



Faculty of Economics and Business

**An Investigation on Self-Concept, Consumer Awareness, Self-Awareness
Congruence and Attitude towards Consumer's Socially Responsible Plate
Food Consumption Behavior**

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An Investigation on Self-Concept, Consumer Awareness, Self-Awareness
Congruence and Attitude towards Consumer's Socially Responsible Plate
Food Consumption Behavior

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. It is original and is the result of my work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been accepted for any degree and is not concurrently submitted in candidature for any other degree.

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Signature

Date

DEDICATION

This thesis is dedicated to my loving parents, the late Mr. Haji Fazal Din and my loving mother, the late Mdm Naziran Bibi. My special appreciation goes to my mother and brothers who were enthusiastic on my completion of this Ph.D. degree.

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ABSTRACT

The aim of this study is to examine the influences of consumer self-concept, consumer awareness, congruity between self-concept and consumer awareness and their effects on consumer attitude, in addition to their influence of self-concept and consumer awareness on socially responsible plate food consumption. A theoretical model which endeavors to explore the influence of consumer awareness, self-concept, congruity of consumer self-concept and awareness, attitude and socially responsible plate food consumption on consumption behavior was adapted and tested empirically. Particularly, the model suggested that consumer attitude and their socially responsible plate food consumption behavior were influenced by consumer self-concept and awareness, while, congruity of consumer self-concept and awareness influenced the attitude towards socially responsible plate food consumption. Moreover, the attitude towards socially responsible plate food consumption was examined to see whether it would mediate between self-concept, consumer awareness and socially responsible plate food consumption behavior. Data were collected utilizing self-administrated survey in major cities namely Kuching, Sibul, Bintulu, and Miri. The primary data collection generated a total of 979 usable responses. Exploratory Factor Analysis (EFA), Structural Equation Modeling (SEM) was performed to test the hypotheses. The results of statistical analysis revealed that consumer self-concept (religious self, feared self, altruistic self), consumer awareness (hunger concern, environmental concern, economic concern, landfill concern and water shortage concern) directly influenced consumer attitude and their socially responsible plate food consumption behavior. More importantly, the congruity of self-concept and awareness significantly influenced the consumer attitude. Finally, the study also found attitude mediated the

relationship consumer self-concept, consumer awareness and socially responsible consumption behavior partially. Based on the results, the study provides implications for consumers to enhance the socially responsible plate food consumption attitude as well as behavior.

Keywords: Self concepts, consumer awareness, attitude, social responsible, food consumption behavior

***Kajian ke atas Konsep Kendiri, Kesedaran Pengguna Serta Persamaan Kesedaran Diri
Bekaitan dengan Sikap Tanggungjawab Sosial Pengguna Terhadap Tabiat
Pengambilan Makanan***

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji pengaruh konsep kendiri pengguna, kesedaran pengguna, dan persamaan konsep kendiri dan kesedaran pengguna serta kesannya terhadap sikap pengguna, berkaitan tanggungjawab sosial pengguna terhadap tabiat pemakanan menggunakan pinggan. Satu model teori telah digunakan untuk mengkaji pengaruh kesedaran pengguna terhadap konsep kendiri, persamaan konsep kendiri dan kesedaran pengguna, sikap serta tabiat pemakanan menggunakan pinggan yang bertanggungjawab secara sosial dari segi empirikal. Secara khususnya, model tersebut mengesyorkan bahawa sikap pengguna dan tabiat pemakanan menggunakan pinggan yang bertanggungjawab secara sosial dipengaruhi oleh konsep kendiri dan kesedaran pengguna. Wujud persamaan pengaruh konsep kendiri pengguna dan kesedaran sikap terhadap tabiat pemakanan menggunakan pinggan yang bertanggungjawab secara sosial. Selain itu, sikap terhadap tanggungjawab sosial ke atas tabiat pemakanan menggunakan pinggan diselidik untuk mengenalpasti sama ada ia akan menjadi pengantara antara konsep diri, kesedaran dan sikap pemakanan menggunakan pinggan yang bertanggungjawab secara sosial. Data dikumpulkan menggunakan kaedah survei di bandar-bandar utama di Sarawak iaitu Kuching, Sibu, Bintulu dan Miri. Sehubungan itu, sebanyak 979 maklum balas berjaya dikumpul dan boleh diguna pakai dalam kaji selidik ini. Ujian 'Exploratory Analysis Factor' (EFA) dan 'Structural Equation Modeling' (SEM) telah dilakukan untuk menguji hipotesis daripada model kajian. Hasil analisis statistik mendedahkan bahawa konsep kendiri pengguna (kerohanian diri, rasa takut akan diri,

tidak mementingkan diri), kesedaran pengguna (sikap ambil berat terhadap kelaparan, alam sekitar, ekonomi, tapak pelupusan dan kekurangan air) mempengaruhi sikap pengguna dan sikap pemakanan menggunakan pinggan yang bertanggungjawab secara sosial. Lebih penting lagi, kesesuaian konsep sendiri dan kesedaran telah mempengaruhi sikap pengguna dengan ketara. Akhir sekali, kajian ini turut mendapati sikap menjadi perantara konsep diri serta kesedaran pengguna dengan sikap pengguna yang bertanggungjawab secara sosial walaupun tidak secara menyeluruh. Berdasarkan keputusan tersebut, kajian ini memberikan implikasi pengurusan bagi pengguna untuk meningkatkan sikap dan tabiat pemakanan menggunakan pinggan untuk menjadi lebih bertanggungjawab secara sosial.

Kata kunci: *Konsep sendiri, kesedaran pengguna, sikap, tanggungjawab sosial, tabiat pengambilan makanan*

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LIST OF ABBREVIATIONS

AL_Self	Altruistic Self
ALS_ ECC	Congruity between Altruistic Self and Economic Concern Awareness
ALS_ ENC	Congruity between Altruistic Self and Environmental Concern Awareness
ALS_ HC	Congruity between Altruistic Self and Hunger Concern Awareness
ALS_ LFC	Congruity between Altruistic Self and Landfill Concern Awareness
ALS_ WTC	Congruity between Altruistic Self and Water Shortage Concern Awareness
AMOS	Analysis of Moment Structures
ATT_M	Attitude as a Mediator Variable
CFA	Confirmatory Factor Analysis
ECC_A	Economic Concern Awareness
EFA	Exploratory Factor Analysis
ENC_A	Environmental Concern Awareness
FE_Self	Feared Self
FES_ ECC	Congruity between Feared Self and Economic Concern Awareness
FES_ ENC	Congruity between Feared Self and Environmental Concern Awareness
FES_ HC	Congruity between Feared Self and Hunger Concern Awareness
FES_ LFC	Congruity between Feared Self and Landfill Concern Awareness
FES_ WTC	Congruity between Feared Self and Water Shortage Concern Awareness
HC_A	Hunger Concern Awareness
KMO	Kaiser-Meyer-Olkin

LFC_A	Landfill Concern Awareness
RE_self	Religious Self
RES_ECC	Congruity between Religious Self and Environmental Concern Awareness
RES_ENC	Congruity between Religious Self and Environmental Concern Awareness
RES_HC	Congruity between Religious Self and Hunger Concern Awareness
RES_LFC	Congruity between Religious Self and Landfill Concern Awareness
RES_WTC	Congruity between Religious Self and Water Shortage Concern Awareness
SC_CA Congruity	Congruity between consumer self-concept and consumer awareness
SPSS	Statistical Package for the Social Sciences
SRCB_D	Socially responsible Consumption Behavior as a Dependent variable
TLI	Tucker Lewis Index
WTC_A	Water Shortage Concern Awareness

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter presents the background, purpose, problem statement, research questions, research objectives, and contribution of the study. The significance in carrying out the present study, definition of the terms and outline of the study are summarized.

1.2 Background of the Study

World socio-economic variations influenced food consumption pattern of the society (Karlaite & Tamosiunaite, 2013). Webster (1975) established the notion of socially responsible food consumption to resolve the economic, social and environmental problems. According to Webster (1975), social worries such as food insecurity, high food prices and rapid change in environment were the consequences of consumers' socially irresponsible food consumption habits. This consumers' socially irresponsible consumption of food habit further transformed into social issues especially food waste.

The fast-growing concern of food waste has become an issue for hunger, environmental change, economy, and landfill challenges all over the world (Fredman, 2014). Almost 1.3 billion tons of food is wasted in the globe (www.foodwastenews.com). Most of the existing literature on this matter focused on stages of food waste (Balifokus, 2006; Siddiqui, 2014; Helmer, 2015). The high level of food waste was divided to five stages: production stage, harvest, processing stage, industrial processing, distribution and sales, and consumption (Siddiqui et al., 2014). Food waste at consumption stage consisted of different aspects, which were consumption at the household, consumption at the restaurant, and consumption at the hotel (Siddiqui et al., 2014). It was noted that the biggest

portion of food wasted was at household consumption level, which was more than 50 percent (Gustavsson et al., 2011). Almost one-fourth to one third part of the food that were produced annually for human consumption were wasted, which is about 4 billion metric tons (FAO, 2013). In addition, fifty percent of food was wasted from the total food consumption at the global level (Jaaffer, 2014; Institution of Mechanical Engineers, 2013).

Additionally, the food wastage was a significant issue at world level with respect to global hunger (Nahman et al., 2012). The rapidly increasing world population is creating an alarming situation for human beings related to food as well as the environment. In 2013, the total population of the world had reached 2.14 billion (Lutz, 2013). The countries of the world were attempting to enhance their food production in tandem with the population increase. Scientists and society development experts in the world were racing to boost up the food production more than fifty percent to cope with the fast-growing world population (MacFarquhar, 2009). Despite of the large food production, hundreds of millions of people in the world still strived hard for their daily bread (Berck & Bigman, 1993; Al-Domi et al., 2011). Along with huge food production, the ratio of hunger increased daily (Ehrlich et al., 1993). A few decades ago, World Bank (1986) estimated that almost 400 million people of the world suffered from severe food deficiency and food was not affordable for minimum diet to 350 million people of the world. World hunger was also a ruthless and painful fact for millions of people including 300 million children. According to International Fund for Agricultural Development (2010), more than 110 million people faced the hunger problem and 44 million people were classified under the malnutrition category.

Instead of the world hunger issue being reduced, it has increased extensively (Berck & Bigman, 1993). Food scarcity was expected to increase in the world, due to drought, political strife, war, flood, and other disasters (Berck & Bigman, 1993). The

massive increased consumer food waste was one of the effects of continued growth of population and rising living standards, urbanization and development (Mahar et al., 2007).

Waste Resources and Action Program of United Kingdom (2008) disclosed that consumers threw away 30 % of their total purchased food. Ironically, food produced one third part of the edible parts for the consumption of human beings from which 1.3 billion tons was wasted per year. Moreover, the food waste was a global issue due to harmful effect on the people in the context of environmental, economic and social (Lee, 2012). The European and North American communities wasted 95kg to 115 kg of food. Alongside, Sub-Sahara African and South Asian wasted 6 kg to 11kg food annually (Verneulen et al., 2012).

Food and Agricultural Organization (FAO) in 2009 reported that major regions of the world such as Asia and Africa wasted about 67% of the food produced, and North America and Oceania lost about 42% of what they produced in developed countries (FAO, 2009). Malaysia is also one of those countries where massive quantity of food was wasted on a daily basis (Agamuthu & Fauziah., 2009). From 2001 to 2005, west Malaysia alone generated 16,200 tonnes to 19,100 tonnes of solid waste daily, of which 55% was food waste (Fauziah & Agamuthu, 2009). Similarly, East Malaysia generated 55% food waste from a total of 5,656 tonnes of solid waste daily till 2009; therefore, averaging 0.6 kg to 0.8 kg per capita wastage that contained 55% of food waste (Agamuthu et al., 2009). The average food waste and loss in developing countries by per person reported in 2014 was at 120 to 220 kg annually (Cuesta, 2014).

In addition, food waste happened at all stages of the supply chain from the fields to the consumer's table (Nahman et al., 2012; DeAngelis, 2013). These stages are mainly divided into two streams, pre-consumer food waste and post-consumer food waste (Jarrod

Bal & Associates, 2001; Silbernagl, 2011; Nahman et al., 2012). FAO (2013) reported that the names of “pre-consumer” and “post-consumer” food wastage were changed to “upstream” and “downstream” food wastage respectively. The pre-consumer or upstream food wastage is wastage from growers, storage and distribution, manufacturing and retails, while post-consumer or downstream food wastage comprised of wastes generated at household, hospitality sector and institutional canteens (Government office for science of the United Kingdom, 2010). WRAP (2013) further classified the downstream food wastes into three sub-stages (restaurants, caterers and households) where consumers wasted the food directly. The comparison made of the three sub-stages revealed that consumer wasted more food at household’s stage than restaurants and caterers.

The food wasted during production, post-harvest handling and storage, which fell in the pre-consumer or upstream category, was at 54% percent. On the contrary, post-consumer or downstream category filled with food wastage during processing, distribution and consumption was at 46% of the overall food wastage (Food and Agriculture Organization, 2013). However, the food wastage occurred from initial production stage to final consumption stage at household consumption level (Gustavsson, 2011. p. 4). Furthermore, Gooch et al. (2010) reported that food was wasted 9% at farms, 18% during production, 3% during processing, 11% while in transportation, 8% during distribution, and 51% in retail, food series and homes in Canada. Consumers were the main responsible parties of food wastage at 60%, and the rest stood at 40%; Production department wasted 20%; while a further 20% were wasted at the distribution level (Alter, 2010). Moreover, about \$1,170 or 700 Pounds worth of food were discarded by each family of Britain in annually (Gardiner, 2014).

Reasons for food wastage given by consumers were due to over cooked or sometimes over prepared (Waste Resources and Action Programme, 2008). Food consumption can be divided into two streams, which were kitchen scraps and food left in individual plates at household level (Crisman, 2011). Swedish Environmental Protection Agency (2012) and Williams (2012) reported that eventually, consumers were involved in food wastage at all levels of its consumption. Not only is the food wasted at all stages from production to consumption, such as field, supply chain, storage, preparation, cooking and consumption, but large amounts of food wastage also occur at the plate food consumption stage (Kanton et al., 1997; William & Walton, 2011). Food waste causes several serious problems which include hunger, solid waste management, economic, climate changes, and production yield.

Firstly, hunger is a highly correlated problem with food waste. The hunger intensity could be analyzed from the figure of daily food calories wasted (Alter, 2010). The estimated amount of food waste is at 40% of its total production. In 1974, nine hundred calories were wasted per person and 1400 calories were wasted in 2010. Additionally, there are 150 trillion calories wasted per year in the United States due to food wastage. Actually, these calories thrown away in a year in the United State could feed two billion hungers for one year (Alter, 2010).

Secondly, a big land is required to produce the food and manage the food waste that is thrown away by consumers in the world (WRAP, 2012). On these bases, 19,000 square kilometers were required every year for food waste in the United Kingdom (WRAP, 2012). The United States produced 31 million tons of food waste annually (US Environmental protection Agency 2010). That is a big amount of food wasted, a worth about \$165 billion, dumped in land fills (US EPA, 2010; Wei, 2012). Yet, more than 70% of food waste were

discarded on land that has potential for other uses in Malaysia (Otitoju & Seng, 2014). Gardiner (2014) noted that food waste decomposed in landfill generate methane and potent greenhouse gases. WRAP (2012) reported the avoidable food waste was associated with environmental pollution in term of a high portion of greenhouse gas emission in the air.

Thirdly, food waste also causes fresh water waste. Almost five percent of fresh water in the United Kingdom were wasted to grow the food and end up as uneaten food (Grover, 2011) and one fourth portion of fresh water was wasted on uneaten food in the United States (Alter, 2010). WRAP (2012) reported that almost 6.2 billion cubic meters of water were wasted in the United Kingdom due to household food waste a year. China with 21 percent of the world population wasted 177 billion cubic yards of water to produce uneaten food yearly (Liu et al., 2013). The amount of water used in China to produce uneaten food is equivalent to the total irrigation water for agricultural land in Canada (Lie et al., 2013). Subsequently, Harvey (2014) reported that fresh water was wasted to cultivate the food in the form of uneaten food; twice more than used in drinking and washing.

Fourthly, from the enormous consequences of food wastage, a massive quantity of fuel was consumed for the preservation and transportation of food which were uneaten (Gardiner, 2014). Almost, more than 300 million barrels of oil were wasted in food transportation, which were thrown away as an uneaten food annually in the United State (Alter, 2010). In addition, Malaysia not only wasted food, but also wasted the 1.6 billion Ringgits for food waste management annually (Ali, 2008; Rahim, 2014).

Household food wastage was not only a problem for waste management companies in Malaysia, but also one of the major sources for increased import quantity of food from different countries (Behzad et al., 2011; Shamshiry et al., 2011). Other pivotal effects of

food waste in Malaysia, include creating problems for Malaysian economy, environment and the land. There were also high prices of food, environmental degradation through pollution, and covering the agricultural land with wasted food (Kathirvale et al., 2003). Although, Malaysian food waste management authorities were developing new strategies to manage the food waste due to the rapid growth of food wastage, its management still faced problems (Government of Malaysia, 2006).

For that reason, WRAP (2011) noted that raising consumer awareness pertaining to the consequences of food waste was the best strategy to reduce food waste created by the society. Thus, numerous studies highlighted the types of food waste (Balifokus, 2006; Siddiqui, 2014; Helmer, 2015) and clarified why consumers wasted the food and the outcome in the shape of hunger population, environment degradation, high prices of food, landfill and water shortage. The field of food wastage, particularly from the perspective of consumer self-concept (e.g. religious self, feared self, and altruistic self), consumer awareness (e.g. hunger, environment, economic, landfill, and water shortage) and attitude towards socially responsible plate food consumption were also not been adequately explored. In earlier studies, self-concept and consumer awareness utilized as multidimensional concepts for marketing prospective (Onkvisit & Shaw, 1987; James, 1890; Todd, 2001; Makela & Peters, 2004; Du Plessis et al., 2007; Li, 2009; Makanyeze & Du Toit, 2015).

In the long run, in the scenario of continuous problem of food waste by consumers, a behavioral change model is required to overcome the food waste among the consumers for the safety of humanity and the environment in the world (Qi & Roe, 2016). Hence, the change in attitude and behavior in potential consumers were required to control or minimize the food wastage (Jayashree et al., 2012; Bond et al., 2013). Therefore, the main

focus of this research is to investigate on self concept, awareness, congruity between consumer self-concepts and consumer awareness, attitude towards socially responsible plate food consumption.

With respect to the importance of relationship between self-concept, awareness, congruity of self-concept and awareness, attitude and behavior in the literature, the aim of this study is to examine the multidimensional construct of self-concept and awareness for socially responsible plate food consumption. In addition, the present study examined the influence of consumer self-concept and consumer awareness on socially responsible plate food consumption and through mediation of consumer attitude. This study also investigated the influence of congruity of self-concept and consumer awareness on attitude towards socially responsible plate food consumption.

1.3 Problem Statement

At present, every country faces the problem of socially irresponsible food consumption, resulting in huge amounts of food wastage (FAO, 2013). The top ten countries in the world which have been identified as massive wasters of food quantity are America (760 kg per capita), Australia (690 kg per capita), Denmark (660 kg per capita), Canada (640 kg per capita), Norway (620 kg per capita), Netherlands (610 kg per capita), Germany (540 kg per capita), United Kingdom (560 kg per capita), Malaysia (540-560 kg per capita), and Finland (550 kg per capita) annually (Waqar, 2015). According to that list, Malaysia is at 9th place where an average of 450-560 kg food wasted in a year (Waqar, 2015; Siddiqui, 2017). Especially, about 270 thousands tonnes of food wasted in the month of Ramazadan in Malaysia (Malaysia grapples with food wastage, 2015). That wasted quantity of food enough to feed 180 millions people (Siddiqui, 2017).

