciousness (Lang, Armstrong and Brannon, 2013; Bianchi and Birtwistle, 2010). As smartphone can be either a shopping or a specialty product, it is interesting to learn how price will affect students' disposition decisions.

2.3.2 Brand

Brand represents what a good or service signifies to consumers (Massara et al., 2018; Keller, 1993). Brand is not merely a symbol plus a name; rather, brand involves a relationship between the organization and its customers (Coelho et al., 2018; Kotler and Armstrong, 2007). In addition, the brand name has a strong impact on consumers' perceptions of a product's quality (Azad and Safaei, 2012). When consumers search for, shop for, and consume products, they are generally exposed to utilitarian product attributes. However, they are also exposed to various brand-specific stimuli, such as brand-identifying colours (Gorn et al., 1997; Meyers-Levy and Peracchio, 1995), shapes (Veryzer and Hutchinson, 1998), typefaces, background design elements (Mandel and Johnson, 2002), slogans, mascots, and brand characters (Keller, 1987). Therefore, brand be an overall experience of a customer that distinguishes a company or a product from its competitors in the eyes of the customer.

In any consideration the world of objects and people are always intertwined, especially when economy grows rapidly with the need to frequently replace objects. Past research has looked into brand from the sociological perspective where the expression of social status via the consumption of the brands is emphasized (Géhin,1980) as well as from the economic perspective where the applicable price-fixing mechanism which depends on the object's utility value and its exclusiveness is highlighted (Coelho et al., 2018; Kessous, Valette-Florence and De Barnier, 2017). Interestingly, prior literature also posits that consumers from developing countries prefer brands that embody social status as it tends to have a higher perceived quality and symbolic value as opposed to products that do not associate with a favourable brand image (Lee, Lockshin, and Greenacre 2016; Sichtmann and Diamantopoulos 2013). As such, brand as in what it signifies to students rather than any brand dimensions is adopted to assess its impact on their disposition decisions of smartphones.

2.3.3 Compatibility

Compatibility, a characteristic of the product as a possession, is another important element of technological products like smartphone (Thaichon et al., 2016). Compatibility is related to perceived value, generally defined as consumers' overall assessment of the utility of a product based on their perception of what is received and what is given (Zeithaml, 1988). The assessment of what is received varies across consumers (i.e. some consumers want volume, others high quality and convenience). Likewise the assessment of what is given also varies (i.e. some consumers focus only on money spent, others on time and effort). Hence, understanding product compatibility in relation to perceived value provides an avenue for increasing value perceptions (Thaichon et al., 2016).

Given the magnitude of smartphone's compatibility, understanding why university students seek to own the latest models and are willing to pay for them while they are not in the workforce is crucial. It represents a trade-off between salient 'give' and 'get' components (Monroe, 1991). Students are found to not only use their smartphones for making phone calls, but also for many other purposes, such as taking photos and surfing the Internet. When smartphone loses its compatibility and thus value gradually due to the launch of new models, knowing how students dispose what was seen compatible before will be significant.

2.3.4 Usefulness

While compatibility concerns consumers' perception, usefulness is another possession characteristic which is related to meeting their needs and expectations (Henard and Szymanski, 2001; Li et al., 2015; Sohn, 2017). Product usefulness is often referred to as the product's benefits, features, attributes, or utility functions (Gatignon and Xuereb, 1997; Hong, Lin and Hsieh, 2017; Renko and Druzijanic, 2014). Consumers often evaluate products based on their usefulness. When the products meet their expectations, it would naturally yield positive responses (Dodds et al., 1991; Thaichon and Quach, 2015). As technological products lean heavily on the usefulness construct, past research has consistently found that usefulness is a significant predictor of technology adoption (Mathieson, 1991; Ramayah and Jaafar, 2008).

Given that product characteristics often differ in terms of utility functions, the quality of decision-making can be complicated (Hong, Lin and Hsieh, 2017). Consumers who hesitate in making a purchase show that expected usefulness of the best alternative is one of the main reasons for their

purchase decisions, more so for advanced technological devices like smartphone. The widespread penetration of smartphone and access to high-speed Internet in developing economies nowadays have resulted in increasing purchase activities, materialistic tendencies and reliance on more sophisticated functions (Sharma, 2011). While past studies have looked into purchase and adoption decisions, it is thus imperative to also assess if the usefulness of smartphone has an effect on students' disposition decisions in the contemporary complex society.