In prior studies, numerous researchers had discussed food wastage at various stages (Drewitt, 2013; Stefan et al., 2013; Evans, 2013; Polimeni, Iorgulescu & Balan, 2013). The majority of them focused on food which were wasted in distribution, transportation, retail and food services (Gustavsson et al., 2011; Drewitt, 2013; Jaaffar, 2013; Cuesta, 2014; Liu, 2014). Besides that, the major portion of food was wasted at household level during consumption that is unable to properly address for the consumer awareness in earlier studies. Almost half of the food (42.6%) served in the plate in Malaysia were wasted (Lily Zakiah, Saimy, & Maimunah, 2005). There is a need to enhance consumer awareness on household food wastage through plate food consumption.

Nevertheless, findings of earlier studies revealed the foci were on consumer awareness for food waste minimization (Lehmann, 2011; Segre & Gaiani, 2012; Gunders, 2012; Lipinski et al., 2013; Garnett, 2013; Righi et al., 2013; Comber & Thieme, 2013). It was also noted that consumer awareness is a multi-dimensional construct, which included bargain hunting, general consumer knowledge, product knowledge, information search, and price consciousness that were used in commercial marketing frequently (Rousseau & Venter, 1993; Makanyeza & Du Toit, 2015). On the contrary, researchers were unable to examine consumer awareness as multi-dimensional constructs for social marketing in socially responsible plate food consumption studies. However, consumer awareness found as multi-dimension such as hunger (Seider, 2009), environmental (Ziadat, 2009; Abdul-Wahab, 2010; Xu et al., 2013; Santos et al., 2013; Kong et al., 2014; Lim et al., 2014), economic (Morrissey & Browne, 2004; WRAP, 2011; Evans, 2011b; Lipinski et al., 2013; Koester, 2014; Papargyropoulou et al., 2014), landfill (Lee et al., 2007; Adhikari et al., 2008; Behera et al., 2010; Curry & Pillay, 2012; Browne & Murphy, 2013) and water shortage (Lundqvist, De Fraiture, & Molden, 2008; Kummu et al., 2012). There is still lack

of research that demonstrates the connection of consumer awareness in social marketing perspective in a single study.

The utilization of self-concept has been well-documented in consumer behavior (Li, 2009). However, earlier studies essentially ignored the other self-concepts except actual self, ideal self, social self, and ideal social self. The fundamental logic of four categories of self-concepts which were used in consumer behavior was to just experience their association with the commercial marketing concept (Birdwell, 1968; Dolich, 1969; Iandon, 1974; Belch & Landon, 1974; Chon, 1992; Quester et al., 2000; Litwin & Goh, 2002; Litvin & Kar, 2003; Ekinici & Riley, 2003; Kashtenholz, 2004; Back, 2005; Jamal & Al-Marri, 2007; Beerli et al., 2007; Ibrahim & Najjar, 2008; Kwak & Kang, 2009). Human personality based on numbers of self-concepts changed with the passage of time. Moreover, few of the studies established the association of self-concept in tourism industry (Hosany & Martin, 2011). Unfortunately, there were limited studies so far that explained and elucidated the consumer self-concept with religious self, feared self and altruistic self in social marketing based on the theory of symbolic interactionism and self-congruity.

Thus, there are well documented evidences that consumer self-concept has been congruent with brand image and destination image in marketing studies (Chon, 1992; Litwin & Goh, 2002; Litvin & Kar, 2003; Kashtenholz, 2004; Beerli et al., 2007; Ibrahim & Najjar, 2008; Kwak & Kang, 2009; Li, 2009). However, there are limited studies to date that offer an understanding of the consumer self-concept and consumer awareness congruity with respect to socially responsible plate food consumption. There is a need to explore how consumer self-concept, consumer awareness, congruity of self-concept and awareness, attitude, and socially responsible plate food consumption behavior perform in the domain of theory of self-congruity and theory of symbolic interactionism.

1.4 Purpose of the Study

The purpose of this study is to investigate the socially responsible plate food consumption model in Malaysia with respect to consumer self-concept and consumer awareness that identifies the influence of consumer congruity between self-concept and consumer awareness on consumer attitude towards socially responsible plate food consumption. It elaborates that the relationship of consumer self-concept and consumer awareness congruity in consumer personality influenced consumers' eating habits. In turn, consumer self concept and consumer awareness influenced consumer socially responsible plate food consumption attitude and behavior. It is worth noting that a model was developed and tested, which included the self-concept's multi-dimensions as religious self, feared self, altruistic self, and similarly, consumer awareness included hunger awareness, environmental awareness, economic awareness, landfill awareness, and water shortage awareness. In other words, the present model examines the mediator role of attitude among consumer self-concept, consumer awareness and socially responsible plate food consumption behavior.

Results from the current study on the socially responsible plate food consumption shall shed light on plate food waste in response of irresponsible plate food consumption. The information generated included religious self, feared self, altruistic self, hunger awareness, environmental awareness, economic awareness, landfill awareness, and water shortage awareness issues. The data collection process incorporated paper and pencil survey in an effort to ascertain the experience that contributed to the respondents' self-concept and awareness.

1.5 Research Questions

The purpose of present study was to verify the research model related to socially responsible plate food consumption. Therefore, consumer self-concept, consumer awareness, congruity between self-concept and consumer awareness and attitude variables shall be analyzed to test the model for socially responsible plate food consumption: To address the purpose of the study, four research questions are addressed below:

RQ1: Are self-concept and consumer awareness constructs of socially responsible consumption behavior?

RQ2: Do consumer self-concept and consumer awareness influence the attitude and socially responsible consumption behavior?

RQ3: Does attitude mediates among consumer self-concept, consumer awareness and socially responsible plate food consumption?

RQ4: Do the congruity of consumer self-concept and consumer awareness influence the plate food waste attitude?

1.6 Research Objectives

The following research objectives were developed based on the background of the study, problem statement and research questions:

- i. To identify and validate the structure of consumer self-concept.
- ii. To identify and validate the structure of consumer awareness.
- iii. To identify and validate the congruity between consumer self-concept and consumer awareness.
- iv. To investigate the influence of consumer self-concept and consumer awareness on attitude and socially responsible plate food consumption behavior.

- v. To investigate the mediating role of attitude between consumer self-concept, consumer awareness and socially responsible plate food consumption.
- vi. To investigate the self-awareness congruity influence on consumer attitude towards socially responsible plate food consumption.

1.7 Conceptual Framework of the Study

The proposed conceptual framework of this study is shown in Figure 1.1. The framework represents the structural association between self-concept, consumer awareness, congruity of self-concept and consumer awareness, attitude and socially responsible plate food consumption behavior. It displays the assumption that consumer socially responsible plate food consumption behavior is influenced by self-concept, consumer awareness and self-concept and consumer awareness (sc-ca) congruity; as well as the mediating role of attitude on the relationship between self-concept and socially responsible plate food consumption, consumer awareness and socially responsible plate food consumption, and self-concept and consumer awareness (sc-ca) congruity – socially responsible plate food consumption them. Correspondingly, congruity of self-concept and consumer awareness influenced attitude. Consumer self-concept includes religious self, feared self and altruistic self, and consumer awareness encompasses hunger concern, environmental concern, economic concern, landfill concern and water-shortage concern. The relationship between the variables is presented in Chapter 3.

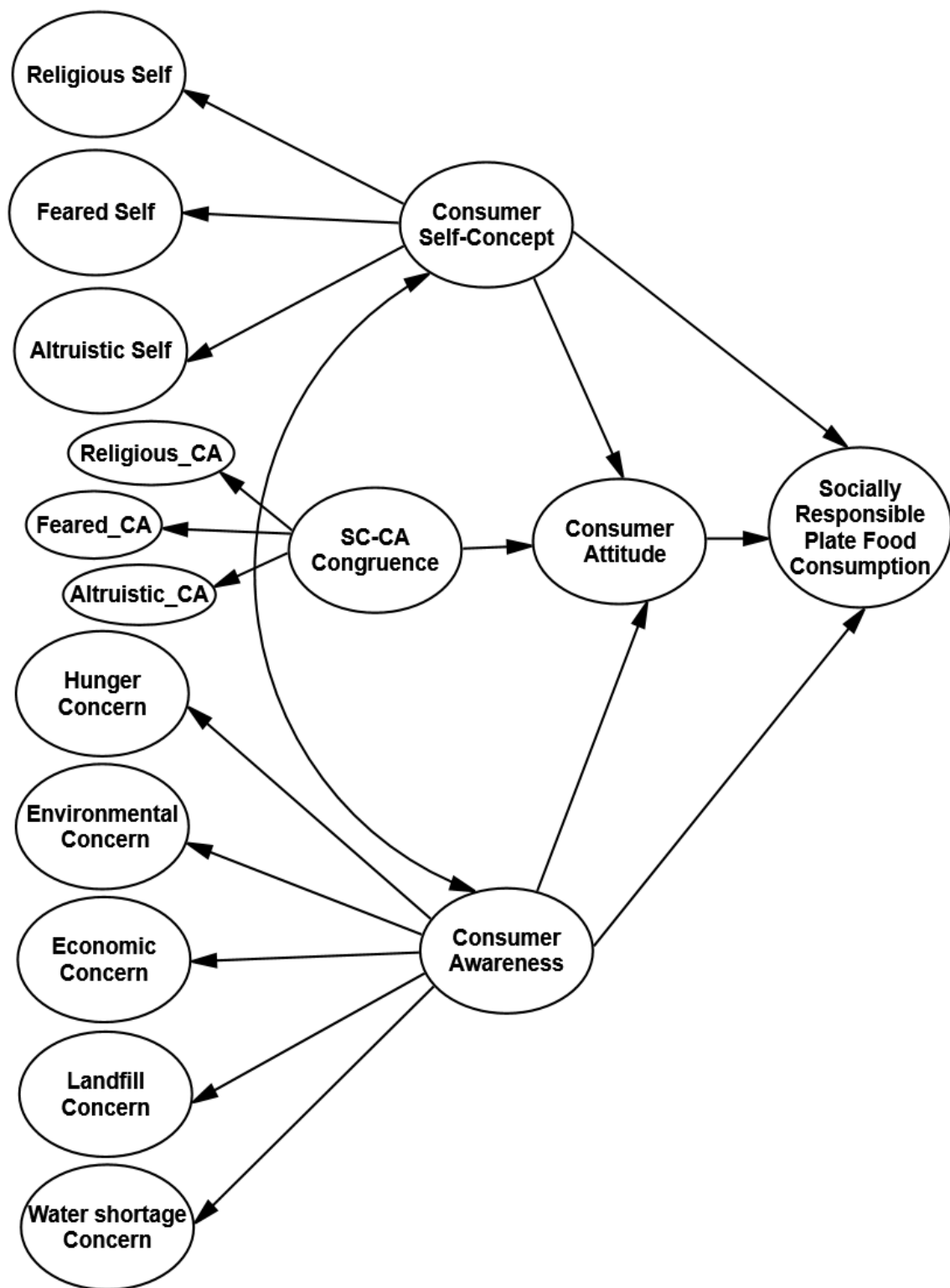


Figure 1.1: Conceptual Framework

Source adapted from: (Li, 2009)

1.8 Research Gaps

Three significant research gaps as have been traced out from the associated literature of this study which were theoretical, conceptual and contextual in nature.

In prior studies, theory of symbolic interactionism discussed self-concept in psychology (Dewey, 1952; Cooley, 1964; Mead, 2009; Wiebe, Durepos, & Mills, 2010). Self-concept is a dimensional construct in marketing study (Sirgy et al., 1982). Numerous researchers discussed self-concept as a multi-dimensional construct with the aid of actual self and ideal self factors in symbolic interactionism theory (Dolich, 1969; Landon, 1974; Belik & Landon, 1977; Hong & Zinkhan, 1995; Ericksen, 1996; Ekinci & Riley, 2003). Besides, three factors actual self, ideal self and social self had been used in the theory of symbolic interactionism in marketing studies (Malhotra, 1998). Recently, various marketing researchers used self-concept with four factors which are actual self, ideal self, social self and ideal social self (He & Mukherjee, 2007; Li, 2009). There were a few studies that discussed self-concept beyond actual self, ideal self, social self and ideal social self factors (Li, 2009). Nevertheless, a huge gap exists in the theory of symbolic interactionism for marketing studies.

Though the theory of self-congruity has been extensively studied in marketing, all the studies discussed self-congruity between consumers self-concept and brand image, loyalty personality, advertisement, brand satisfaction (Sirgy et al., 1997; Ekinci & Riley, 2003; Kressmann et al., 2006). Some researchers developed the consumer self-congruity between consumer self-concept and destination image in service marketing (Chon, 1992; Litvin & Goh, 2002; Litvin and Kar, 2003; Kastenholtz, 2004; Beerli et al., 2007). Hence, the theory of self-congruity has an extensive gap in the literature to develop the congruity between consumer self-concept and awareness.

The literature on Theory of symbolic interactionism and theory of self-congruity talks about selected consumer concepts such as actual self, ideal self, social self and ideal social self (Li, 2009). Several experts on self-concept construct disclosed that human personality contained a number of self-concepts that enhanced the positive attitude and behavior (Taylor, Peplau & Sears, 1997). To date marketing literature related to consumer self-concept is filled with four factors. Thus, most conceptual models that are based on consumer self-concept are based on actual self, ideal self, social self and ideal social self. There are vast conceptual gaps exist to make more strengthen the theory of symbolic interactionism and theory of self-congruity with different selves in consumer behavior.

In terms of commercial marketing and social marketing contexts, self-concept and consumer awareness have both been associated with commercial marketing context. Number of researchers enlarged the self-concept construct for product and service marketing (Chon, 1992; Quester et al., 2000; Goh, 2002; Litvin Litvin and Kar, 2003; Ekinci & Riley, 2003; Back, 2005; Kressmann et al., 2006). Likewise, prior studies of consumer awareness explored the rights of consumers at market place during consumer purchase process. Five factors of consumer awareness were focused on, which were product knowledge, bargain hunting, general consumer knowledge, price consciousness and information search (Rousseau & Venter, 1993; Makanyeza & Du Toit, 2015). However, there exists extensive contextual gap between commercial marketing and social marketing. There is need to discuss the consumer self concept and consumer awareness in social marketing prospective.

There are many plate food waste studies in the Western context which are specific to schools, colleges, universities, and hospital cafeterias (Hong & Kirk, 1995; Buzby & Guthrie, 2002; Sargeant, 2010; Diaz & Carcia, 2013). There is a need to develop more

models of plate food waste, which would focus on household plate food consumer. Similarly, though plate food waste research has already continued to develop, yet up to now, there are hardly any household plate food waste models available to socially responsible plate food consumption. There is need to develop the socially responsible plate food consumption model in the Malaysian context.

1.9 Contribution of the Study

In contribution relating to literature, most of the studies used the consumer self-concept with four facets including actual self, ideal self, social self and ideal social self for establishing the relationship between consumer attitudes towards the purchase of small cars, advertising, brand choice and brand preference (Jacobson & Kossoff, 1963; Chang 2002). More importantly, researchers proved that consumer self-concepts influenced the consumer attitude toward the purchase of a product, ad, brand choice and preference (Sirgy et al., 1997; Ibrahim & Najjar, 2008). However, present study contributes in consumer attitude with respect to socially responsible plate food consumption behavior.

Prior studies elaborate the consumer awareness construct in commercial marketing prospective for consumer rights at the marketplace (Rousseau & Venter, 1993; Makanyeza & De Toit, 2015,). Based on those studies, consumer awareness recognized with five dimensional constructs bargain hunting, general consumer knowledge, product knowledge, information search, as price consciousness. Besides those, social marketing studies have also focused on consumer awareness with a number of factors, for example, hunger awareness, environmental awareness, economic awareness, landfill awareness and water-shortage as a uni-dimensional factor in earlier marketing's studies. Present study contributes to the consumer awareness as a multidimensional construct with the support of hunger awareness, environmental awareness, economic awareness, landfill awareness and

water-shortage factors in social marketing prospective towards socially responsible plate food consumption.

Present study contributes to the literature of self-concept constructs such as religious self, feared self, altruistic self; consumer awareness; hunger concern, environmental concern, economic concern, landfill concern, and water shortage concern, attitude and socially responsible consumption behavior. Similarly, congruity of self-concept and consumer awareness contribute to self-congruity literature by using social marketing perspective.

Earlier studies developed the relationship between consumer self-concept and consumer product image (Birdwell, 1968; Dolich, 1969; Landon, 1974, Belch & Landon, 1977; Malhotra, 1988; Hong & Zinkhan, 1995; Ericksen, 1996; Sirgy et al., 1997; Quester et al., 2000; Ekinci & Riley, 2003; Back, 2005). This study is unique in the relationship between consumer self-concept and consumer awareness.

One of the main contributions of this study is the development of congruity between consumer self-concept and consumer awareness and establishment of the self-congruity construct to test the effect on consumer attitude towards socially responsible plate food consumption. This study has significantly developed a new model based on the Theory of Self Congruity (TSC) and Theory of Symbolic Interactionism (TSM). Theory of Self Congruity (TSC) has been utilized with the relationship of self-concept and consumer awareness towards socially responsible plate food consumption. Theory of Symbolic Interactionism (TSM) has been utilized with three dimensions of self-concepts in social marketing context. However, this is the first time that these three dimensions of self-concepts (i.e., religious self, feared self, altruistic self,) are used in consumer self-concept construct and later have been tested through Theory of Symbolic Interactionism (TSI).

Moreover, the consumer congruity of self-concepts and awareness developed in the lanes of Theory of Self Congruity (TSC) for socially responsible plate food consumption behavior.

This study is unique in terms of validating empirically the instruments of religious self, feared self, altruistic self, environmental concern awareness, economic concern awareness, landfill concern awareness, water shortage concern awareness, attitude and socially responsible plate food consumption behavior in Malaysian context.

The present thesis is the study that has through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (with the help of Analysis Of a Moment Structures (AMOS)) validated consumer self-concept consumer awareness, attitude and socially responsible plate food consumption in the context of food waste management in Malaysia.

Earlier studies examined the hunger concern awareness through web surveys which were used as non-validated scale. Therefore, this study is unique as it helped develop the hunger concern awareness scale that was validated into Malaysian context.

The role of attitude as a mediation between the relationship of consumer self-concept or belief and food consumption behavior was studied in Asian and Western contexts. Most of the studies discussed the consumer attitude towards fast food consumption behavior (Cabuk, Tanrikulu & Gelibolu, 2014; Bianchi & Mortimer, 2015). For the first time, in this thesis, consumer attitude is examined as a mediating construct in the relationship of consumer self-concept and socially responsible plate food consumption, and also between consumer awareness and socially responsible plate food consumption in the context of the Theory of Symbolic Interactionism and Theory of Self congruity in social marketing in Malaysia.

The majority of the studies of socially responsible consumption were conducted on product consumption perspective (Francois-Lecompte, 2006; Lau, 2010; Adomaviciute, 2013; Karlaite & Tamosiunaite, 2013). This study has attempted to investigate the concept of socially responsible consumption of plate food.

1.10 Significance of the Study

The present study is significant in a number of ways. This section presents the significance of the study from the theoretical and practical perspectives. Firstly, the theory of symbolic interactionism and the theory of self-congruity have been explored to a great extent in consumer behavior studies (Li, 2000). These theories extensively examined the consumer congruity between self-concept and brand personality (Jamal & Al-Marri, 2007; Ekinici et al., 2008; Ibrahim & Najjar, 2008). Often, self-concept construct utilized as a multidimension construct with actual self, ideal self, social self and ideal social self facets (He & Mukherjee, 2007; Li, 2009). Self-concept construct has not been employed in the context of social marketing. However, little study so far has explored any the above theories to examine the socially responsible consumption specifically in plate food waste context.

Secondly, the literature (presented in Chapter 2) review uncovered that the multidimensional self-concept and awareness constructs have been examined to great extent in consumer behavior for commercial marketing (Chon, 1992; Litvin & Goh, 2002; Kastenholz, 2004; Kwak & Kang, 2009), but a similar extension may be enhanced on the social marketing to examine the relationship between self-concept, consumer awareness, congruity of self-concept and awareness, attitude and socially responsible consumption. Therefore, self-concept and awareness are essential for the positive change in consumer

attitude and behavior (Sirgy et al., 2006), and researchers have identified its influence on consumption (Giovannini, 2012).

Thirdly, the literature review (presented in Chapter 2) also showed that the term socially responsible consumption and its elements have been examined in the consumer behavior in various industry bases, mostly in developed country. This limits generalizability of the findings because the self-concept and awareness of a developing country may influence consumer's socially responsible plate food consumption. To date, limited study has been conducted as an exemplar of a developing country to develop a socially responsible plate food consumption framework with the aid of congruity of self-concept and consumer awareness. Therefore, this study is significant for consumer's plate food to minimize the waste through socially responsible plate food consumption framework.

1.11 Research Scope

The Malaysian population has exceeded the 31.7 million (Department of Statistics Malaysia, 2016), and was identified one of those countries of Asia that have abundant food waste (Jaafar, 2014). The target audience were selected from major cities in Sarawak, East Malaysia, which is appropriate as it was the fifth biggest state of Malaysia in terms of food wastage (Agamuthu & Fauziah, 2011). As both male and females have similar inclinations towards household plate food consumption, hence, both are included in the scope of study (Norimah et al., 2008).

1.12 Definition of the Terms

Present study established the research model based on five variables which were consumer self-concept, consumer awareness and the congruity of consumer self-concept and

consumer awareness which were multidimensional, and consumer attitude and socially responsible plate food consumption behavior which were single dimensional. However, the definitions of multidimensional and single dimensional constructs are explained below.

Self-Concept: The term self-concept and self-image is used interchangeably in the literature (Li, 2009). Rosenberg (1979, p. 7) noted self-concept as the “totality of an individual’s thoughts and feelings having referred himself as an object”. The present study developed the model with the aid of consumer religious self, feared self and altruistic self for socially responsible plate food consumption which has been explained below:

- **Religious Self:** The religious self-concept means one who pays attention to the needs and wants of others in a positive way (Flynn & Black, 2010).
- **Feared Self:** Refers to an anxiety over what one fears one may become. The feared self is liable to be one such avoidant thought process that starts positive self-change (Paternnoster & Bushway, 2009).
- **Altruistic Self:** Altruistic self refers to an individual faith to do something good for greater benefits of someone for charitable engagement irrespective of unselfishly and selfishly (Padgett, 2011).

Consumer Awareness: The rights of an individual, being a consumer, related to available products and services that are marketed and sold. Those rights consist of four concepts such as safety, choice, information and the ability to hear. Additionally, in commercial marketing, consumer awareness is a process to give the rights to consumers for their purchase in term of safety, choice, be informed, information, and redressal (Du Plessia, Rousseau & Blem, 1994; Rousseau & Venter, 1995). Nonetheless, consumer awareness construct has been used with four dimensions which are hunger concern awareness,

environmental concern awareness, landfill concern awareness, economic concern awareness, and water shortage awareness for the social marketing domain in this study.

Each of the dimensions are explained below separately:

- **Hunger Concern Awareness:** The concept of hunger awareness is separated into two states of human which are, firstly, an uneasy or painful sensation due to lack of food; and secondly, involuntary deficiency of food access (Wunderlich & Nordwood, 2006).
- **Environmental Concern Awareness:** The ultimate goal of environmental awareness is to disseminate the knowledge which relates to environmental related problems (Shobeiri, Omidvar, & Prahallada, 2007) to secure the environmental resources such as air and water.
- **Landfill Concern Awareness:** The concept of landfill awareness is elaborated as the dissemination of awareness that relates to landfill due to wastage of food in the localities (Behera et al., 2010).
- **Economic Concern Awareness:** Economic awareness explains the individuals' information, understanding and insights that relate to the economy. Specifically, it indicates how the national economy works, how it influences society and what would the impact of individuals be on the economy (Rutten, 2013; Payingfort, 2015).
- **Waters Shortage Concern Awareness:** The concept of water shortage awareness is explained as the encouragement of awareness and vulnerability to social groups of people, individuals and the surroundings (Braus, 1995; Keles, 2007).

Self-Congruity: Self-congruity is a psychology term and a process of cognitive matching with the self-concept of consumer in product-user image (Sirgy, 1982, 1985). In the present study, self-congruity is explained in the context of consumer cognitive matching process between consumer self-concept and consumer awareness, congruity of self-concept and awareness. In the same way, the study explores the three aspects of congruity between religious self and consumer awareness, feared self and consumer awareness, and altruistic self and consumer awareness which are discussed below:

- **Congruity between Religious Self and Awareness:** The process of cognitive match between a consumer's self-concept as religious self-concept and the consumer awareness (Li, 2009).
- **Congruity between Feared Self and Awareness:** The process of cognitive matching between a consumer's self-concept as feared self-concept and consumer awareness (Li, 2009).
- **Congruity between Altruistic Self and Awareness:** The process of cognitive matching between consumer's self concept as altruist self-concept and the consumer awareness (Li, 2009).

Consumer Attitude: Attitude that helps the consumers assess the attributes and benefits related to various products and make favorable or unfavorable decisions towards products (Tamboli, 2008).

Plate Food Waste: Plate food waste is known as the quantity of edible portion of food that is discarded by the consumer during eating process (Buzby & Guthrie, 2002).

Socially Responsible Consumption Behavior: Socially responsible consumption behavior means a behavior that satisfies the consumer need along with the welfare of the society, better use of natural resources and environmental protection in consumer behavior. Antil (1984) defined it as “one who purchases product and services perceived to have a positive or negative influence on the environment or who patronizes businesses that attempt to effect related positive social change" (Robert, 1995).

1.13 Outline of the Study

Chapter 1: **Introduction** examines the concept of socially responsible plate food consumption, background of the study, purpose of the study, problem statement, research questions, research objectives, theoretical framework, contributions, significance, scope and limitations of the study.

Chapter 2: **Literature Review** focuses on research related theories, and reviews all the key constructs, namely, self-concept, consumer awareness, congruity of consumer self-concept and consumer awareness, attitude and socially responsible plate food consumption.

Chapter 3: This chapter presents the **Research Gaps and Hypothesis Development**, which include the gaps concerning the constructs used for theoretical framework traced out from the literature, the relationships between the highlighted constructs supported by existing literature, and the conceptual framework developed .

Chapter 4: **Research Design** covers the research philosophy and to be followed the research approach in this study. This chapter includes the rationale for the quantitative approach to this study, population, sample, response rate, unit of analysis, selection of respondents; construct measurement, instrument of research, survey, and data analysis tools for quantitative data.

Chapter 5: **Data Analysis and Findings** encompasses five steps such as data screening, exploratory factor analysis, confirmatory factor analysis, congruity measurement, and structural model. First step, data screening covers the data cleaning, normality of data, descriptive statistics and demographics. Second step, all constructs' measure are tested for validity through exploratory factor analysis. Third step, all constructs measure are assessed as a first order and second order confirmatory factor analysis (CFA). Fourth step, the congruity between consumer self-concept and consumer awareness in the confirmatory measurement model are measured. The proposed model is tested in structural equation modeling (SEM) with overall measurement and structured model. More importantly, the overall fit of the structured model to the data and theories is verified. All the constructs' validities and reliabilities have been demonstrated based on exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) in this chapter. In fifth step, overall measurement model and structure are tested through structural equation modeling (SEM). In addition, the hypothesis testing process is also studied in this final step of the chapter.

Chapter 6: **Discussion and Conclusions** are based on the results and findings. The results are discussed with the support of other researcher's findings on attitude and behavior. It emphasizes the reasons for the deviation in the findings of this thesis with the ones that have been carried out before. The implications are discussed in two prospective which are theoretical implications and practical implications. At the end of this chapter, limitations, future directions and conclusion are presented.

1.14 Chapter Summary

This chapter presents the discussion of the plate food wastage towards socially responsible consumption behavior particularly in the Malaysian context. Additionally, this chapter

consisted of the background of the study, the purpose of the study, problem statement, research questions, research objectives and contribution of the study. In a nutshell, this chapter highlighted the picture of what the study is about, in what ways it was done, and how the academicians and social marketers will benefit from this study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature relevant to the development of the conceptual model tested in this study. Firstly, a brief review of the literature on the socially responsible consumption, household food consumption and socially responsible plate food consumption is presented. Secondly, consumer attitude review for the previous literature is provided. Thirdly, a review of previous literature on consumer awareness offers a foundation for understanding the reconceptualization of consumer awareness dimensions. Fourthly, a review of the previous literature on consumer self-concept development and a foundation for understanding the re-conceptualization of consumer self-concept dimensions. Next, relationships are explored between consumer self-concept and consumer awareness for congruity development through earlier self-congruity studies. Finally, governing theories for the study are discussed in this chapter.

2.2 Consumption Behavior

Generally, consumer behavior centers around market purchase and acquisition, but consumption in its extensive sense comprises not only acquisition of goods, but also their use and disposal (Stephens, 1985). Jacoby et al. (1977) explained that consumer behavior contained the “acquisition, consumption, and disposition of goods, services, time and ideas by decision making units”. The present study concentrates on two sections of consumption behavior. First, socially responsible consumption with its measures, and secondly, plate food consumption.

2.2.1 Socially Responsible Consumption Behavior

It is valuable to initiate the discussion of socially responsible consumption by defining the concept and its likely origins, though, the definitions are similar and operationalization of the construct very extensive. Socially Responsible Consumptions performed the key role in the consumption of products in consumer behavior under the development of marketing (Stephens, 1985). Responsible consumption of product is significant for consumers as well as companies. So far, there are many definitions of socially responsible consumption written by different researchers. Many definitions of socially responsible consumption are outlined by previous researchers. Mohr et al. (2001, p. 46) stated socially responsible consumption is based on the corporate social responsibility (CSR) concept, where “a person basing his or her acquisition, usage and disposition of products on a desire to minimize or eliminate any harmful effects and maximize the long-run beneficial impact on society”. Roberts (1995) defined that “one who purchases product and services perceived to have a positive or negative influence on the environment; or who patronizes businesses that attempt to effect related positive social change”. Roberts (1995) also suggested two perspectives of socially responsible consumption - the environmental perspective and social perspective. Lue (2010) explored the current environmental problems and their association with consumer consumption behavior and lifestyle, and found that consumer responsible consumption sustained the drastic change of environment.

Socially responsible consumption means satisfying consumer needs along with the welfare of the society, and better use of natural resources and environmental protection in consumer behavior (Ozkan, 2009). Gabriel and Lang (1995, p. 140) defined that “one who purchases product and services perceived to have a positive or negative influence on the

environment or who patronizes businesses that attempt to effect related positive social change.

As per Roberts (1995) definition, there are two dimensions of socially responsible consumption, which are environmental perspective and socially perspective. Lue (2010) identified religion is significantly related to the three dimensions of socially responsible consumption (i.e. Corporate socially responsible performance (CSR), Consumer Recycling behavior and environmental impact purchase and use criteria). It should be noted that the concept of responsible consumption has been used with numerous names such as green or organic consumption, healthy consumption, sustainable consumption, efficient or rational consumption, ethical or activist consumption, conscious consumption, and socially responsible consumption (Durif et al., 2011). Nevertheless, table 2.1 which contain comprehensive responsible consumption concept profile, which several researchers (Honkanen et al., 2006; Freestone & McGoldrick, 2007; Fontelle, 2010; Durif et al., 2011) composed to clear this concept.

Table 2. 1: Different profiles of Socially Responsible Consumption

Profiles of Consumption	Explanations
Green or organic Consumption	• avoids products that might endanger the health of the consumer or others; causes significant damage to the environment during its manufacture, use or disposal; consumes a disproportionate amount of energy; causes unnecessary waste; uses materials derived from threatened species or environments; involves unnecessary use or cruelty to animals (or) adversely affect other countries; • avoids products which are produced with pesticides, herbicides, inorganic fertilisers, antibiotics and growth hormones (animal welfare is important, and bioengineering and genetically modified foods are not accepted); • seeks to preserve nature;
Healthy Consumption	• preserves health;
Sustainable Consumption	• tries to guarantee that resources are not going to come to an end;
Efficient or Rational consumption	• are consumed at minimum necessary amounts;
Ethical or Activist Consumption	• involves beliefs and values aimed at supporting a greater good that motivates consumers' purchases; • is seen as a conflict area (only exists as a collective movement);
Conscientious Consumption	• concerns with the individual impacts on consumption;
Responsible Consumption	• tries not to cause damage; includes all the previous categories;
Socially Responsible Consumption	• purchases products perceived to have positive (or less negative) influence on the environment or patronize that attempt to effect related positive social change (two distinct aspects: the environmental aspect and the social aspect).

Source adopted from: Karlaitė & Tamošiūnaitė (2013, p. 259)

Antil (1984) claimed that socially responsible consumption is a significant prerequisite for unpaid conservative programs. Kopnina (2011) concluded the practices and perception of consumption are absent in children; even though the consumption behavior and environment awareness are much correlated with each other in one's life. In this regard, consumption and environment education is very necessary in children's education. Additionally, Leigh, Murphy, and Enis (1988) narrated the socially responsible consumption with seven dimensions which are (1) Ecological Impact; (2) Societal Impact; (3) Product performance; (4) Product extension; (5) Product information; (6) Product design; and (7) Product embellishment, in different areas of socially responsible consumption like general, beverage container, automobile engine and hair styling. There are various definitions of socially responsible consumption behavior. However, socially responsible consumption experts developed a number scale in relation to their concept.

Kassarjian (1971) developed the open-ended questionnaire to measure socially responsible consumption. The focus of that questionnaire was on air pollution. The questionnaire consisted of three questions connected to air pollution. Those three items were highly correlated to each other and produced significant results when processed separately.

Tognacci et al. (1972) used a seven-likert scale 89 items questionnaire to determine the extent of concern for environmental quality based on seven dimensions; 1) importance of pure environment, 2) attainment of pure environment, 3) conservation , 4) pollution, 5) power plant, 6) individual population control, and 7) Overpopulation.

Kinnear and Taylor (1973) developed the index of ecological concern socially responsible consumption measurement which contained both open ended and closed ended items. The items had reliability tested through item total correlation and gamma statistics

and validity tested via construct validity method. Kinnear and Taylor (1973) made this scale using 500 respondents with 72% response.

Kinnear and Taylor (1974) established the socially responsible consumption behavior scale in the context of ecological purchasing behavior. The measurement consisted of five dimensions as laundry product, gasoline, soft drinks, recycling glass, and shopping pattern. The measure used the dichotomous scale. The reliability and validity of the measure were tested through inter item correlation and gamma statistics. There were 500 respondents with 72% response rate measured for socially responsible consumption.

Webster (1975) measured the consumer social consciousness in socially responsible consumption context, using three factors, which are 1) socially responsibility scale, 2) socially conscious consumer index and 3) recycling – subscriber list from recycling service and measure with sixteen items and observation. On the basis of correlation analysis, a significant reliability was found. Webster (1975) developed the socially responsible scale with the aid of 227 respondents with 53.5 percent response rate.

Overall, measurement of the socially responsible consumption was conducted at a large scale with the help of surveys designed to assess the behavior. Earlier researchers' efforts to pretest or validate their instruments ranged from minimal or no validation to impartially difficult scale constructs and testing. In this regard, Antill (1978) developed the socially responsible scale with 40 items which appeared to be the most carefully derived measure with intentions concern and social issues dimensions. This scale is made reliable after factor analysis, guttman lamda, and coefficient alpha, similarly validated with t-test.

2.2.2 Household Food Waste

Large production of household waste is caused by growing population, rapid development, up-grading living standards and urbanization (Mahar et al., 2007). Generally, household waste is defined as things wasted during household activities (Mbande, 2003). Household food waste is the main contributor to municipal solid waste all over the globe (Karak et al., 2012). It is a combination of several types of waste generated at household level on a daily basis (Griffin et al., 2009; Quested et al., 2011). Household wastes mostly consist of food waste. Numerous studies were conducted to measure the household food waste annually per person (Katajajuuri, 2013), due to food wastes impact on the environment and economy of each country in the world. As researchers investigated the main reasons of food waste, they also found household food waste was the leading cause of overall household waste (Cox & Downing, 2007).

In average, about 40% household wastes were food that were not consumed by consumers (Quested & Johson, 2009). According to 2015, approximately, 7.3 million tons of food were wasted by British household consumers yearly (Cowburn, 2017). Likewise, Swedish Waste Management Association (2005) found that Swedish households wasted about 100 kg to 116 kg per household in a year. In the context of Bangladesh, while comparing the food waste quantity between households and other stages like supply chain and retail, household consumers produced much higher quantity than other places (Anonymous, 2000).

2.2.3 Responsible Plate Food Consumption Behavior

Responsible plate food consumption is devoted with the minimum waste of food from the plate during the time of consumer consumption (Cohen et al., 2014). The responsible plate

food consumers are those who are careful about smallest portion of food waste at plate (Nichols et al., 2002; Adams et al., 2005). It is important to explain the term plate food waste for responsible plate food consumption behavior. The plate food waste term is defined differently by various authors. Plate food waste is the available portion of food on the plate that is discarded by the consumer (Buzby et al., 2009). Correspondingly, portions of food that consumers discarded have been estimated with a various methodologies; and additionally the terms were used interchangeably with the portion of food served which is uneaten, quantity of calories uneaten, and amount of nutrients uneaten (Buzby & Guthrie, 2009). Commonly, plate food waste has become the main cause of overall food waste by irresponsible consumers at plate food consumption level (Kantor et al., 1997).

The responsible plate food consumption studies were conducted in various places such as school, colleges, universities, hospitals, hotels and restaurants (Lily, Saimy & Maimunah, 2005). Existing literatures on responsible plate food consumption also highlighted consumer plate food waste behavior (Comstock et al., 1979; Narducci, 1986; Sanchez & Contreras, 2003; Buzby & Guthrie, 2009) and patient plate food waste in hospitals (Hirsch et al., 1979; Frakes, Arjmandi & Halling, 1986; Deutekom et al., 1991; Al-shoshan et al., 1992; Edwards & Nash, 1997; Williams & Walton; 2011; Diaz & Garcia, 2013). Meanwhile, many of the researchers conducted studies to evaluate consumer responsible plate food consumption calibrated with discarded plated food by consumers in college and university cafeterias (Graves & Shannon, 1983; Kirks & Wolff, 1985).

In 1979, plate food waste was measured in institutional feeding systems of the National Lunch Program and School Breakfast Program through three methods such as individual plate food waste, aggregated selective plate food waste, and visual estimation. It

was found that individual plate food waste was twice or thrice higher in intensity than aggregated selective plate waste and visual estimation methods (Comstock et al., 1979). Comstock et al. (1979) concluded that the measurement of food waste by aggregated selective plate food waste was much faster than individual plate food measure.

However, plate food waste made up the major chunk of overall food waste (Comstock et al., 1979). There are a few strategies that were discussed in previous literature to decrease the plate food waste at commercial food services and household level, among which are to offer instead of serve provision, rescheduling lunch, improving quality of food, nutrition education, tailoring portion sizes to appetite and needs, customization of serving sizes and self-service (Kantor et al., 1997; Buzby & Guthrie, 2002).