2.3.5 Social Influence

Social influence, the micro-environmental factor posited by Cruz-Cardenaz and Arevalo-Chavez (2017), is about the change that an individual or a social factor causes in another individual. This change can include attitudes, thoughts, beliefs, feelings, and behaviour (Mason et al., 2007). It can also be exerted by any significant others, such as family members and peers (Azjen, 1991). Social influence is often associated with making needed or unneeded purchases (Alexander and Ussher, 2012). Therefore it is conceivable that social influence can result in other's behavioural change (Hüttel et al., 2018). This is in line with prior literature showing that consumers make purchase decisions due to various social factors, such as enhancing social contacts or communicating with significant others (Carter and Gilovich, 2014, Lastovicka and Anderson, 2014).

De Run, Mohsin and Chung (2010) found that acquisition decisions of Malaysian adults aged between 19 and 25 are heavily impacted by direct and vicarious role models (direct role models include parents; vicarious role models include artists and celebrities). On the same note, Lee, Halter, Johnson, and Ju (2013) postulate that one's disposition behaviour can be influenced by family members, particularly the parents (Joung and Park-poaps, 2013). Given the manner that

communication technologies connect people and change the societal landscape rapidly, social influence is increasingly pivotal to understanding consumer behaviour, including the interaction between students and within their social groups. This explains the need to investigate how social influence affects students' disposition decisions of smartphones.

2.3.6 Product Attachment

Product attachment, which is related to the product as a possession, is described as the emotional bond that consumers develop towards an object, usually a specific product that has a significant meaning to the owner (Schifferstein and Zwartkruis-Pelgrim, 2008). It has long been found that consumers who develop attachment to products tend to treat these products with care, are likely to send these products for repair if damaged, and prefer to postpone their replacement (Belk, 1991). In line with the material possession attachment theory (Klein and Baker, 2004), it is also documented that when there is a strong emotional bond or attachment between the user and the object, the tendency to replace or discard the product will be minimal (Ball and Tasaki, 1992; Mugge, Schoormans and Schifferstein, 2008).

Recent studies have also suggested that consumers who are attached to an object will show certain behavioural signs, such as being protective and sticking to the same product (Cruz-Cardenaz and Arevalo-Chavez, 2017; Haws et al., 2011). Interestingly, product attachment occurs irrespective of the length of ownership (Kleine and Baker 2004), thus the idea of replacing or disposing an item seems to become less relevant. However it is unclear whether students would feel less attached to their smartphones after acquiring a new one. In light of the aforementioned, it is

important to examine the effect of smartphone attachment on students' disposition decisions as technological products tend to get upgraded or become obsolete after some time.

2.4 Hypothesis Development

Based on the foregoing review, this study postulates that brand, price, product compatibility, product usefulness, social influence, and product attachment have significant effect on university students' decisions to keep smartphones, get rid of them temporarily and get rid of them permanently. Figure 2 illustrates the research framework of the study, followed by the hypotheses.

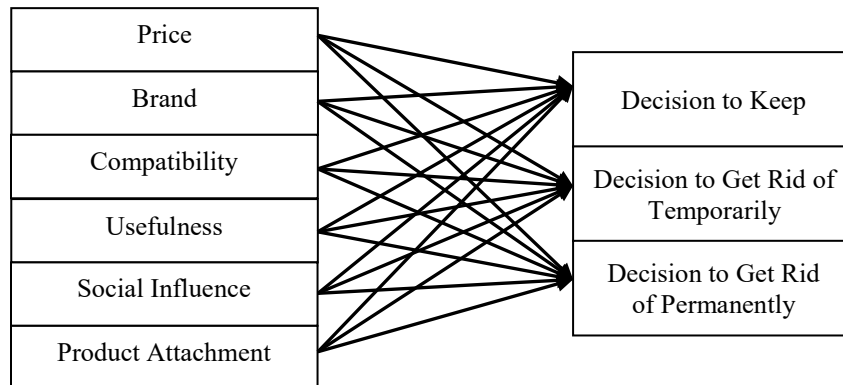


Figure 2: Research Framework

Given the explorative nature of the study and the lack of empirical findings with respect to disposition decisions towards smartphones among students in developing economies, the current study uses non-directional hypotheses. Nevertheless, the direction of the supported hypotheses will be looked into so as to provide more detailed explanation. These hypotheses are formulated as follows:

H₁: Price, brand, compatibility, usefulness, social influence and product attachment will have significant effect on consumers' disposition decisions to keep their smartphones.