2.3 Consumer Attitude

Consumer attitude is one of the facets was vastly identified in the field of marketing literature. Triandis (1971) provided a comprehensive explanation of attitude which comprised of three factors such as: Cognition (belief of consumers regarding object), affect (feeling of consumers regarding object), and connotation (consumers' intention and real behavior regarding object). Arnould et al. (2002) defined that attitude was a long-term process of assessment of a concept which contained objects, persons, services and brands. Moreover, the term attitude was acknowledged to be one of the important factors to elaborate why consumers were concerned in responsible and ethical behavior such as plate food waste. Attitude towards a behavior would influence the intention of a person to connect in that behavior (Ajzen, 1985).

In marketing studies, numerous researchers have tested consumers' attitude towards food waste minimization concept (Koivupuro et al., 2012; Stefan et al., 2013; Hansen & Moller, 2013; Nett, Spiker & Truant, 2015; Parizeau et al., 2015). Nett et al., (2015)

discussed that a change of consumer attitude on food wastage has significant consideration for socially responsible food consumption.

A positive attitude towards socially responsible products is a good starting point to stimulate socially responsible consumption (Vermeir & Verbeke, 2006). Numerous studies concentrated on attitude towards socially responsible consumption and socially responsible consumption behavior (Shamdasani et al., 1993; Shrum et al., 1995; Verbeke and Viaene, 1999; Chan, 2001; Bisonette & Contento, 2001; De Pelsmacker et al., 2003; Gordier, 2003; Tanner & Kast, 2003). Overall, about 30% of the consumers have a positive socially responsible consumption attitude (Reheul et al., 2001). These consumers were privileged to pay attention to ecological packaging, the origin of the food products, the absence of genetically modified organism, and regularly bought and consumed food products socially responsibly (Reheul et al., 2001). Socially responsible consumption attitude in consumer provided better respect to taste, quality, safety, and was more beneficial in respect to human health, environment, society, and regional economies (Reheul et al., 2001).

Shiu et al. (2009) elaborated the attitude concept that a mindset could not experience directly. In a broad context, attitude means a feedback of an individual to a response of an object (Friman, 2010). Furthermore, Vermeir and Verbeke (2006) found that in general consumers were convinced by peers and family to be responsible in food consumption than from their own attitude. However, authors concluded positive attitude towards socially responsible consumption was preferred to enhance the socially responsible food consumption behavior in the consumers (Vermeir & Verbeke, 2006).

Marangon et al. (2014) identified consumer attitude with respect to reduced food waste in Italy as the main component in consumer personality that developed the consumer socially responsible consumption behavior. Consumer attitude towards quantity of food

waste is dependent on consumer awareness related to quantity of food produced daily by each household in Italy. In a nutshell, researchers found that consumer attitude is an important construct that contributed significantly to produce consumer sustainable food consumption behavior.

2.4 Consumer Awareness

Generally, before explaining the consumer awareness concept to define the consumer it is necessary to understand its meaning. The consumer is defined “as any individuals or household utilizing good and services generated within the economy” (Azrina et al., 2011). Whereas, in the previous literature, the concern of consumer awareness in marketing taken into different understandings. Rousseau and Venter (1993) introduced Consumer awareness into a combination of various concepts such as:

- The consumer knowledge about product quality that he or she going to be purchase by himself or herself.
- The consumer education related to various kinds of threats and problems on product quality and marketing. Consumer education is disseminated through product advertisement via newspapers, television etc.
- The consumer knowledge of ‘Consumer Rights’, where firstly, consumers should know that they have a right to purchase the right type of product; and secondly, in case of faulty products, consumers should have knowledge of compensation claims according to the law.
- The consumer knowledge related to their own responsibilities, which refers to the consumer must not be involved in an extravagant, wasteful and unnecessary consumption of product and services.

Several studies demonstrated that consumer awareness sets an important influence on diverse types of effective consumer behaviors (Dommeyer & Gross, 2003; Chartrand 2005; Coulter & Coulter, 2005; Thomas & Mills, 2006; McEachern & Warnaby, 2008; Hartlieb & Jones 2009; Donoghue & De Klerk, 2009).

Numerous researchers conducted studies to know the rights of a consumer which companies give to their consumers (Rousseau & Venter, 1993; Makanyeza & De Toit, 2015). In this concern, several studies conducted in different countries to elucidate the consumer rights in the market place (Rousseau, 1992; Rosseau & Venter, 1995; Makanyeza & De Toit, 2015). About five factors of consumer rights namely bargain hunting, general consumer knowledge, information search, product knowledge, and price consciousness, were confirmed in many of the prior studies in commercial marketing perspective (Makanyeza & De Toit, 2015).

Consumer awareness with respect to food waste is based on five types of awareness namely hunger, environmental, economic, landfill and water shortage. From these awareness, environmental awareness has extensive literature that determined “what consumer knew about the environment, how they felt about it, and what critical actions they took to help or harm the environment to establish a sustainable community” (Sudarmadi et al., 2001; Abdul-Wahab, 2010). The awareness of the environment is a crucial step to develop the human mind to solve environmental issues related to food waste (Ramsey et al., 1992).

The environmental issues were assumed to be only from the economic and technical dimensions (Tuna, 2004). Still, a relationship was found between the environment and society, where the society directly influenced the environment and disturbed the balance of the environment. In the previous decades, environmental issues

were identified not only in their economic and technical dimensions but also in their societal dimension (Tuna 2004). The solution for environmental problems were found in the changes of human behavior (Abdul-Wahab, 2010), and consumer awareness was found to be the main factor to control human behavior for social change (Liu, Anderson & Cruz, 2012). The present study undertakes consumer awareness through five dimensions which are hunger concern awareness, environmental concern awareness, economic concern awareness, landfill concern awareness and water shortage concern awareness; which were tested in several studies separately. Therefore, each awareness dimensions is discussed below.

2.4.1 Hunger Concern

Hunger concept is normally used interchangeably with food security (Wunderlich & Norwood, 2006). The concept of hunger is divided into two states which are an uneasy or painful sensation due to a lack of food; and involuntary deficiency of food access (Anderson, 1990). Further, Holben (2005) explained the concept of hunger through the combination of many definitions. However, several definitions were developed with four dimensional hunger definition: “1) a motivational drive, need; 2) an uneasy sensation felt when one has no food for some time; 3) discomfort, illness, weakness, or pain caused by a prolonged, involuntary lack of food; and 4) the prolonged, involuntary lack of food itself” (Holben, 2005). FAO (2011) elaborated the concept of consumption as the quantity of calories consumed per day by one person. In short, each person needs 1800 kilocalories in a day and those who are taking lower than that level of calories are also identified as hunger. In regards to hunger intensity causes in the world, there were few potential cases discussed in existing literature such as poverty trap, lack of investment in agriculture, climate and weather influence, war and displacement, unstable markets, and food wastage

(WFP, 2016). Therefore, food wastage is one of the core elements that increases the hungry people in the world.

FAO (2015) reported that about 795 million people of the 7.3 billion people in the world or one in nine suffered from malnourishment in 2014-2016. Almost all the hungry people, 780 million, live in developing countries which makes 12.9 percent or one eighth of the developing countries' population. There were eleven million people malnourished in developed countries (FAO, 2014, IFPRI, 2015). Dreze and Sen (1989) argued that hunger is a many-headed monster related to a wide range of deprivations, which are biological, economic and social in nature. Thus, Food waste is attached with a debatable issue at present where hunger amongst the poor is still common (FAO, 2014).

2.4.2 Environmental Concern

It is the leading responsibility to protect the environmental resources (Shobeiri, Omidvar, & Prahallada, 2007). The ultimate goal of environmental awareness is to disseminate knowledge which relates to environmental related problems (Shobeiri et al., 2007) to secure the environmental resources. Wastage of food is a major source of environmental changes. Globally, food wastes are producing a number of gases that proved detrimental for environment (FAO, 2013).

Food waste is a global problem (Lee, 2015, October 21). Unevenly, most of greenhouse gases especially methane are produced from the food wastage (Lee, 2015, October 21). Furthermore, there are also other harmful gases that are produced from food wastes such as nitrogen N_2 , nitrous oxide N_2O , nitrogen dioxide NO_2 , and ammonia NH_3 (Nielsen et al., 2003; Grizzetti et al., 2015).

Aomari (2014) explained that consumers are now more aware of major changes for the planet, and have started taking measures and actions towards protecting the

environment. At this stage, consumers' socially responsible consumption is only at its beginning, which is responsible to collectively and progressively grow consumer awareness to respect environmental degradation. Viardot (1994) highlighted the benefits of the consumer environmental awareness into two considerations. Firstly, it informs consumers about the qualities of a product, and secondly, it helps to build the social legitimacy of business.

Giannelloni (1998) argued consumer consumption pattern is a militant movement and socially responsible consumption consists of directing the consumer to better choose food for daily living. It is a question of having the means to educate the consumers with full awareness in terms of food wastage and its impact on the environment. The opportunity is still open, as consumers are mainly concerned with the environment, and the best way forward for environmental protection is through socially responsible food consumption.

2.4.3 Economic Concern

Economic loss refers when a product fails; it suffers a loss for the economy (Anzivino, 2008). Additionally, a failed product causes three types of damages: economic damages, personal injury damages and non-economic damages (Anzivino, 2008). A huge quantity of food is thrown away everyday over the globe. Food waste has two types of economic losses: the cost of food production; cost of wasted food management; and cost of human health due to food waste diseases. FAO (2013) reported that about 30 to 40% of overall production annually wastage is food wastage. In monetary value, an average household food wastage is equivalent to 470 pounds a year, and increases to 700 pounds for family with children (Love food hate waste, 2016). The amount of food waste in United States of America has reached 162 billion US dollars (FAO, 2016). Approximately, three million

barrels of oil were used per year to produce the electricity for cultivating food in the United States of America, and at the end, most of that food is not consumed (Hall et al., 2009; Francis, 2016). Buzby et al. (2011) highlighted the correlation between food waste and monetary losses. Food wastage is not only a loss in itself, but also a loss to the economy (Buzby et al., 2011). According to Kantor et al. (1997), when edible food is converted into uneaten waste, a lot of economic values are lost.

2.4.4 Landfill Concern

Landfill is known as the coverage of land used for disposal of waste which may not be reused, recycled or recovered (Scottish Environment Protection Agency, 2016). Gunders (2012) identified landfill is a side effect of food waste. Large quantity of leftovers, forgotten produces, and pre-prepared and packaged meals have been sent to the landfills. Therefore, large heaps of garbage are boiling at the boundaries of the localities (Gunders, 2012). Environmental Protection Agency (2010) stated that the wasted food is the sole biggest component of the solid waste that filled the landfills. In the United States of America almost 43.6 million tonnes of food is thrown away each year (US EPA, 2001). The wasted food consisted of uneaten food and food preparation leftovers from homes and commercial establishments such as restaurants; and institutional sources including schools, colleges and university cafeterias (Zhang et al., 2007). Most of the quantity of wasted food filled up the landfills (Carr, 2004). The main issue with landfill is that it occupies the agricultural land that has potential to grow the food for human survival (Nunley, 2013).

Melosi (2005) and Bloom (2010) found that huge quantities of consumer food that were wasted as the result of consumers' socially irresponsible consumption were disposed in landfills. Gunders (2012) stated that large heaps of garbage consisting of food wastes reached the landfills and started the process of incineration which transformed into

methane gasses. Morgan (2009) disclosed that each year 4.2 million tons of food wastes ends up in landfill due to Australians' irresponsible consumption behavior. Almost, 2.7 million tons of wasted food were from socially irresponsible household consumers and 1.5 million from irresponsible consumer at commercial places such as hotel, motel, and restaurants (Morgan, 2009).

Hassan et al. (2001), Kathrivale et al. (2003), and Saeed et al. (2009) revealed that Malaysia is one of those countries which produced a massive quantity of food waste from production to consumer consumption stage. About 60% of solid wastes in Malaysia consisted of food that is the residual of the consumers from the irresponsible consumption behavior. Malaysian food waste management authorities do not separate food wastes from overall solid wastes and dumped them together into landfills (Hassan et al., 2001). There are 289 landfill sites that occupy more and more neighboring lands in Malaysia (Syed Ali, 2009). Lee et al. (2007) noted that due to excessive amounts of food waste generation becoming part of landfill, issues such as foul odor, toxic leachate, emission of greenhouse gases and vermin infestation also arise. Additionally, Otitoju and Seng (2014) found that nearly 70% of solid wastes in Sarawak, Malaysia were disposed using landfill method.

2.4.5 Water Shortage Concern

Water shortage is most significant in the list of world issues which were predicted as current principal challenges to human population (Uchtmann, 2011). At present, the rate of morbidity and mortality were enhanced by both water quantity and quality (Vorosmarty et al., 2010). The world's growing water crises covered approximately 80% of world population (Vorosmarty et al., 2010). Lall (2008) reported that the effect of water shortage is severe in the developing world due to rapid climate change and increasing population.

Awareness of worldwide water shortage is still far in comparison with the size of the issue (Watkins, 2006). Rijsberman (2004, p. 8) discussed the issue of water shortage as “there would be significant increase in water scarcity that will turn ‘water’ into a key or the key limiting factor for food production and livelihood generation for poor people, virtually, throughout rural Asia and most of Africa”.

The understanding of world water shortage crises could be increased by investigating the three types of crises, which are safe drinking water, pollution and degradation, and water scarcity (Lal, 2008). Firstly, safe drinking water involved that water is mainly free from impurity and micro-organisms which commonly cause disease or death (Watkins, 2006). Impurity of drinking water restricts considerably human progress, as approximately near to half of all population in the developing world suffer from health troubles due to purity and shortage of water (Watkins, 2006). Secondly, water pollution is also a source of water shortage. Water pollution is sub-divided into point sources and non-point sources. Point sources are wastage of water from leakage of pipe, while non-point sources are due to over irrigation at farms and alike. Thirdly, water scarcity refers to a situation when the water supply is inadequate in relation to the water demand for basic human and ecological necessities, including the production of food and other economic goods (Lal, 2008). Furthermore, nearly 550 trillion liters of water were successfully used to irrigate the food field to grow what is never eaten (Pope, 2016). Yeomans (2012) stated that consumers have limited awareness of water shortage in the world, because there are some 2.6 billion people who lacked improve sanitation and around 800 million people who lacked access to safe drinking water.

Guli (2012) suggested that raising awareness of water shortage is best decision to make responsible water consumption for combating water scarcity in the world. The

government of China is disseminating the awareness to consumer to be responsible in water consumption. Consumers may not only make direct socially responsible water consumption to cope with water scarcity in the world, but also consume water in a socially responsible way through responsible consumption of food. Since, clean water is used and often in surprising disproportion to the end product, one kg of beef required 15,000 liters of water, a single cup of coffee, 140 liters; and a burger 2400 liters (Guli, 2012).

2.5 Development of Self

One's sense of self can be viewed as "the core repository of life span experiences, motivational states, and action orientations" (Whitbourne, 1985). The knowledge which one has, instructions to one's perceptions, future goals, experiences and finally one's psychological amelioration. The human self-system changes from time to time due to new developmental challenges in the way of life. The ages of human lives have increased, and the self-system became much stronger than childhood. The importance of the human self - system is to gain attention related to aging as well as changes in the gerontological literature (Markus & Hezbzog, 1992).

Whenever the philosophy of behaviorism reached the top, the behavior term falls into self concept. The term behavior cannot be defined without analysing self concept. Furthermore, the self concept related much with human behavior in the field of psychology (Frazier, 1993).

Freud (1961a) narrated that during the time of birth human do not have self concept. Furthermore, Piaget (1966) agreed that human does not have any kind of self during birth. As humans start growing, the experience of life enhanced and made felt his existence with self-composure. Piaget (1966) noted that the young person was selfish and did not fully know the difference between self and the experience of others.

Duval and Wickland (1972) noted that a social conflicts starts at the beginning self concept development. Similarly, James (1809), Cooley (1902), and Mead (1934) emphasized in the development of self and proposed self has social origins. As time passed, humans developed their self-concept from the disagreement of society and social conflicts.

The self concept is a set of beliefs which one has for one's self, such as our important characteristics; our strengths; our weaknesses; and the situations we prefer or would avoid (Taylor, Peplau & Sears, 1997). Each individual has a different self-concept. Taylor, Peplau and Sears (1997) noted that self-knowledge or self-concept comes from various sources such as socialization, reflected appraisal, feedback from others, self-perception, environmental distinctiveness, comparison with others and social identity. All these antecedents of self-concept are discussed below.

Socialization term is used in many disciplines like social psychology, business and sociology. Taylor, Peplau and Sears (1997, p. 113) described that socialization mostly comes from the close interaction of your near and dear persons such as parents, friends, and teachers. We also learn about self-concept from religious groups, cultural and ethnic activities. Therefore, socialization is a crucial factor that builds up the human self-concept from an early age experience.

The reflected appraisals concept is discussed in the literature with the symbolic interaction theory. It could be understood as a perception of individuals on how other people view them (Cooley, 1902). Kinch (1963, p. 481) described reflected appraisals as “the individual's conception of himself which emerged from social interaction and, in turn, guided or influenced the behavior of that individual”. The development of self concept of an individual is based on three elements: actual appraisal, reflected appraisal, and self-

appraisals (Cook & Douglas, 1998). Actual appraisal includes the actual view of another individual or individual evaluation; reflected appraisal means the perception of individuals; and self-appraisal is how other people view the self.

Most of the time feedback is received by others on one's attitude and behavior. Felson and Reed (1986) noted that the feedback from others is also a very significant effect on self-knowledge or self-concept. They further described that the best example of feedback is the relationship of parents and children. Parents give feedback to their children for their betterment, for example "Why are you shy?", and "Your Maths is not good". Similarly, the relationship between teachers and students are also an example of feedback from others. Teacher gives the direct feedback to students during term examinations through comments or grades (Jussim, Soffin, Brown, Ley, & Kohlhepp, 1992).

Self-perception term is discussed most of the time in social psychology and organizational studies. This term is used with different meaning. Bem (1967, 1972) offered the self-perception theory in psychology, which is considered the foundation of self-concept of human beings. Bem (1967) discussed the self-concept as the human attitude derived from open knowledge that belongs to external environment and not from the internal environment.

The environmental distinctiveness concept is not much familiar in social sciences as this term is highly correlated to environmental sciences. The environmental distinctiveness term is used in environmental science to discuss the changes in the environment. This concept is borrowed from environmental science in social science, particularly in Psychology. McGuire and McGuire (1982) narrated that they conducted interviews with students with statements such as "tell us about yourself". They found that students introduced things that differentiate them from others. Each student tried to make

oneself as distinctive as possible from others, for example, boys were more likely to introduce their gender, if he was the only male in his family.

Festinger (1954), the proposer of social comparison theory, noted that comparisons with others are often made as generally people were motivated to evaluate their opinions and abilities to satisfy the need for self-evaluation and comparison to others. He further argued numerous experimental findings suggested that a social comparison is not only used to reduce uncertainty through evaluation of opinion and abilities about themselves but also to manage the nerve-racking situations. The social comparison theory mainly dealt with individual learning after comparing with others.

Humans were born in a specific family, ethnic group, and religion. When humans grow up, specific attributes received from different groups become the social identity that is the part of the human self-concepts (Luhtanen & Crocker, 1992). Social identity refers to the knowledge that one gets from a specific social group that is very important to oneself (Hogg & Abrams, 1988). Social group means “two or more individuals who share a common social identification of themselves or, which is nearly the same thing, perceive themselves to be members of the same social category” (Turner, 1982 p. 15).