H₂: Price, brand, compatibility, usefulness, social influence and product attachment will have significant effect on consumers' disposition decisions to get rid of their smartphones temporarily.

H₃: Price, brand, compatibility, usefulness, social influence and product attachment will have significant effect on consumers' disposition decisions to get rid of their smartphones permanently.

3. Research Methodology

This study adopted a quantitative approach rooted in a positivist paradigm. The target population was university students from both public and private tertiary institutions in Malaysia. University students are selected because they have the ability to make decisions and are more likely to own more than one smartphone. In order to ensure that the sample characteristics and the data collected are void of any substantial confounding effect, purposeful sampling technique was administered to include only local full-time university students who own at least one smartphone each (Suri, 2011). As randomness of the target population cannot be assumed, power analysis was used to determine the minimum sample size to explain the phenomenon under investigation (Faul, 2009). Accordingly, expecting the power of 0.90 and the effect size of 0.15, a minimum sample size of 123 was required and predetermined.

Apart from demographic details, the questionnaire contained statements pertaining to the nine variables under investigation as shown in Figure 1. These variables were adapted from the earlier works (Cruz-Cardenaz and Arevalo-Chavez, 2017; Hanson, 1980; Jacoby et al., 1977) and they are measured by either single or multiple items. Recent advancement in methodological research

suggests that single-item measures may be preferable in certain situations. The seminal work of Bergkvist and Rossiter (2007) on the use of single-item measures provides both theoretical and empirical justification for parsimonious measurement (Sarstedt et al., 2015). Hayduk and Littvay (2012), on the other hand, advocate the use of a few items as well as “best” items. They believe that “one or two indicators are often sufficient, but three indicators may occasionally helpful” (p.1). Rossiter (2011) also advocated for the legitimacy of single-item measures, provided that the object and attribute of a construct is concrete (Sarstedt et al., 2015). Therefore, this study used single-item measures to operationalize price, brand, compatibility, usefulness, and social influence as well as multiple-item measures to assess product attachment and disposition decisions. The study employed 7-point Likert scale to determine the level of agreement of each item (statement).

The study appropriated a self-administered questionnaire for data collection. A pre-test was conducted on five respondents from the target population to ensure that they understood the instructions and statements in the questionnaire (Memon et al., 2017). Two hundred copies of the questionnaire were sent to universities in Malaysia, and a total of 172 copies were collected one month later. The response rate of more than 70% affirmed that non-response error was not a concern (Nulty, 2008). After a thorough data screening, 7 responses were removed due to serious data omission, resulting in 165 usable responses. To assess common method variance, two ex post statistical remedies were executed, namely Harman single factor (Chang et al., 2010; Podsakoff et al., 2003) approach and Kock and Lynn (2012) full collinearity assessment. The results from Harman single factor revealed that the first component explained significantly less than 50 percent of the variance. As shown in Table 1, Kock and Lynn (2012) full collinearity assessment yielded a variance inflation factor (VIF) of less than 5 when a dummy variable was regressed against all

the variables in the model (Kock and Lynn, 2012; Hair et al., 2017). These results suggest that collecting data from a single source was not an issue in the study.

Table 1: Full Collinearity Assessment

Variable	Dummy Variable
Brand	2.533
Compatibility	3.476
Keep	1.125
Price	2.148
Product attachment	1.132
Get Rid of permanently	1.293
Get Rid of temporarily	1.344
Social influence	1.512
Usefulness	3.232

A post hoc analysis was also conducted to assess the power adequacy of 165 respondents. Kock and Hadaya (2018) suggested two methods to estimate the minimum sample size required for PLS-SEM, namely the inverse square root and gamma-exponential methods. They advocated that power values vary based on sample size as well as path coefficient magnitude and power values increase when both sample size and path coefficient increase. With that assumption, when inserting the largest path coefficient into the equation developed by Kock and Hadaya (2018), the minimum sample size required for the model with the power of 0.80 was 157 (inverse square root) and 143 (gamma-exponential methods). As such, a sample of 165 respondents was deemed having adequate power for data analysis.

Variance-based or partial least squares structural equation modeling (PLS-SEM) was adopted to perform path modeling and latent variable analysis of the study. This approach is found to be more appropriate for exploratory study and maximizing variance explained (Hair et al., 2017). As such,

SmartPLS 3.0 was utilized to perform measurement and structural model assessment as well as test the hypotheses (Ringle et al., 2015).

4. Findings

4.1 Demographic Profile

Table 1 shows the demographic details of 165 respondents. Not surprisingly, most university students in Malaysia own two or three smartphones. Despite having varied age-ranges, they are all local and full-time students. Those who are 26 years and above are post-graduate students. T-test is performed to ensure that there is no significant difference (no confounding effect) between male and female respondents and students who own different number of smartphones.

Table 2: Demographic Profile

<i>Variable</i>		<i>Count</i>	<i>Percentage</i>
Gender	Male	69	41.8
	Female	96	58.2
Age	18-20	23	13.9
	21-25	107	64.9
	26-30	19	11.5
	31 and above	16	9.7
Number of Smartphones Owned	1	26	15.8
	2	47	28.5
	3	51	30.9
	4	24	14.5
	5	9	5.5
	6 and above	7	4.2

4.2 Measurement Model Assessment

Measurement model is assessed by looking at construct reliability, convergent validity, and discriminant validity. RIDP4 is removed due to low loading and subsequently low average variance extracted (AVE) score. Table 3 shows that all constructs demonstrate high internal

consistency, as the composite reliability (CR) scores are higher than the threshold value of 0.7 (Nunally and Bernstein, 1994). Moreover, AVE scores greater than 0.50 indicate that the items loaded on the constructs explain more than 50% of the constructs' variances. Hence convergent validity is established (Hair et al., 2017).

Table 2: Assessment of Convergent Validity

<i>Constructs</i>	<i>Items</i>	<i>Loadings</i>	<i>AVE</i>	<i>CR</i>
Brand	BRD	Single Item	-	-
Compatibility	COM	Single Item	-	-
Price	PRC	Single Item	-	-
Product Attachment	ATT	Single Item	-	-
Social Influence	SNF	Single Item	-	-
Usefulness	USE	Single Item	-	-
Get Rid of Permanently	RIDP1	.594	.612	.861
	RIDP2	.898		
	RIDP3	.762		
	RIDP4	Removed		
	RIDP5	.841		
Get Rid of Temporarily	RIDT1	.736	.689	.814
	RIDT2	.914		
Keep	KEEP1	.728	.585	.808
	KEEP2	.768		
	KEEP3	.797		

Brand = BRD. Compatibility = COM. Price = PRC. Product Attachment = ATT. Social influence = SNF. Usefulness = USE. Get Rid of Permanently = RIDP. Get Rid of Temporarily = RIDT. Keep = KEEP.

To assess discriminant validity, Heterotrait-Monotrait (HTMT) ratio (Henseler et al., 2015) is used and the results are presented in Table 4. The study confirms discriminant validity among the constructs at HTMT_{.85}, indicating that there is no multicollinearity issue between items loaded on different constructs in the outer model.

Table 4: Assessment of Discriminant Validity

	BRD	COM	RIDP	RIDT	KEEP	PRC	ATT	SNF	USE
BRD									
COM	.602								
RIDP	.199	.266							
RIDT	.188	.275	.798						

KEEP	.365	.607	.134	.419				
PRC	.697	.552	.263	.276	.374			
ATT	.265	.210	.090	.113	.433	.192		
SNF	.490	.382	.193	.283	.347	.344	.282	
USE	.558	.812	.192	.225	.624	.514	.209	.446

Criteria: Discriminant validity is established at HTMT.^{.85}

4.3 Assessment of Structural Model

Assessing the structural model permits the testing of hypotheses developed for this study. Prior to testing the hypotheses, it is crucial to ensure that there is no collinearity issue among the constructs under investigation in the inner model. The variance inflation factor (VIF) values for each construct ranges from 1.114 to 3.312 as shown in Table 5. As these values are lower than the cut-off value of 5 (Hair et al., 2017), multi-collinearity is not a concern.