2.6 Self-Concept

The research on self-concept explains the different diversification and significance in behavior (Markus & Nurius, 1986). In the field of psychology, researchers tackled several complexities to investigate the self-concept due to its multi definitions and dimensions (Li, 2009). Further to that, the concept of self must be defined clearly with respect to its definition and dimensionality before its measurement (Li, 2009).

Most of the researchers declared the self-concept variable as a single faceted and that facet is named as ‘Actual Self Concept’ (Li, 2009). The actual self-concept means the

perception of oneself about one's imagination (Sirgy, 1982a; 1984a). Birdwell (1968) identified within the unitary faceted self-concept variable defined as "Image of oneself as he/she perceives his/her role" (Sirgy 1982a, 1984a). Moreover, scholars such as Chon (1992), Back (2005), Kressmann et al. (2006), He and Mukherjee (2007), and Jamal and Al-Marri (2007) discussed self-concept with multi-dimensional variation in consumer behavior.

The concept of self was first introduced by William James (1890). After proposed the concept of self in human behavior, he was known as the father of self-concept in 1890. James (1890) explored the distinction between the 'I' and the 'ME'. Furthermore, James (1980) explained that self is the combination of four factors: the social self, material self, bodily self and spiritual self. A number of researchers defined self-concept in material terms such as possessions, for example, designer clothes, luxury houses and cars; so that all these things significantly relate to self-concept (Birdwell, 1986; Kressmann et al., 2006). Similarly, social self-concept means how we see ourselves relate to other people, for example, friends, colleagues, and family members. All these personalities perform vital roles in the support and recognition for the adaptability of self (Li, 2009).

Rogers (1951) hypothesized that all the notions, viewpoints, attitude and believes that describe the 'I' or the 'Me'. These incorporate those feelings related to 'what I am', 'what I can do', and in which way I can calculate them. Rosenberg (1979, p.7) defined the concept of Self as "the totality of the individual's thoughts and feelings having reference to himself as an object". Several researchers have agreed with Rosenberg's (1979, p.7) definition about self-concept (Chon, 1990; Mehta, 1999; Sirgy, 1982; 2001; Litvin, Kar, & Goldsmith, 2001).

He and Mukherjee (2007) and Li (2009) used self-concept with its four aspects in consumer behavior research and explained that an individual's perspectives are based on four aspects of self-concepts: actual self-concept, ideal self-concepts, social self-concepts, and ideal social self-concepts. Similarly, Sirgy (1982) further enhanced the aspects from four to seven, adding global self, situational self and expected self.

2.6.1 Dimension of Self Concept

There are three dimensions of self-concept which are discussed in social science and different disciplines such as philosophy, marketing, and criminology that are discussed below comprehensively.

2.6.1.1 Religious Self

The concept of religion is a structure of believes related to oneself and the universe. Religion provides several people with good judgment of security, meaning, and pattern of living (Poorsheikhali & Alavi, 2013). In addition to that, religion is a major institution of social controls which discouraged anti-social behavior, by highlighting their negative consequences both in the present life and future life (Agu et al., 2013). Religious self recommend to human beings, help, support and strength to those who have mental health awareness. However, Blazek and Besta (2012) noted that the clarity of religious self-concept in consumer personality is the source of social well-being in the society. They further elaborated that human religiousness leads to the development of positive mental well-being. Similarly, numerous psychologists elucidated the religious self-concept for a positive outcome in the society at each individual mental level (Witter et al., 1985; Campbell, 1990; Pargament, 2002; Powell et al., 2003; Smith et al., 2003; Jones, 2004; Ano & Vasconcelles, 2005; Macullough & Willoughby, 2009).

Agu et al. (2013) found that human personality has multi self-concepts such as actual self, ideal self, social self, academic self, and physical self. However, religious belief is the significant factor that developed the human religious self-concept. Along with that, religious self-concept is the more significant and dominant self-concept than other human self-concept. Agu et al. (2013) found that religious belief influenced and developed the female religious self-concept more quickly than male.

2.6.1.2 Feared Self

Carver et al. (1999) defined the feared self like “a set of qualities the person wants not to become, but is concerned about possibly becoming” (p. 785). Paternoster and Bushway (2009) stated feared- self was used for recovering from crimes; the higher the level of feared-self, the more well-being it created in the society. Furthermore, the feared-self gave the motivation for avoidance from something.

A new domain introduced into self-concept along with actual-self, ideal-self and ought-self that is feared self. Feared self is a cognitive reference of human traits, which an individual wants to narrowly escape (Markus & Nuris, 1986). In addition, the actual-self and feared self has quite a similarity in self-concept; these selves lead to human emotional distress (Sobh & Martin, 2007). Eells and Leavenworth (1997) compared the human selves (actual self and ideal self) and (actual self and feared self) and found that feared self is a more concrete cognitive representation than the ideal self. Further, the comparison of actual self-concept and feared self-concept has been done under the rays of self-discrepancy theory.

In consumer behavior research, several researchers had highlighted that consumer feared self is used significantly to control the behavior of consumers (Aaker & Lee, 2001; Pham & Muthukrishnan, 2002; Pham & Avnet, 2004; Bosmans & Baumgartner, 2005;

Hamilton & Biehal, 2005; Jain, Agrawal, Maheswaran, 2005; Louro, pieters, & Zeelenberg, 2005; Raghunathan, Pham & Corfman, 2006).

2.6.1.3 Altruistic Self

The altruistic self is discussed in philosophy and psychology, which contained the meaning of other interests in place of self and motivate others (The Columbia Electronic Encyclopedia, 2013). More concisely, altruistic self refers to an individual faith to do something good for greater benefits of someone as a charitable engagement other than selfishly and unselfishly (Padgett, 2011). Moreover, altruistic self can be expressed as work for the good and welfare of others, and an unselfish preference (Kolm, 2006). An altruistic self generates greater civic or outer benefits to the beneficiary of the behavior (Padgett, 2011).

The motives of altruistic self are found differently with respect to food consumption. There are four motives traced out, from the altruistic literature which are benevolence, ecology, equality and universalism, and have been shown as a predictor of food consumption in consumer behavior (Hughner et al., 2007; Aertsens et al., 2009).

Krystallis, Maglaras and Mamalis (2008) noted that benevolence and universalism are motives of altruistic self-concept which are found as a predictor for regular food consumption, especially organic food in the area of consumer behavior. In the same way, the consumers who have altruistic self with respect to the ecology motive that are defined as “harmony with the universe and sustainable future”) tend to consume organic food in their daily lives (Zanoli & Naspetti, 2002).

There are insufficient factors that have been identified from the literature on food consumption, a structural model and two factors, egoistic which is personal health and altruistic which is environment friendly consideration. These factors influenced the

consumer food consumption, particularly for organic food consumption (Kareklas, Carlson & Muehling, 2014).

2.6.2 Self-Concept in Consumer Behavior

Individuals assess their entire experiences related to their self-concepts (Rogers, 1951). Majority of consumer want to behave in such a way that will highlight their self-concept and hide discrepancies. Hence, that self-concept and inconsistencies crop the feelings of anxiety and discomfort. Carl Rogers (1951) expressed that self-concept has six properties: 1) it develops from the environmental interaction; 2) it may import the value of other individuals distinguishing them in a colorful way; 3) its endures the flexibility; 4) behave in a manner that is constant with the self; 5) the experiences which is not constant with the self-structure is apparent as a threat; 6) the self might be modified at the same time as an outcome of evolution and learning.

With respect to the above six properties of self-concept, these ideas might be used as a foundation to utilize the self-concept to elaborate and predict the consumer behavior (Li, 2009). The consumer self-concept influences the consumption behavior of consumers (Grubb & Grathwol, 1967). Furthermore,

“There is a great deal of research which shows that the self-concept is, perhaps, the basis for all motivation behavior. It is the self-concept that gives rise to possible selves, and it is possible selves that create the motivation for behavior.”

Franken (1994, p. 443)

Although self-concept literature has highlighted the relationship between self-concept and consumer behavior, and had ensured that self-concept is fruitful for consumer behavior field (Li, 2009). Similarly, Jacobson and Kasso (1963) highlighted the

relationship of self-concept and consumer behavior through relations related to the American consumer attitude towards small cars.

O'Brien, Tapia and Brown (1977) identified that consumer purchase behavior is a dependent on the consumer's image that what he or she wants to communicate to others about himself or herself. Further to that, the consumer self-concept has changed with time to time. Hence, the intention to consume the products is expressed through self-concept. Moreover, O'Brien et al. (1977) finalized that consumer's dimensions such as: preference for, purchase of products and perception of, are linked with his self-concept. These dimensions of stability and continuity constantly change with self-concept over time.

Pickett-Baker and Ozaki (2008) concluded that consumer self-concept perform the pivotal role to consume friendly environmental products in consumers' lives. Further, the researchers noted that most of the consumers have an ideal self-concept of becoming ecologically responsible. Consumers have ideal self-concept and actual self-concept related to ecological systems and product consumption. Sometime, consumers' actual self-concept dominate the ideal self-concept, as you could not purchase environmental friendly products (Pickett-Baker & Ozaki 2008).

2.7 Self-Congruity

Self-congruity is a state of frankness to understand the mode of internal congruity which individual gets fresh experience (Rogers, 1959). In the social perspective, congruity is a name of psychological modification (Said & Hassan, 2014). Consistently, Osgood and Tannebaum (1955) reported that there are two contradicting personalities, sets of information, or concepts on which a judgment must be made by a single observer; and the observer will experience pressure to change his or her judgment on one of the sides. Therefore, the higher the correlation between or many among contradicting personalities

sets of information and concepts, the higher the congruity between or among them. On the contrary, the lower the correlation; the lower is the congruity between or among contradicting personalities, sets of information and concepts (Osgood & Tammebaum, 1955; Bellenger, Steinber & Stanton, 1976; Ericksen, 1996).

2.7.1 Self-Congruity in Different Industries

The association of self-congruity in different industries started since 1960s (Li, 2009). Widespread studies have been conducted to measure the effects of self- congruity on consumer behavior in marketing. Significant literature was check from last several decades as 1960s, 1970s, 1980s (Li, 2009). Previous studies found the effects of self-concepts and or product image congruity on consumer behavior through different industries:

- Self-concept and product possession (Grubb & Hupp, 1968; Grubb & Stern, 1971; Karande, Zinkhan & Lum, 1997; Heath & Scott, 1998)
- Self-concept, purchase intentions and brand choice (Hughes & Guerrero, 1971; Landon, 1974; Sirgy, 1980; Ericksen, 1996; Mehta, 1999);
- Self-concept and brand loyalty, store patronage/loyalty (Dornoff & Tatham, 1972; Bellenger, Steinberg & Stanton, 1976; Stern, Bush & Hair, 1977; Smli & Sirgy, 1981; Sirgy, Johar, Sirgy & Samli, 1985; Smli & Claiborne, 1991; Kressmann et al., 2006);
- Self-concept, product and brand preference (Birdwell, 1968; Dolich, 1969; Green, Maheshwari, & Rao, 1969; Ross, 1971; Sirgy, 1980; Martin & Bellizzi, 1982; Malhotra, 1988; Jamal & Goode, 2001);

- Self-concept and hospitality (Chon, 1990; 1992; Chon & Olsen, 1991; Goh & Litvin, 2000; Sirgy & Su, 2000; Litvin & Goh, 2002; Ekinici & Riley, 2003; Kastenholz, 2004; Beerli, Meneses & Gil, 2007; Li, 2009).

2.7.1.1 Self-Congruity in Automobile Industry

Grubb and Hupp (1968) studied self-congruity of different consumer self-concepts by using multiple automobile's brands. The researchers traced out the consumer self-concept for a particular automobile's brand, having the same self-concept as other consumer hold for that brand. Birdwell (1968) achieved the comparable results to Grubb and Hupp (1968) study. In addition to that, Birdwell (1968) retrieved that luxury automobiles brands have stronger self-congruity than economy automobiles. Grubb and Stern's (1971) study also supported the conclusion of Grubb and Hupp (1968) research.

Karande, Zinkhan and Lum (1997) conducted a research and were one step ahead from the previous two studies. These researchers used three automobile brands, Saturn, Neon and Tercel, and after replicating the research, obtained that each brand have different personalities; even though, the owner of each brand identifies their personality with that brand.

Ross (1971) had investigated the relationship between actual, ideal self- congruity and brand preference. Ross (1971) tried to clear the position of product conspicuousness in the relationship of actual self, ideal self-congruity and brand preference. The study focused on automobile and magazine brands, by identifying six conspicuous automobile brands and six less conspicuous magazine brands. In the hypothesis, for both automobile and magazine brands, the subjects preferred the brand of the product which was more to the consumers perceptions, instead of less to own self-concepts. However, contradictory to the hypotheses, when the object of consumption is more conspicuous, then the time for ideal

self-concept would be strongly connected to consumption preference; and it is also similar for actual self-concept which would be strongly linked, when the object is less conspicuous to another.

Ross (1971) identified a new dimension of self-concept to the social self that was introduced by Hughes and Guerrero (1971). The researchers found that actual self-congruity did not have much influence in automobile brand preference. Indeed, the study suggested that the choice of brand is an effect of social self in automobile rather actual self. As a study recommendation, social self-congruity model can be considered for consumption of products publicly as well as privately. Moreover, the study concluded that few purchaser behaviors could be explained better by incongruity models, even though, incongruity model lead to innovator as a stimulus.

Sirgy (1980) concluded that product intention and product preference constructs were considerably linked with four types of self-concepts congruity: actual, ideal, social, and ideal social self-congruity. Furthermore, ideal self-congruity and ideal social self-congruity proved as an admirable predictor of product preference instead of actual self-congruity and social self-congruity for automobile (MGB, VW RABBIT) and magazines (PLAYGIRL, GLAMOUR) brands. Even the four kinds of self-congruity (i.e., actual self, ideal self, social self and ideal social self) were uniformly predictive of the magazines (PLAYGIRL and GLAMOUR) brand preference. As consumer purchase intention fluctuated with four kinds of self-congruity for MCG and GLAMOUR, it was not the same for PLAYGIRL and VW RABBIT. In addition, Product personalization was used as a moderator construct, which showed moderating effect for PLAYGIRL, MGB and GLAMOUR as a high personalized product than for the VW RABBIT.

Ericksen (1996) attempted to improve the self-congruity theory in the context of western consumers. The researcher attempted to examine the relationship between actual self-image, ideal self-image congruity and consumer intention to purchase. The study indicated that the relationship would be examined between actual self-image and ideal self-image. Finally, significant relationship was traced out between actual self-image, ideal self-image and consumer purchase intention.

Heath and Scott (1998) conducted a study to examine the theory of self-concept and image congruity by using two automobile brands Mazda 323 and Ford Laser in New Zealand. These two brands were taken due to its similarities in design, styling and mechanical features. Unlike earlier studies, when automobiles' physical appearances were similar with the two brands, consumers were able to perceive a clear difference in their self-concepts, which distinguished the consumer attributes regarding product brands. Previous studies were conducted on non-substitutable products and used students as respondents in the study; while Heath and Scott (1998) examined the research model on identical product brands with actual automobile owners. As a result, the consumers of specific automobile brands have a different self-concept about their perceived brand. The owners of the automobile compared the self-concepts relating to the product brand and attribute to others who own a competing automobile brand.

In 2006, Kressmann et al. examined the relationship between consumer self-congruity and brand loyalty, again in the automobile industry. The study revealed that self-congruity performed a vital role in brand loyalty. Moreover, self-congruity has positive link with brand loyalty and self-congruity positively impacts brand quality, product involvement, and functional congruity.

2.7.1.2 Self-Congruity in various Product Industry

Dolich (1969) examined self-congruity by using ideal self and nature of product for consuming consideration. The researcher used four types of products which include beer and cigarettes on public consumption, tooth paste and bar soap for private consumption in the study. The study acknowledged that the more favorite product brands have higher self-concept congruity than less favorite product brands as the researcher had hypothesized. According to the hypothesis, self- congruity of socially consumed product brand was distinctive from self-concept congruity of personal consumer products brand. Contradictory to the hypothesis, real self- congruity proved more influential than ideal self-congruity on consumer behavior.

Martin and Bellizzi (1982) organized a study that was an expansion and replication of Dolich's (1969) study. The new study examined self-image and the product image relationship with same product categories and semantic differential scales that Dolich (1969) used. The study attained the identical results with earlier studies.

2.7.1.3 Self-Congruity in Real Estate industry

Malhotra (1988) introduced a model that has been established a relationship between consumer self-concept which are actual self, ideal self and social self, and house preference. The research highlighted that the consumer ideal self-concept was more correlated with consumer house preference than actual self-concept and social self-concept, even though, actual self-concept and social self-concept applied an important influence on consumer house preference. This study, found that the variation in actual self, ideal self and social self varied from individual to individual for house preference.

In the valuable jewelry market of the United Kingdom, Jamal and Goode (2001) conducted a study to verify the relationship between self-image congruity, brand preference and customer satisfaction construct in consumer behavior. The study established a positive relationship between self-image congruity and brand preference as well as self-image and customer satisfaction. The study further exposed that the self-image congruity level in individuals shows different behaviors in the context of one's brand preference and satisfaction.

2.7.1.4 Self-Congruity in Retailing Industry

Dornoff and Tatham (1972) concluded that the selection of supermarket, specialty store and departmental store were influenced by consumer image. In short, the consumer self-image is congruent with one's store image. Researchers tested the three types of images: real image, ideal image and image of best friends in the selection of stores. The study revealed, the ideal self and stores' image had high congruence for its selection; real self and stores'-image relatively less congruent; and best friend's image and stores' image had smallest congruity. Therefore, the study showed that real self, ideal self, and best friend's image played a vital role in store selection.

Stern et al. (1977) investigated the relationship between consumers who patronize retail store's that have both actual and ideal types of images, and image of themselves. The researchers took four kinds of stores to examine the relationship between discount department store, a quality men's specialty clothing store, a women's fashion specialty clothing store, and a lower end departmental store. The study revealed that the shoppers gave patronage to stores, whose features are congruent with the shopper's real self-images. Similarly, the ideal self-image of shoppers was less congruent with their patronized store's

image. Additionally, both self-images, actual image and ideal self had high correlation to patronage of specialty stores as compared to department stores.

Samli and Sirgy (1981) attempted to identify the determinants of store loyalty. The model of the study narrated that the social self-congruity, ideal social self-congruity, functional congruity, socioeconomic status, area loyalty and shopping-complex loyalty influenced the store loyalty. At the end, the study disclosed, although self-congruity was not proven as a successful predictor of store loyalty, self-congruity constructs were considerably linked with functional congruity. Thus, functional congruity regressed by social self and ideal social self-congruity. Researchers called the influence of self-congruity on functional congruity as a “biasing effect”.

After that, Sirgy, Johar, Samli and Claiborn (1991) researched the effect of self-congruity on functional congruity “biasing effect” in four studies. Different measurement methods were employed for self-congruity and functional congruity in those four studies. Therefore, self-congruity and functional congruity have an important impact on consumer behavior. Nevertheless, functional congruity has more effect on consumer behavior as compared to self-congruity.

2.7.1.5 Self-Congruity in Tourism Industry

Besides product marketing, self-congruity has been explored in tourism and hospitality studies. Chon (1990; 1992) and Chon and Olsen (1991) were the early researchers to introduce self-concept and self-congruity in tourism research. Moreover, consumer tourism self-concept and consumer satisfaction and dissatisfaction have relationship when using self-image or product image congruity model (Chon, 1990; 1992). The researcher revealed that the more congruent self-concept and destination image were with each other, the higher the tourists satisfaction would be.