Table 5: Assessment of Multi-collinearity

	RIDP	RIDT	KEEP
BRD	2.511	2.511	2.511
COM	3.312	3.312	3.312
PRC	2.068	2.068	2.068
ATT	1.114	1.114	1.114
SNF	1.447	1.447	1.447
USE	3.173	3.173	3.173

To test the hypotheses, a 5000 bootstrap re-sampling of the data is conducted (Hair et al., 2017). Table 6 depicts the assessment of path coefficients (relationships) or the effect of independent variables on dependent variables. The results indicate that the data partially support all three hypotheses. While compatibility, usefulness, and product attachment positively affect students' decision to keep a smartphone, social influence and low product attachment are significantly related to a consumer's decisions to getting rid of a smartphone temporarily. Moreover, low compatibility has an inverse effect on the decision to getting rid of a smartphone permanently. This means that university students are not likely to discard smartphones unless they believe the

phones no longer carry any value. Furthermore, even though many of them own more than two phones, they tend to keep them due to compatibility, usefulness, and product attachment. They might lend smartphones to their friends due to social influence even though the phones are still in good condition. An inverse relationship between product attachment and getting rid of a smartphone temporarily suggests that students might lend old smartphones to others when they find themselves more attached to new phones.

Table 6: Assessment of Path Coefficients

<i>Path Relationship</i>	<i>Beta</i>	<i>SD</i>	<i>t-value</i>
Price → Keep	0.067	0.130	0.519
Price → Get Rid of Temporarily	0.171	0.122	1.398
Price → Get Rid of Permanently	0.185	0.121	1.526
Brand → Keep	-0.129	0.121	1.066
Brand → Get Rid of Temporarily	-0.119	0.136	0.872
Brand → Get Rid of Permanently	-0.092	0.147	0.623
Compatibility → Keep	0.227	0.127	1.792**
Compatibility → Get Rid of Temporarily	0.180	0.158	1.140
Compatibility → Get Rid of Permanently	-0.254	0.138	1.845**
Usefulness → Keep	0.308	0.115	2.675**
Usefulness → Get Rid of Temporarily	-0.018	0.181	0.100
Usefulness → Get Rid of Permanently	-0.137	0.151	0.911
Social Influence → Keep	0.022	0.077	0.289
Social Influence → Get Rid of Temporarily	0.199	0.102	1.949**
Social Influence → Get Rid of Permanently	0.125	0.115	1.089
Prod. Attachment → Keep	0.256	0.076	3.353**
Prod. Attachment → Get Rid of Temporarily	-0.181	0.087	2.083**
Prod. Attachment → Get Rid of Permanently	0.005	0.089	0.052

Note: ** p < .05

Table 7 shows the quality of the model. Specifically the effect size (f^2) is assessed to determine the substantive impact of the independent variables on the dependent variables. Cohen's (1988) threshold values of effect size are adopted, whereby 0.02, 0.15 and 0.35 represent small, medium and large effect sizes respectively. The results show that all path relationship carry small effect sizes though product attachment has more effect on the decision to keep the smartphone than other

path relationships.

Overall, the independent variables explain 8.8% of the variances in decisions to permanently get rid of the smartphone, 11.4% in decisions to temporary get rid of the smartphone, and 35.2% in decisions to keep the smartphone. To assess if the independent variables have the predictive ability over the dependent variables, cross-validated redundancy approach using a blindfolding procedure with omission distance of 7 is performed. The predictive relevance values for all three dependent variables, namely RIDP (0.033), RIDT (0.046) and KEEP (0.167), are larger than 0, indicating that the six external influences are capable of providing in-sample prediction to disposition decisions (Hair et al. 2017; Ting et al., 2019).

Table 7: Assessment of Explanatory and Predictive Quality

	R ²	Q ²	Effect size f ²			
				RIDP	RIDT	KEEP
RIDP	.088	.033	BRD	.004	.006	.010
RIDT	.114	.046	COM	.021	.011	.024
KEEP	.352	.167	PRC	.018	.016	.003
			ATT	.000	.033	.091
			SNF	.012	.031	.001
			USE	.007	.000	.046

5. Discussions

This paper seeks to identify the factors that influence university students' disposition decisions towards smartphones in Malaysia by referring to the early work of Jacoby et al. (1977) and the recent seminal work of Cruz-Cardenas and Arevalo-Chavez (2017). Product attachment and compatibility are found to be the most dominant factors in explaining smartphone disposition decisions. Reasonably, when university students purchase, use, and repurchase smartphones, they place significant emphasis on compatibility. They tend to follow trends (Ting and de Run, 2015)

and do not regard having the latest smartphone as something materialistic (Ting et al., 2015). Although the latest model could be expensive and a luxury, they see the value in owning it and using it for multiple purposes. Additionally, even though most students own more than one smartphone, they do not usually discard their phones permanently. As long as the phones are still compatible and useful in some ways, they are inclined to keeping them. They might lend their phones to their peers in need when necessary.

University students might also get rid of their smartphones temporarily when they find themselves less attached to the phones. This is most likely due to having new smartphones with better compatibility or functionality. This underscores the significance of product attachment, not because of the physical make-up of smartphones, but the perceived value (compatibility and usefulness) of the phones. Most if not all students carry smartphones throughout the day. Understandably many things can be done through phones at their finger tips, including their personal activities and school works. They appear to have a strong connection to their smartphones until the phones break or lose their functions.

Interestingly, the study finds that price and brand are not related to disposition decisions. For students, decisions to keep or get rid of their smartphones do not hinge on the brand it signifies or the price they paid. Even though brands like Apple and Samsung are traditionally well-known in the Malaysian market, university students would not hesitate to purchase other smartphones which are perceived better regardless of the price and brand and dispose of the existing ones. Again, these results highlight the notion that the physical product itself is not the main factor in students' disposition decisions. Instead, the value and functions that the smartphone provides (or fails to

provide) have more profound effect on their disposition decisions. The study thus infers the importance of service and experience quality in understanding students' disposition decisions – and their subsequent acquisition and consumption behaviours (Ting and Ramayah, 2017).

6. Implications

Although the current study adopts the earlier works on disposition behaviour, it challenges the theoretical generalizability of past models in a context-specific scenario. Despite the abundance of studies explaining the importance of price and brand in purchase behaviour, they are found to have no effect on students' disposition decisions towards smartphones in Malaysia. While the study affirms part of the work of Cruz-Cardenaz and Arevalo-Chavez (2017), it quantifies six key influences and thus extends the knowledge about their respective effect on disposition decisions in a structural model (i.e. price, brand, compatibility, usefulness, social influence and product attachment). As a result, it reinforces the need for a more holistic understanding of consumer behaviour and sustainable consumption (Vergragt et al., 2016; Yin et al., 2014).

The findings from the current study also offer practical value to the business practitioners in developing economies. As consumers today demand not only product quality but also service and experience quality (Ting and Ramayah, 2017), understanding the totality of consumer behaviour and how consumers go through the acquisition-consumption-disposition journey can give the marketers and managers extra insights.

Besides, when consumers purchase a new product, they might have not necessarily discarded their previous purchase. Similarly, when university students buy new smartphones, their existing ones

might still be functioning and useful. As such, understanding the why and how of smartphone disposition or disposition decisions in general is pivotal to devising marketing strategies and tactics. Doing so will lead to better tracking of consumers and transform their disposition decisions into sustainable consumption and repurchase behaviour. Hence, the outcome of this study could lead to a better product standability and reuse behaviour. It could be possible if the relevant service providers and the government could promote through social influence of product standability and reuse of smartphone or a similar type of produce such as tablet and notebook. On the other hand, a business practice such as trade and part recycle could also take benefits from acquisition and disposition behaviour. For example, *Trade up to a new Galaxy* by Samsung Australia (Samsung, 2019), and *Get iPhone XR from A\$849 when you trade in your iPhone 7 Plus* by Apple (Apple, 2019). This strategy could lead to a higher demand when it combine with the cheaper price from the promotion, better compatibility of the new product, and the in-demand social influence of the newer product.

7. Limitations and Directions of Future Studies

The present study is limited in several aspects. Firstly, the sample of students was assumed homogenous by gender, age and smartphone usage, thus disregarding the potential differences among students with different personal and psychological characteristics. Secondly, having university students as the target population will likely compromise the generalizability of the findings to the wider populations and other important segments. Thirdly, the study adopted cross-sectional design and does not measure actual behaviour as well as behavioural change when disposing the smartphones. In view of the limitations, future investigations on disposition decisions should take heterogeneity issues into consideration (Sarstedt et al., 2019). Performing

multi-group analysis using psychographic variables could potentially divulge more insights into the phenomenon. Moreover, comparing disposition decisions across different population segments and incorporating psychological or situational factors as moderators in the structural model could also provide more theoretical and practical explanation to the subject matter (Ting et al., 2019). It would also be interesting to conduct longitudinal study or experiment on disposition decisions so as to yield results which carry more practical meaningfulness to business practitioners in the developing economies.

8. References

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