Chon and Olsen (1991) tried to verify the relationship between satisfaction and dissatisfaction of tourist with self-concept and destination image congruity or symbolic congruity; the relationship between satisfaction and dissatisfaction of tourist and the congruity function between the expectations of tourists and his or her perception regarding the consequence on the a particular attribute function of a destination by using the Chon's 1990 model. The satisfaction and dissatisfaction level of tourists is a function of symbolic and functional congruity. However, in comparison to symbolic congruity, the functional congruity proved a better predictor for satisfaction and dissatisfaction of tourists.

Beerli, Meneses and Gil (2007) had researched on the relationship between both kinds of self-congruity (actual self-congruity and ideal-self congruity) and the intention to visit. In earlier studies of self-congruity, consumer involvement and past experiences were tested as a moderator between both relationships of actual self-congruity and ideal self-congruity and intention to visit (Beerli et al., 2007).

2.8 Theories for Theoretical Framework

In earlier studies, two key theories utilized consumer self-concepts and behavior in different contexts. These theories were used in fields such as Theory of Symbolic Interactionism and Theory of Self Congruence. These theories are comprehensively discussed to develop the conceptual framework, especially on how these theories relate to the proposed theoretical framework.

Furthermore, Self congruence Theory (SCT) and Theory of Symbolic Interactionism (TSI) have been used in the marketing field within different contexts, such as tourism (Li, 2009), brand ownership, product preference, purchase intention, product choice, consumer memory, consumer satisfaction, product evaluation, attitude, service

quality, brand loyalty, perceived value, consumption emotion, intention to recommend and choice (Hosany & Martin, 2011).

Both theories discuss consumer self-concepts and change in behavior. However, the theories permit for a comprehensive explanation of self-concepts and behavior which have a deficiency in the prior studies concerning self-concept and plate food consumption behavior. By developing a socially responsible food consumption model and incorporating the prior themes into it, one can see a general approach to understand the consumer attitude towards plate food waste and socially responsible consumption behavior in regard to consumer self-concepts and awareness.

2.8.1 Symbolic Interactionism Theory

Symbolic interactionism is a theory of an interactionist, which supports to clarify how human beings define their experiences and give meaning to their identities, realities, behavior and social interactions (Hewitt, 2001). The main focus of symbolic interactionism is on self; it seeks to observe the associated symbolic meanings of individual's experiences with respect to their self-identity or concepts created by and based on interactions with others (Coakley, 2001; Hewitt, 2001). Moreover, self-concepts are the fundamental objects that deal with human interactions (Armstrong, 2012). Broadly speaking, individuals deal with society and their reference groups in accordance with the premise that was based on symbolic interactionism, which determine how their behavior should be formed (Hewitt, 2001).

Symbolic interactionism theory has three premises (Blumer, 1969). Firstly, human beings act toward things based on the meaning that the things have for them. Secondly, the meanings of such things are derived from, or arise out of, the social interaction that one has with one's fellows. However, meanings are seen as social products. Thirdly, these

meanings are handled in, and modified through an interpretative process used by the person in dealing with the things encountered. In the process of interpretation, meanings are used and modified to guide and form the person's action.

Solomon (1983) attempted to create the meaning of consumption with consumer behavior in the light of symbolic interactionism. Solomon established a relationship of product's consumption with consumer self-concepts in the object of symbolic interaction. Moreover, Solomon (1983) argued that symbolic qualities of products are mainly forced to evaluate and adopt. In fact, consumer products are used as tools individuals use to develop an image consistent with products consumed. Five essences of Solomon's (1983, p. 326-227) researches are:

1. The symbolism embedded in many products is the primary reason for their consumption.
2. Individuals are evaluated and placed in a social nexus to a significant degree by the products which surround them.
3. The reflexive evaluation construct implies that the product symbolism which is instrumental in assigning meaning to others is also used by individuals to assign social identity to themselves.
4. The outcome of this self-definition process guides behavior via the script that is evoked.
5. Symbolic consumption can apply a prior effect on role definition and interaction, especially in situation where internalized behavioral responses are lacking.

Furthermore, Leigh and Gabel (1992, p.7) tested the theory of Symbolic interactionism by explaining the phenomena which people consume or serve the goods and services in

regards of what it presents to themselves and to their significant others. The following propositions are proposed this study:

1. The symbolic meaning of products is ultimately defined by society.
2. Products can be viewed as cause of behavior, in addition to their role as satisfiers of, or responses to need. Specifically, the symbols attached to product by a certain relevant referent may cause a consumer to act.

On that basis, the interaction with different people developed the several self-concepts and works as symbolic properties into consumer lives for consumption behavior (Choi & Rifon, 2012; Boon & Lomore, 2001). In numerous ways self-concept takes place through interaction such as socialization, reflected appraisal, feedback from others, self-perception, environmental distinctiveness, comparison with others, and social identity (Taylor, Peplau & Sears, 1997).

2.8.2 Self-Congruity Theory

The way individuals perceive ones'-self to be as individuals significantly influence their behavior (Sirgy & Samli, 1985). Self-congruity theory has a foundation in symbolic interactionism theory However, Carl Rogers (1959) explained that self-concept as a central figure for individual personality development, "every individual is motivated by a fundamental "actualizing tendency" that serves the purpose to develop all abilities in ways that maintain and enhance one's self concept (that is self-enhancement). Self-congruity theory can be hypothesized as the degree to which an individual perceived the image of an external entity as being similar to one's own self-concept (Gubb & Grathwohl, 1967; Belk, 1988; Sirgy & Samli, 1985; Richins, 1994). Particularly, high levels of congruity between consumer self-concept and image of product or service affects the attitude and behavior of

consumer (Gubb & Grathwohl, 1967; Belk, 1988; Sirgy & Samli, 1985; Richins, 1994). However, consumer image about product or services are developed based on consumer self-awareness (Li, 2009).

2.9 Critiques to the Literature

The literature review investigated an extensive range of studies that focused on socially responsible consumption for environmental protection in a consumer context. Therefore, literature could be criticized from the following perspectives:

- i. The socially responsible consumption is highly dynamic and is continuously highlighted in the consumer studies to improve the consumer socially responsible consumption attitude and behavior with respect product consumption in commercial marketing perspectives. Thus, the present study has explored closely the favorable opportunity to upgrade the present state of socially responsible consumption attitude and behavior in social marketing perspective towards socially responsible plate food consumption.
- ii. The literature of consumer self-concept is full of different dimensions such as actual self-concept, ideal self-concept, social self-concept, and ideal social self-concept (Hosany & Martin, 2011). Subsequently, consumer behavior studies have important potential to use more self-concepts dimension except actual self-concept, ideal self-concept, social self-concept, and ideal social self-concept.
- iii. Consumer awareness variables are frequently utilized in commercial marketing with five dimensions (Rousseau & Venter, 1993; Makanyeza & De Toit, 2015). The existing dimensions of consumer awareness give the rights to consumers

while buying products from the market. Consumer awareness concept is only limited to commercial marketing and is hardly used for socially responsible consumption of food. Hence, the present study is seen as the opportunity to develop the consumer awareness's dimensions for socially responsible consumption;

- iv. The self-congruity theory has highlighted the congruity of limited self-concept (actual self, ideal self, social self, and ideal social self) with different variables such as brand preference, brand choice, and consumer satisfaction in previous literatures. So far, there is congruence between consumer self-concept and brand image, but is only limited to commercial marketing. However, current studies also observed the possible congruity between consumer self-concept and consumer awareness for social marketing towards socially responsible plate food consumption;
- v. By utilizing the self-congruity theory, lots of relational evidence between self-concepts and other variables in the existing literature of automobile industry, various product industry, real estate industry, relating industry and tourism industry will be unearthed. The present study observed the opportunity to test the relationship between consumer self-concept and consumer awareness for food industry; especially self-concept and consumer awareness congruity suitable for socially responsible plate food consumption behavior.

The critique of consumer self-concept, consumer awareness, congruence of self-concept and consumer awareness, attitude and socially responsible consumption towards plate food waste behavior literature offer as a significant foundation for objectives and framework of the study.

It was envisaged that consumer self-concept would also perform a vital and central role in this present study, and also the increasingly significant body of literature.

2.10 Chapter Summary

This chapter gives a critical analysis of the literature of plate food waste towards socially responsible consumption. Household food waste literature indicates that the increases of food waste has been alarming in the last few years, and are harmfully affecting the environment, economy, hunger and intensity of food and water shortage. Other theories such as the theory of self-congruence and the theory of planned behavior have also been discussed in this chapter. The theory of symbolic interactionism and theory of self-congruence has been identified to develop this study's theoretical framework. However, the theory of self-congruity lacks in explaining the moral and ethical perspective. Therefore, the three dimensions of self-concepts include religious self, feared self and altruistic self to ensure how it is incorporated in the theories, to enhance the understanding of consumer attitude towards socially responsible plate food consumption.

CHAPTER 3

RESEARCH GAPS AND HYPOTHESES DEVELOPMENT

3.1 Introduction

This chapter highlights the research gaps and development of the conceptual model. The research model of this study illustrates the pattern of consumer self-concept such as consumer awareness and their potential relationships between each other, as well as influences on consumer attitude and socially responsible plate food consumption behavior. The current chapter also discusses the hypotheses which are tested to satisfy the objectives of this study.

3.2 Research Gaps of the Study

The literature review in chapter 2 has demonstrated the importance of the existing body of knowledge in the field of consumer behavior with respect to socially responsible consumption behavior. With the extremely quick changing and fast increasing of food waste at various places such as farmhouses, transportation, household, restaurants and hotels (Nahman et al., 2012; WRAP, 2013; DeAngelis, 2013), It is unavoidable that studies rapidly become outdated, especially as consumer behavior change so quickly as behavior based on self-concept (Asensio & Delmas, 2016). Moreover, despite the recognized significance of consumer behavior change with respect to self-concept (Tsai, Dwyer, & Tsay, 2016), it has been observed that there is a missing connection between different self-concepts and plate food waste towards socially responsible consumption behavior at household level. As a result, with the assistance of critical literature review, five gaps in the literature have been recognized. Therefore, those gaps would be fulfilling through this study.

3.2.1 Research Gap 1: Consumer Self-Concepts Through Four Sub-dimensions

A wide and significant range of research has been carried out on self-concept (Matzler, Strobl, Stokburger-Sauer, Bobovnick & Bauer, 2016; Helm, Renk & Mishra, 2016). All researchers have addressed self-concept with a limitation to four types of self-concepts, which are actual self-concept, ideal self-concept, social self-concept, and social ideal self. The self-concept variable classified into two categories, namely studies in product industry and studies in the tourism industry.

- i. In the context of product industry, self-concept variable has been employed in two dimensions: actual self and ideal self (Birdwell, 1968; Dolich, 1969; Belch & Landon, 1977; Malhotra, 1988; Hong & Zinkhan, 1995; Ericksen, 1996; Sirgy et al., 1997; Kressmann et al., 2000; Quester et al., 2000; Ekinci & Riley 2003; Back, 2005; He & Mukherjee, 2007; Jamal & Al-Marri, 2007; Ekinci et al., 2008; Han & Back, 2008; Ibrahim & Najjar, 2008; Kwak & Kang, 2009).
- ii. In the light of the tourism industry, self-concept variable has been used with two dimensions namely actual self and ideal self; which sometimes are used as social self and the ideal social self-concept (Chon, 1992; Litvin & Goh, 2002; Litvin & Kar, 2003; Kastenholtz, 2004; Beerli et al., 2007; Li, 2009).

In prior studies, self-concept was tested in four dimensions namely actual self, ideal self, social self and ideal social self, which were developed by various researchers (James, 1890; Roger, 1951; Symonds, 1951; Markus & Nurius, 1986). Generally, researchers utilize four dimensions of self-concept in their studies as a replication to test the stability or change in commercial marketing. Therefore, self-concept research has required multi-dimensions such as altruistic self, religious self and feared self, to test the consumer's self-

concepts in social marketing. As extension of self-concept in consumer personality enhanced the level of responsible consumption behavior (Kunchambo & Brace-Govan, 2017).

3.2.2 Research Gap 2: Consumer Awareness Through Five Sub-dimensions

In earlier studies, consumer awareness construct has been discussed with five sub-dimensions in commercial marketing Rousseau & Venter, 1992; 1996; (Makanyeza & Du Toit, 2015). Several researchers compare the sub-dimensions, for example; bargain hunting, general consumer knowledge, product knowledge, information search, and price consciousness, in view of their importance in consumer behavior studies (Rousseau & Venter, 1992; 1996; Makanyeza & Du Toit, 2015). Moreover, consumer awareness construct is limited to commercial marketing with five sub-dimensions namely bargain hunting, general consumer knowledge, product knowledge, information search, and price consciousness in consumer behavior research (Makanyeza & Du Toit, 2015). Thus, the notion of consumer awareness is limited to consumer rights and protection at marketplace in the commercial marketing perspective. Still, the consumer awareness literature has significant gap with respect to consumer rights towards social change in terms of socially responsible plate food consumption behavior.

3.2.3 Research Gap 3: Relationship between Consumer Self-concepts and Consumer Awareness

Numerous studies have established the relationship between consumer self-concept with image of product and services (Quester et al., 2000; Hosany & Martin, 2011). Quester et al (2000) examined the relationship between consumer self-concept and product image related to their function and status. Jamal and Al-Marri (2007) claimed that consumer actual self-concept and image of automobile were significantly correlated with each other.

Kwak and Kang (2009) established the relationship of consumer self-concept and image of sports product in the sports industry. Similarly, Chon (1992) ascertained the relationship between consumer self-concept and destination image to test the satisfaction level of tourists. Litvin and Goh (2002) corroborated that consumer self-concept and destination image were significantly associated and positively influenced consumer interest to visit and the likelihood of visitation. Moreover, Kastenholz (2004) observed that consumer actual self-concept and destination image have a significant influence on each other with the chances of recommending the destination for a visit.

Thus, it is substantial to note that there is also a significant gap in the literature, in the context of the relationship between self-concept and consumer awareness with respect to socially responsible plate food consumption. This is particularly a vital gap that needs to fill up, which helps the consumers to better understand plate food waste and its effects on hunger, environment, economy, landfill and water shortage.

3.2.4 Research Gap 4: Self Congruity between Self Concept and Consumer

Awareness

As noted from the literature on self-congruity, a significant number of variables were tested under the theory of self-congruity (Li, 2009; Hosany & Martin, 2011). Gardner and Levy (1988) carried out a study on self-congruity between consumer self-concept and product preference. Several researchers have also been experimenting the self-congruity theory with numerous constructs such as actual self-concept and automobile; actual self, ideal self and various products; ideal self and various products, social self and houses; actual self, ideal self and automobile and shampoos; actual self, ideal self and hospitality services; actual self, ideal self and retailing; and actual self, ideal self and sports merchandise (Hosany & Martin, 2011).

Unfortunately, up-till-now, a majority of research on self-congruity was carried out by utilizing the product and tourism services constructs. Limited studies have tested self-congruity between self-concept and consumer food waste awareness even though, previous studies have used four types of self-concepts namely actual self, ideal self, social self and ideal social self in the self-congruity theory (Hosany & Martin, 2011). Therefore, an imperative gap exists in self-congruity theory - self-concept-awareness towards socially responsible plate food consumption. It needs to be filled up for more understanding in the context of social marketing for food waste management.

3.2.5 Research Gap 5: Household Consumers Plate Food Waste Behavior

Previous literature indicates that several studies were conducted on plate food waste for better understanding on consumer behavior towards plate food waste at restaurants, hotels, school, colleges, universities and hospital level (Comstock et al., 1980; Dubois, 1990; Hong & Kirk, 1995; Sherwin et al., 1998; Sargeant et al., 2010; Freedman & Brochado, 2010; Buzby & Guthrie, 2002; Al-Domi, 2011; Díaz & García, 2013). Nevertheless, these studies so far were not conducted on plate food waste at household level in the context of the consumer self-concept and food waste awareness. It would be an important gap that needs to be filled to highlight the household plate food waste behavior in the context of self-concept and plate food waste awareness.

3.3 Hypotheses Development

Based on the available evidence related to relationship among the variables, hypotheses of those studies are going to be developed. A new plate food waste towards socially responsible consumption behavior model is developed in the light of hypotheses.

3.3.1 Hypotheses Related to Self Concept Variable

In the early development, self-concept construct was operationalized as a unidimensional construct (Birdwell, 1969). Birdwell (1968) used the one-dimensional self-concept as actual self. Scholars challenged the traditional approach that consumers might have multiple self-concepts (Markus & Nurius, 1986; Onkvisit & Shaw, 1987). Several researchers tested self-concept with two dimensions (i.e actual self and ideal self) (Dolich, 1969; Landon, 1974; Belch & Landon, 1977; Chon, 1992; Hong & Zinkhan, 1995; Ericksen, 1996; Quester et al., 2000; Litvin and Goh 2002; Ekinici & Riley, 2003; Litvin & Kar 2003; Kressmann et al., 2006; Beerli et al., 2007; Ekinici et al., 2008; Ibrahim & Najjar 2008; Kwak & Kang, 2009). Besides, other researchers utilized the self-concept constructs with social ideal self, and ideal self (Back, 2005; Han & Back, 2008). Li (2009), on the other hand, examined consumer behavior through five-dimensions - actual self, ideal self, social self and social ideal self - of self-concept. However, on the base of prior studies, sub-dimensions of consumer self-concept, H1a, H1b, and H1c hypothesis were postulated.

H1a: *Religious self is a significant dimension of consumer self-concept.*

H1b: *Feared self is a significant dimension of consumer self-concept.*

H1c: *Altruistic self is a significant dimension of consumer self-concept.*

Rabiei et al. (2013) found that consumer self-concept and nutrition awareness were significantly related to each other. Similarly, human self-concept considerably related to cognitive processes, emotions, motivations, decision and choice (Bringle & Bagby, 1992). Additionally, Schafer et al. (1999) examined the relationship between consumer self-concept and consumer awareness in marketing. Thus, this study derived the hypothesis H3.

H3: *Self-concept and consumer awareness are correlated to one another.*

Saputra (2014) elaborated that consumer self-concept guided consumer's attitude and behavior. Ibrahim and Najjar (2008) found that the combination of actual self and ideal self-concept affect the consumer attitude in retail business. Chang (2002) utilized the self-concept differently to influence the consumer attitude towards advertisement and consumer attitude towards brand. Consumer self-concept and attitude has been frequently discussed in student educational achievement. Purkey (1970) predicted that self-concept and academic achievement have potential association and predictor for each other. Shavelson et al. (1976) examined that academic self-concept significantly influenced the attitude towards educational achievement among students. Ormrold (2000) found that positive academic self-concept of reading has substantial influence on reading attitude. Therefore, consumer self-concept construct also has the desire to establish relationship between consumer attitudes towards socially responsible plate food consumption.

H4: Self-concept has a significant influence on consumer attitude towards socially responsible plate food consumption.

Self-concept has been examined with several dependent variables in consumer behavior studies (Chon, 1992; Litvin & Goh, 2002; Litvin & Kar, 2003; Kastenholtz, 2004; Beerli et al., 2007; Ekinici et al., 2008; Han & Back, 2008; Ibrahim & Najjar, 2008; Li, 2009; Kwak & Kang, 2009). Li (2009) claimed that consumer self-concept significantly influenced the consumer behavior. Chang (2002) verified that consumer self-concept positively influenced the response of advertisement behavior. Kressmann et al. (2006) noted that consumer actual self-concept and ideal self-concept have positive noteworthy influence on consumer brand loyalty. Similarly, in retail business, He and Mukherjee (2007) traced out that actual self, ideal self, social self and social ideal self-influenced the consumer satisfaction, perceived value and loyalty. Consistently, self-concepts significantly influence

the consumer behavior. In addition to that, the self-concept variable also has desire to establish a relationship with socially responsible plate food consumption behavior. Thus, hypothesis H5 is postulated in this study.

H5: *Self-concept has a significant influence on socially responsible plate food consumption behavior.*

3.3.2 Hypotheses Related to Consumer Awareness Variable

From the earlier studies, consumer awareness variable has used as an independent variable in social science studies (Liang & Xianyu, 2008; Martlieb & Jones, 2009; Ishaq & Zabil, 2012; Jayashree, 2012). Consumer awareness constructs were utilized in different studies; therefore, different studies used different dimensions. For research on consumer rights at the marketplace, the five dimensions construct was utilized (Rousseau & Venter, 1995). That kind of awareness keeps consumer alert on their rights and responsibilities while they purchase any products from the market. In this connection, Rousseau and Venter (1995), explained and tested the five-dimensional consumer awareness constructs in Bophuthatswana country, which included bargain hunting, general consumer knowledge, product knowledge, information search and price consciousness, which are dimensions found in commercial marketing concept. Moreover, Makanyeza and De Toit (2015) validated the scale of consumer awareness with five dimensions, which are - bargain hunting, general consumer knowledge, product knowledge, information search and price consciousness in Zimbabwe. Based on prior studies, hypotheses are proposed for five consumer awareness's dimensions in social marketing prospective.

H2a: *Hunger concern is a significant dimension of consumer awareness.*

H2b: *Environmental concern is a significant dimension of consumer awareness.*

H2c: *Economic concern is a significant dimension of consumer awareness.*

H2d: *Landfill concern is a significant dimension of consumer awareness.*

H2e: *Water-shortage concern is a significant dimension of consumer awareness.*

Enhancement of consumer awareness of a social problem is a solution of it through an attitude change (Spehr & Curnow, 2011). In order to improve the consumer attitude through social problems like hunger, environmental pollution, economic crisis, landfill, and water shortage, awareness is necessary to eradicate the social issues. Moreover, the awareness generated from consumer atmosphere develops the attitude with respect to awareness characteristics (Chisnall, 1995; Mutlu, 2007; Aminrad et al., 2013).

Marra (2014) established the relationship between consumer awareness and food waste attitude; therefore, consumer attitude was influenced by consumer awareness. Srinivas (2015) examined that the level of consumer awareness, influences the attitude towards environmental product purchase. However, prominent level of environmental awareness among consumer forces them to purchase an environmental friendly product. While, low level of awareness does not generate the attitude towards purchasing environmental friendly product. Similarly, Parascandola et al. (2008) argued that awareness in consumer is a useful instrument that generates the attitude towards potential reduced-exposure of tobacco products.

Food waste management studies require a new relationship relating to consumer awareness and socially responsible plate food consumption behavior. Therefore, it has been possible to postulate the following hypotheses:

H6: *Consumer awareness has a significant influence on consumer attitude towards socially responsible plate food consumption.*

Numerous researches verified the effect of consumer awareness on effective consumers' behavior (Dommeyer & Gross 2003; Chartrand, 2005; Thomas & Mills, 2006; McEachern & Warnaby, 2008; Hartlieb & Jone, 2009; Donoghue & De Klerk, 2009). McEachern and Warnaby (2008) concluded that consumer awareness through labeling of products and consumer product purchase decisions have significantly influenced purchase and have been associated with each other. Thus, awareness through product labeling influence the consumer purchase decision making process.

Ishak and Zabil (2012) found that consumer awareness was still at the earliest stage to generate effective behavior. However, high levels of consumer awareness lead to more effective behavior and low level of consumer awareness indicate reduction of consumer rights against seller frauds. Juscius and Sneideriene (2013) explained consumer awareness about environment generate the socially responsible consumption behavior.

Thus, environmental awareness of consumer influenced the consumer behavior related to socially responsible consumption. Moreover, previous studies demonstrated a number of evidences related to consumer awareness and consumer behavior relationship.

H7: *Consumer awareness has a significant influence on socially responsible plate food consumption.*

3.3.3 Hypotheses Related to Self-concept and Consumer Awareness Congruity

Variable

The self-congruence variable has been treated as an independent variable in prior consumer behavior studies, having different self-congruities and impact on various consumer attitudes. However, Said and Hassan (2014) developed a self-congruity construct with halal food consumption, and found its impact on halal food attitude to purchase. Li (2009)

developed the four different congruities between consumer self-concept and designation personality - actual self and destination personality AS-DP congruity; Ideal self and destination personality IA-DP congruity; social self and destination personality (SS-DP); and Social ideal self and destination personality (SI-DP congruity). However, actual self and ideal self-congruities are existed significantly for destination personality and affect consumer destination preference (Li, 2009). Similarly, consumer actual self-congruity and ideal self-congruity have significant impact on consumer attitude towards visiting the destination (Hosany & Martin, 2012). Sirgy et al., (1997) used the effect of consumer actual self-congruity on product choice attitude. Moreover, Ibrahim and Najjar (2008) examined the impact of actual self-congruity and ideal self-congruity on product purchase attitudes.

However, in earlier studies self-congruence studies have needed to testify the impact of various types of self-concepts on consumer attitude towards socially responsible plate food consumption. From the following regard, H8 hypothesis is postulated.

H8: *SC-CA congruence has a significant influence on attitude towards socially responsible plate food consumption.*

3.3.4 Hypotheses on Consumer Attitude and Socially Responsible Plate Food

Consumption Behavior Variable

The construct attitude uses an independent variable of behavior in the theory of planned behavior (Ajzen, 1991). Having part of the theory, consumer attitude construct has been examined in consumer behavior studies. The relationship between consumer attitude to finish the plate food and socially responsible consumption behavior is yet to be identified by the researchers.

Chisnall (1995) proposed that consumer attitude has a significant effect on consumption behavior. Another study also suggested that consumer attitude towards organic food consumption developed from surroundings and affected the organic food consumption behavior (Mutlu, 2007). The nature of the surrounding is measured through either high or low consumer consumption attitude that influenced the food consumption behavior (Mutlu, 2007). On those bases, hypothesis H9 is proposed in this study.

H9: *Consumer Attitude has a significant influence on socially responsible plate food consumption.*

Numerous studies in consumer behavior have used attitude construct as a direct influencer as well as indirect influencer. Ojedokun and Balogun (2010) investigated that consumer attitude towards responsible environment significantly mediate between consumer self-concept and responsible behavior. Consumer attitude construct was also explored as a mediator between consumer self-concept and responsible environmental behavior by Johnson et al., (2004); McKenzie-Mohr and Smith (1999). However, this study postulated hypothesis H10 on the bases of existing evidence of consumer attitude as a mediator.

H10: *Consumer attitude significantly mediates between consumer self-concept and socially responsible plate food consumption.*

The consumer attitude has not only been tested as an independent variable in consumer studies, but also used frequently as a mediator construct. In the light of the theory of planned behavior, consumer attitude construct has been tested as a mediator construct in consumer behavior (Ajzen, 1991). Attitudinal and normative constructs in the theory of planned behavior does not work as an independent construct (Kim et al., 2006). However, numerous studies identified the effect of subjective norm in term of awareness (nutritional

labeling) influence the consumer food behavior through attitude (Oliver & Bearden, 1985; Vallerand et al., 1992; Taylor & Todd, 1995; Chang, 1998; Ryu & Jang, 2006; Han et al., 2010). Additionally, Kim et al. (2013) found that consumer subjective norm and perceived behavioral control influence consumers' behavior intentions to read menu labels in the restaurant through attitude. Therefore, attitude significantly mediates between awareness and behavior. On the available evidence of attitude as a mediator construct, H11 is postulated in this study.

H11: Consumer attitude significantly mediates between consumer awareness and socially responsible plate food consumption.

3.4 Conceptual Framework

The proposed conceptual framework is established based on the Theory of Symbolic interactionism (TSI) and Theory of Self Congruence (TSC). Theory of self-congruence has been used to elucidate the consumer self-concepts and consumer awareness affect on consumer attitude and plate food waste towards socially responsible consumption behavior. The self-concept encompasses to three factors such as actual self, social self, altruistic self, religious self, undesired self, feared self, and consumer awareness have been incorporated in the theoretical framework of the Theory of Self Congruence (TSC). Furthermore, consumer attitude and socially responsible plate food consumption have been incorporated in the theoretical framework of the Theory of symbolic interactionism. The conceptual framework is shown in Figure 3.1.

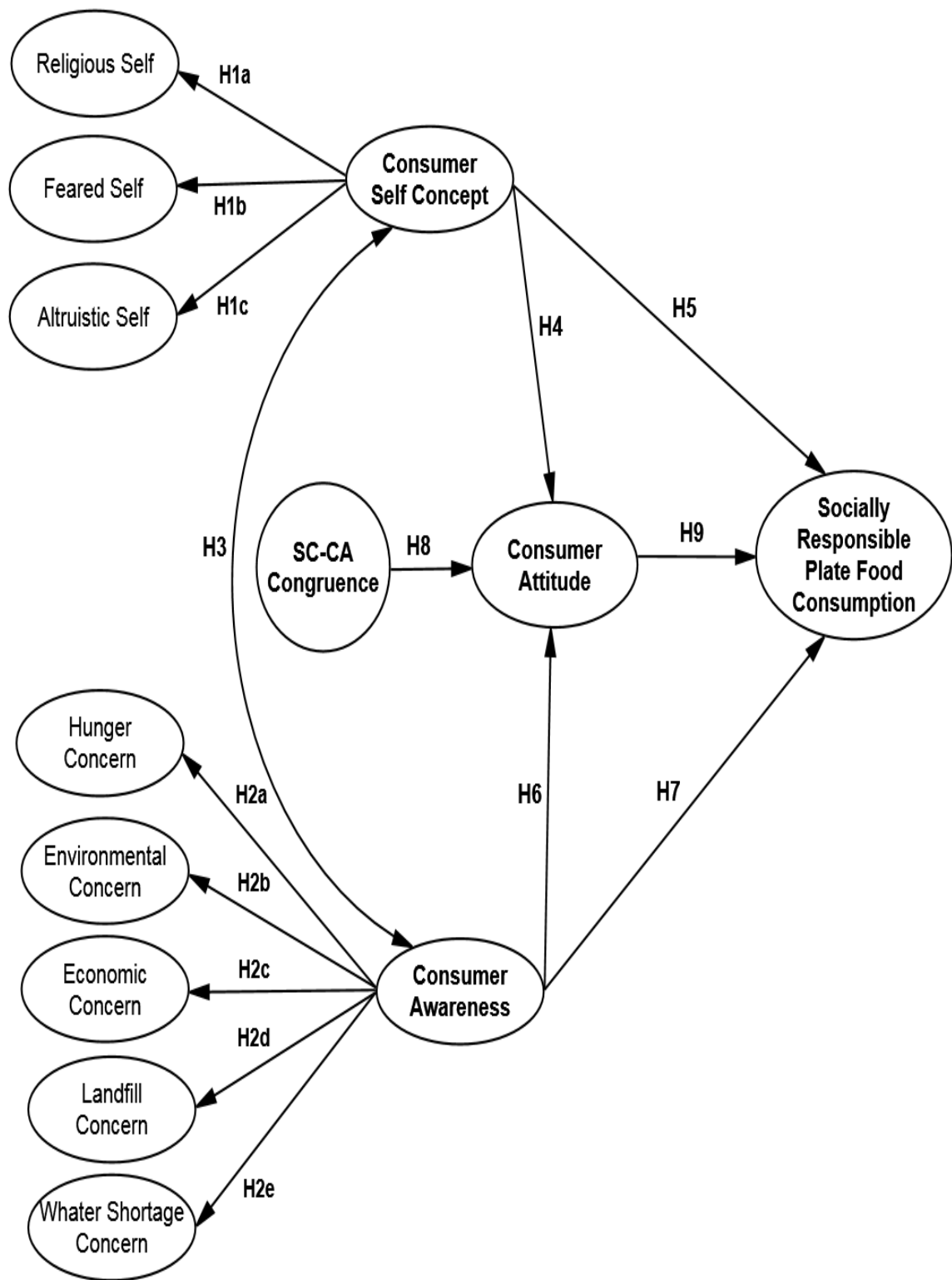


Figure 3.1: Conceptual Framework

Source adapted from: Li (2009)

CHAPTER 4

RESEARCH DESIGN

4.1 Introduction

This chapter presents the research design that intends to examine the relationships among consumer self-concepts, consumer awareness, self-concept and consumer awareness congruity, consumer attitude, and socially responsible consumption behavior. Further to that, a conceptual model is discussed, as well as hypotheses of the research and some literature review. Besides that, population, sample characteristics, procedures of data collections, questionnaire administration and its measurements are also presented. Finally, the tool for statistical analysis is discussed.

4.2 Philosophy of the Research

The purpose of this section is to oversee the philosophical assumption of this study. This philosophy should serve as the underpinning assumptions of every research. Addressing the need, an ontological and epistemological aspect will be briefly discussed in this section. The general idea of the positivist and interpretivist research philosophies will follow suit.

Guba and Lincoln (1994) explained the research philosophy with three beliefs: ontology refers to the nature of reality; epistemology refers to how the knowledge is acquired; and methodology refers how the methods are used. The suitability of determinant research methods to be used are depending very much research philosophy in any research study (Creswell, 2009).

Ontology explains the investigation of the social phenomenon (Cohen et al., 2000) as well as the nature of reality (Creswell et al., 2007). Things are ‘real’ while constructed

in the minds of the actors who are involved in the actual state of affairs (Guba & Lincoln, 1994).

Epistemology is about knowledge acquisition (Cohen et al., 2000) or beliefs about knowledge (Orlikowski & Baroudi, 1991). Hirschheim et al. (1992) noted that there are two aspects of epistemology: what knowledge is; and how researchers can achieve ‘valid’ knowledge.

Orlikowski and Baroudi (1991) stated the existence of a relationship between knowledge (epistemology) and actual world (ontology) when conducting research in social sciences. Hence, research orientations play an important role to establish this relationship. These research orientations are known as positivism and constructivism, (Orlikowski & Baroudi, 1991; Guba & Lincoln, 1994; Myers, 1997; Neuman, 2006). Both positivism and constructivism are widely adopted in social science research (Orlikowski & Baroudi, 1991; Guba & Lincoln, 1994; Myers, 1997; Neuman, 2006).

4.3 Research Design

The term research methodology attributes to the science of deciding suitable methods to productively conduct a research project (Burns & Bush, 2006). Bryman (1984) identified three types of research methodology, which were quantitative research, qualitative research and mixed methods research. Each method is discussed further.

4.3.1 Study Design

This study was made up of two stages: i) preliminary study; and ii) actual study (refer Figure 4.1).

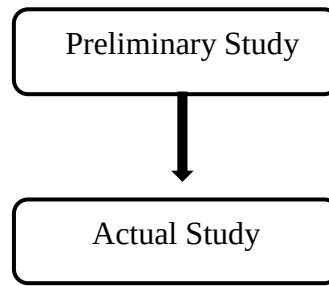


Figure 4. 1: Study Design

The preliminary study was conducted to explore the constructs and variables of the dependent variables that might be different from the literature since the context of this study (Malaysia) is different (i.e. mostly conducted in Western countries).

The actual study was conducted using of the constructs and variables which extracted from the preliminary study together with the constructs available from the literature. Both preliminary and actual studies are discussed in Subsections, 4.3.1.1 and 4.3.1.2, respectively.

4.3.1.1 Preliminary Study

The preliminary study was conducted by face to face interviews with identified respondents that could answer the questions related to plate food behavior. The interviews were conducted in March 2014. The interviewees were either parents or children of a household based on the prior information regarding their levels household of food wastage. Careful selections of the screening process were carried out where only respondents with high household food wastage were selected to be the respondents of this study. Finally, ten (10) respondents were involved in the interview. The average age of respondents was between 15 to 45. The majority of respondents were female.

A structured interview were carried out guided with 10 questions to probe and define the respondents' key attributes of socially responsible plate food consumption behavior. The interviews were lasted within seven (7) to ten (10) minutes.

Interviewees' responses and opinions regarding socially responsible plate food consumption were the analysed. The findings from this preliminary stage were further refined and developed assisted by findings available literature reviews. The key attributes emerged from this preliminary stage are: religious self, feared self, altruistic self, hunger awareness, environmental awareness, economic awareness, landfill awareness and water shortage.

4.3.1.2 Actual Study

Subsection 4.3.2 onwards will present the actual process carried out for this study.

4.3.2 Quantitative Research

Quantitative research is a method used for testing the objectives and theories by an empirical assessment which associates with the numerical measurement and analysis (Malhotra & Birks, 2007; Creswell, 2009; Zikmund et al., 2010). According to Burns and Bush (2006), with the help of quantitative research, the researchers test the hypotheses to support or refute the hypothesis based on the analysis of data collected.

4.3.3 Qualitative Research

Creswell (2009) explained qualitative research as “a means for exploring and understanding the meaning an individual or groups ascribe to a social or human problem”. The nature of qualitative research is mostly unstructured, having small samples, preliminary and is an exploratory type of research (Malhotra & Birks, 2007; Creswell,

2009). In addition, qualitative research is an attempt to provide extensive insight to a complex issue that is under-consideration (Malhotra & Birks, 2007; Creswell, 2009).

4.3.4 Mixed Methods Research

Creswell (2009) defined that mixed methods research as a combination of quantitative and qualitative approach. In mixed methods research approach, the researcher uses the advantage of both quantitative and qualitative approaches (Burns & Bush, 2006). The qualitative research approach conceptualizes the quantitative research design (Burns & Bush, 2006). A conceptual model is testified in quantitative research approach with the support gathered in qualitative research conducted earlier (Burns & Bush, 2006).

4.3.5 The Selected Research Methodology

The quantitative research approach was chosen for the study since it is able to test the hypotheses set for the theoretical framework for this study. The quantitative research method will also determine the data collection and analysis procedures for this study.

4.4 Types of Research Data

A researcher needs to know the kind of data needed for his or her research to address the research objectives. Research data are mostly classified into primary research data and secondary research data.

4.4.1 Primary Research Data

Malhotra and Birks (2007) and Burns and Bush (2007) explained that primary research data is collected for a particular purpose or research problem by the researcher. The nature of primary data could be qualitative or quantitative (Malhotra & Birks, 2007). Thus, it may

be collected via different research methods and strategies such as surveys (either administered or self-administered survey), observations, experiments and focus groups. The strategy of primary data collection is mostly adapted to answer the research questions accurately (Churchill, 1999). Even though, this strategy is used to test the research hypotheses in social science studies (Churchill, 1999), the survey approach is commonly used in primary data collection strategy as cited in prior studies.

There are to advantages to primary research data. Firstly, primary research data gives full control of reliability and validity of data to the researcher. Therefore, the data are more precise and generates more purposive results (Lacobucci & Churchill, 2010). Secondly, primary data indicates the capacity to collect particular information on diverse topics which are of interest to the researcher (Lacobucci & Churchill, 2010).

4.4.2 Secondary Research Data

Secondary research data refer to previously collected data by someone other than the researcher, for other's purposes (Malhotra & Birks, 2007; Burns & Bush, 2007; Zikmund et al., 2013). For instance, government data, financial databases, industry association groups, and organizational data are considered in the list of secondary research data. This type of data is extensively utilized, and accepted in academic disciplines such as health care administration, economics and finance (Houston, 2004). Contrarily, due to the issue of over validity, secondary data is not used too much in the marketing discipline (Houston, 2004). Methods for estimating the validity of multi-item scales, while used in the questionnaires, is widely accepted as instrumentation in the discipline of marketing research (Churchill, 1999; Bryman & Bell, 2007).

Secondary data too have advantages and disadvantages as primary data. The advantages of secondary data are easy to access; not too expensive; quickly obtainable, less

possibility to be affected by self-report biases that could exist in the data gathered with the help of attitudinal scales, get responsive information that maintaining access to the actual research (Houston, 2004; Burns & Bush, 2006; Malhotra & Birks, 2007; Zikmund et al., 2013).

The data are collected from sources meant for other purposes, and do not having close relevancy to the problem(s) the researchers are addressing (Malhotra & Birks, 2007; Zikmund et al., 2013). The reporting units are also a big issue in secondary data. Sometimes, the existing data are available in other than the units a researcher need. Other disadvantages are outdated data, issue with the same class, and mismatched sample (Houston, 2004; Burns & Bush, 2006).

4.4.3 Selected data for this Study

In the light of the positivist approach adopted in this study, as well as the adoption of quantitative research methodology, primary data collection is more appropriate for this study. After the primary data selection process, the research design is shaped for primary data exploration from the respondents.

4.5 Research Strategies

Research strategies are scientific investigational tools narrated in a comprehensive means, which include how the study will be conducted; how the subjects will be involved; and how the instruments will be utilized to obtain the objective of the study (Burns & Bush, 2006). The subject could consist of humans and objects, just as the instruments used may be questionnaires, photographs or diaries, based on the nature of the study that is investigated (Zikmund & Babin, 2010). To clarify the doubt of research methods and

strategy terms, Bryman and Bell (2007) explained that method and strategy are both sides of one coin.

Several research methods have been used in marketing and commerce disciplines (Orlikowski & Baroudi, 1991; Malhotra & Peterson, 2001). For selecting the appropriate research methods and strategies for this study, several methods are discussed in this subsection. The nutshell of research method selection is highlighted at the end of the Subsection, 4.6.6.

4.5.1 Experimental Research

Zikmund et al. (2013) described experimental research as a research, in which researcher maneuvers the independent variables such as types of treatment, teaching methods, and communication strategies, and measures dependent variables such as anxiety levels, English comprehension, and satisfaction, with regards to the set up of cause-and-effect relationships among them. In addition, there are two methods for experimental research:

- **Laboratory Experiments:** The researchers create an artificial setting (a laboratory experiment) to investigate a specific occurrence (Boudreau et al., 2001), to recognize the relationships between the variables in a controlled environment. Burns and Bush (2006) noted that laboratory experiments are required when researchers are interested to achieve the highest amount of validity.
- **Field Experiments:** Burns and Bush (2006) referred to it as conducting the experiment within the natural environment where the event usually occurs. Similarly, Zikmund et al. (2013) tried to explain the concept of field

experiments research projects that involving experimental manipulations that are implemented in a natural environment.

4.5.2 Case Studies

Case study is a strategy which explores the actual effects of the program, event, and activity, process, on a group of individuals or individual in detail. Cases are encircled by time and activity, and detailed information is collected through different channels over a suitable period of time by the researchers (Stake, 1995). In this strategy, researchers have more control over exploring the reality in a better way (Stake, 1995).

4.5.3 Phenomenological Research

According Galliers (1992), phenomenological research leads to a structured process, more suitable for an individual than a group of individuals. Vogel and Wetherbe (1984) stated that this research is more or less based on speculation and opinion than observation. The outcomes from phenomenological research are usually used for theory development. However, the key advantage of this research lies in the idea generations (Vogel & Wetherbe, 1984).

4.5.4 Forecasting and Future Research

Forecasting and future research are organized strategies to investigate something that might come to be. The main advantage of such researcher is to give the researcher a prediction of a problem that might be happen in the future (Galliers, 1992). It can enhance the chances of a narrow escape from that problem. These studies get the ideas of avoidance of problem from prior studies (Galliers, 1992).

4.5.5 Survey

Survey research is very popular in marketing and e-commerce research (Malhotra & Peterson, 2001; Dwivedi et al., 2006), as well as in business and management research (Creswell, 2009). In marketing discipline, researchers prefer to conduct the survey to obtain more research process control. Surveys often consist of a number of questions which are asked of the respondents with regards to behavior, attitudes, awareness, lifestyle characteristics and demographics (Malhotra & Birks, 2007). The questions in survey could be verbal, written, or computerized for respondents to respond. This method is generally associated with the structured form of data collection; particularly structured questionnaires are designed with respect to sample of population. That extracted the desired pieces of information from the respondents (Malhotra & Birks, 2007; Zikmund et al., 2013).

4.5.6 Selected Research Methods and Strategies for this Research

After a review of several research methods and strategies, the researcher has decided to employ the survey method for this study as it is more suitable for research objectives and questions than others method for this study. Therefore, structured questionnaire was developed to conduct the survey from respondents of this study.

4.6 Temporal Classification of Survey

After selecting the survey research, next step is to decide the temporal classification of the survey. At the base of temporal classification, survey is divided into two temporal sections; cross sectional and longitudinal studies.

4.6.1 Cross-sectional

Cross sectional method of survey refers to gathering the data just once, may be over a period of days, weeks or months for answers to the research questions (Sekaran, 2003). Zikmund et al., (2013) described the concept of cross-sectional study as a study in which various segments of population are sampled and data are collected at a single moment in time. Bryman and Bell (2007) explained that cross-sectional survey is a predominated data collection procedure through questionnaire and interviews of respondents at a single point in time. Cross-sectional survey needs to use large number of sample sizes (Churchill, 1999; Bryman & Bell, 2007).

4.6.2 Longitudinal

Sekaran (2003) described longitudinal strategy as a gathering of data at more than one place in time to answer the researchers' questions. Zikmund et al. (2013) noted the concept of longitudinal study as a survey of respondents at different times, thus allowing analysis of continuity of responses and changes over time. Longitudinal studies are used to measure the changes from past to present in business and management (Churchill, 1999; Bryman & Bell, 2007). Pettigrew (1990) described the aims of longitudinal studies include measuring the trends of change in the society, as well as individual and organizational levels.

4.6.3 Selected Temporal Classification of Survey for this Research

Based on longitudinal study's characteristics, it is deemed to be not suitable due to its repetitive condition. Furthermore, longitudinal study has particular limitations based on several reasons: firstly, the data may be collected almost at once at a single point of time; secondly, it has the ability to decide the relationships among variables; and thirdly, it is suitable as a center of attention, such as the investigation of the relationship between

consumer self-concepts and consumer awareness to socially responsible plate food consumption behavior in this study. Therefore, in this study, cross-sectional research design is adopted for the following reasons:

1. The present study's pattern is based on the relationship among the various variables as such consumer self-concept (religious self, feared self and altruistic self), consumer awareness (hunger concern, environmental concern, economic concern, landfill concern, and water shortage concern), consumer attitude and socially responsible plate food consumption.
2. Cross-sectional data from research design is fairly more inexpensive and takes lesser time to conduct.
3. Research design based on cross-sectional data is more representative of the population than longitudinal data.

4.7 Population and Sampling Design

This section explains the sampling design which consisted of population, sample and sampling techniques and sample size for this study. The three stages are discussed one by one to find the accurate sample for this study.

4.7.1 Population

A population is the total number of people or elements which fit into the particular set of specification of a study (Polit & Beck, 2006). In the research methodology literature, it is also known as target population. Furthermore, Polit and Hungler (1999) explained the population as a totality of the subjects that meet certain sets of specifications, consisting of an entire group of persons that is of interest to the researcher and to whom the research

results could be generalized. A population consists of all the possible cases (persons, objects, events) that constitute a known whole (Ross et al., 2005; Yount, 2006).

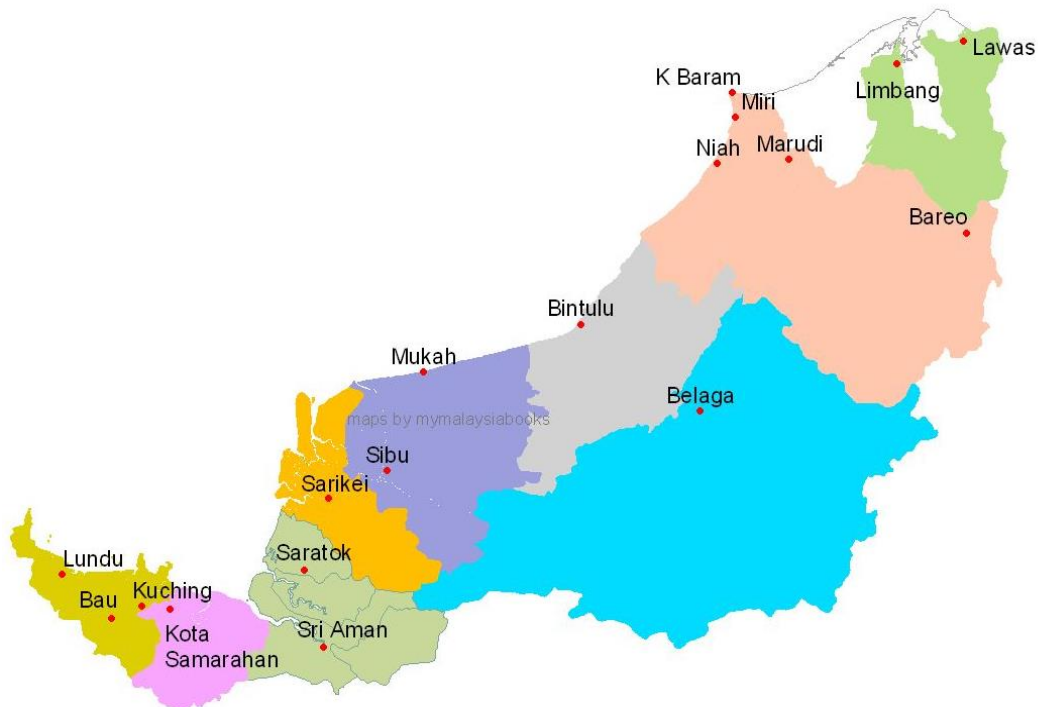


Figure 4.2: Map of Sarawak Malaysia

Source: www.mymalaysiabooks.com

In order to identify the desired target population in the study, all the members of a household (mother, father, and children above the age of fifteen) are selected as a target population which could understand the questionnaire for accurate response. Administratively, Malaysia comprises of thirteen states and three federal territories, namely Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan, Melaka, Johor, Pahang, Terengganu, Kelantan, Sabah, and Sarawak; and the federal territories of Kuala Lumpur, Labuan, and Putrajaya,. However, it is hard to reach every member of the population of Malaysia. Hence, researcher identified accessible portion of the population of Malaysia. The time, resources, and ease of access to the population by the researcher (Yount, 2006)

are the bases for this selection. The researcher wished to cover the target population through survey. The state of Sarawak, which is the fifth largest populated state in Malaysia and produced huge amounts of food waste as compared to the other states in Malaysia, was identified as the target population in this study (refer to Figure 4.2).

4.7.2 Sample and Sampling Techniques

According to Rajasekar (2006), the sample is a share of the larger group as a selected portion of the population. In this study, the population was geographically scattered. According to Yount, 2006 with the support of sampling techniques, the researcher analyzed the sample and made inferences about the population characteristics. The sample is a small-scale version, and was representative of the entire population. However, a miniature model is drawn from the overall population. The defined population was all plate food consumers at household levels of four major cities in Sarawak, Malaysia, namely Kuching, Sibul, Miri and Bintulu. Purposive sampling technique was used to identify the plate food consumers of households in these four major cities in Sarawak. The quota sampling technique was chosen based on the following reasons:

- i) Primary data might only be collected realistically at the four cities (Kuching, Sibul, Bintulu and Miri) of Sarawak state. Collecting data from individual to individual was not feasible throughout the country or even throughout the state, due to the constraints of time, access and logistical.
- ii) In order to use probability sampling, the main requirement is to list all the elements in the sample frame. The application of probability sampling is not possible as all the elements of the population was not listed in the sampling frame. The country wide population of plate food household consumers was not available or accessible. However, Sarawak was chosen through purposive

sampling technique, and data were available from these identified areas of Sarawak, Malaysia.

- iii) Purposive sampling was utilized to select the Sarawak out of thirteen states in Malaysia as the plate food household consumers here can provide information related to queries.
- iv) These four major cities (Kuching, Sibü, Bintulu and Miri) in Sarawak have an accumulated population of 1.589 million (refer to Table 4.1) (Department of Statistics Malaysia, 2016).

Furthermore, major cities of Sarawak state of Malaysia were selected as defined population; the major cities are relatively highly correlated as compare to rest of the cities of this country for survey. The breakdown of the population of the four cities as well as overall population of Sarawak are depicted below in Table 4.1.

Table 4. 1: Population of Major Cities of Sarawak

Major Cities	Population in Million	Percentage
Kuching	.705	44.38
Sibu	.299	18.85
Bintulu	.220	13.84
Miri	.364	22.93
	1.589	100.00%

Source: Department of Statistics Malaysia (2016)

4.7.3 Sample Size

To determine the sample size, three criteria were employed such as: i) the level of precision (the range in which the true value of the population is estimated to be); ii) the confidence level or risk level (with the help of central limit theorem that explains when the population is repeatedly sampled, the average value of the attribute obtained by those samples is equal to the true value of the population); and iii) a large sample size as the

degree of variability will increase while the population is heterogeneous. Reciprocally, in case of homogeneous population, the degree of variability will decrease and a smaller sample size is required (Israel, 2009).

The selection of a sample usually offers numerous advantages as compared to the total coverage of the population. Dell and Holleran (2002) and Ross et al. (2005) noted that intense supervision of data collection may reduce the data collection cost, aid the researcher to process the data speedily, and obtain greater accuracy.

Hence, to calculate the minimum sample size from a total population and sampling error Israel's (2009) formula: $n = N / [1 + N (e^2)]$ was utilized. Therefore, sampling error tolerance of 5% and a total population of each major cities were used in the formula and generated a minimum sample size of each city (referred to Table 4.2). Tull and Hawkins (1987) noted that a sample size as low as 200 and as high as 2000 was needed for regional studies.

To achieve a representative sample of the population, a sample of 1536 consumers was allocated to the four major cities on a proportionate quota sampling as shown in Table 4.2. Therefore, in this study, a representative sample size of 1536 consumers from these four major cities was achieved for further data analysis.

Table 4. 2: Sample Allocated to Major Cities of Sarawak

Major Cities	Population in Millions	Percentage	Sample
Kuching	.705	44.38	682
Sibu	.299	18.85	290
Bintulu	.220	13.84	212
Miri	.364	22.93	352
	1.589	100.00%	1536

4.8 Questionnaire development

A questionnaire is defined as “a reformulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives” (Sekaran, 2000, p. 233). Questionnaire is also widely used in the various marketing study (Bowen & Shoemaker, 1998; Bloemer & De Ruyter, 1999; Pritchard et al., 1999; Kim & Cha, 2002).

Questionnaire is the chosen instrument to collect the data for this study. Questionnaire provides the advantage in term of its effectiveness in gathering empirical data from a large sample (Saunders et al., 2003). The study’s questionnaire was divided into three parts (see Appendix A), presented as follows:

Part 1

The first part consists of forty-six questions on religious self, feared self, altruistic self, attitude and socially responsible plate food consumption behavior.

Part 2

The second part consists of twenty-eight questions on consumer hunger concern awareness, environmental concern awareness, economic concern awareness, landfill concern awareness, and water shortage concern awareness.

Part 3

The third part consists of eight questions regarding respondents demographic background e.g. gender, age, current marital status, family members, education, ethnic group, religious and income level.

4.8.1 Measurement of Variables

Five-point scale is mostly used by researchers when respondents are at that stage to express their viewpoint in a better way (Wani & Masih, 2016). Table 4.3 presents the types of scales used in this study. Since there are various scales used available in the literature, subsection 4.8.1.1 until 4.8.1.11 details the respective types of scales used in this study.

Table 4. 3: Total of Scale Items Used in this Thesis

Constructs	Number of Items	Scales	Sources
Religious Self	10 Items	5 point Likert	(Worthington et al., 2003)
Feared Self	6 Items	5 point Likert	(Davidson, 2000; Mollema et al., 2000)
Altruistic Self	10 Items	5 point Likert	(Tapia-Fonllem et al., 2013)
Hunger Concern Awareness	5 Items	5 point Likert	Developed by researcher
Environmental Concern Awareness	7 Items	5 point Likert	Fujii et al., 2003; Clark et al., 2003; Wall et al., 2007
Economic Concern Awareness	5 Items	5 point Likert	(Wall et al., 2010)
Landfill Concern Awareness	6 Items	5 point Likert	Developed by researcher
Water Shortage Concern Awareness	5 Items	5 point Likert	(Isen, 2015)
Attitude	8 Items	5 point Likert	(Kareklas, et al., 2013; Jalees, 2013 Developed by Researcher).
Socially Responsible Consumption Behavior	6 Items	5 point Likert	(Antil, 1984; Gonzalez et al., 2009; Francois-Lecompte & Roberts, 2006)

4.8.1.1 Religious Self Scale

The religious self indicates the commitment of an individual to a religion, and this plays a vital role in influencing the attitude and consumer behavior (Delener, 1990). The instrument used in this study is Religious Commitment Inventory (RCI-10), which was

developed by Worthington et al. (2003). The instrument consists of 10 items and recorded a reliability of 0.95. The original instrument was based on a similar five points Likert scale that is used to measure the consumer religious self in the present study. Thus, all the items of religious self-concept scale are shown in Table 4.4.

Table 4. 4: Religious Self Scale

Sr.No.	Original Scale	Reference	Adapted Scale
RES_1	I often read books and magazines about my faith.	Worthington et al. (2003)	I often read books and magazines about my religion.
RES_2	I make financial contributions to my religious organization.	Worthington et al. (2003)	I make financial contributions to my religion.
RES_3	I spend time trying to grow in understanding of my faith.	Worthington et al. (2003)	I spend time trying to grow in understanding of my faith.
RES_4	Religion is especially important to me because it answers many questions.	Worthington et al. (2003)	I find that my religion answers many questions.
RES_5	My religious beliefs lie behind my whole approach to life.	Worthington et al. (2003)	My religious beliefs lie behind my whole approach to life.
RES_6	I enjoy spending time with others of my religious affiliation.	Worthington et al. (2003)	I enjoy spending time with others of my religious affiliation.
RES_7	Religious beliefs influence all my dealings in life.	Worthington et al. (2003)	Religious beliefs influence all my dealings in life.
RES_8	It is important to me to spend periods of time in private religious thought.	Worthington et al. (2003)	It is important for me to spend periods of time in private religious thoughts.
RES_9	I enjoy working in the activities of my religious organization.	Worthington et al. (2003)	I enjoy participation in activities associated to my religion.
RES_10	I keep well informed about my local religious group and have some influence in its decisions.	Worthington et al. (2003)	I am well informed about local groups associated to my religion.

4.8.1.2 Feared Self Scale

Feared self-construct scale is developed by combining scales of two groups of authors who are Davidson et al. (2000) and Mollema et al. (2000). Both groups of researchers developed their scale for medical research. Therefore, six items were adopted from their studies namely four items from Davidson et al. (2000) and two items from Mollema et al. (2000). For a better understanding, the items are modified to Malaysian context. Table 4.5 depicts all items used for feared self-concept variable.

Table 4. 5: Feared Self Scale

Sr.No.	Original Scale	Reference	Adapted Scale
FES_1	I am afraid of people in authority	Davidson, J.R.(2000)	I am afraid of natural disasters.
FES_2	Fear of embarrassment causes me to avoid doing things	Davidson, J.R.(2000)	I am afraid of becoming overweight.
FES_3	I am bothered by blushing in front of people.	Davidson, J.R.(2000)	I am afraid of doing anything bad when people are watching.
FES_4	I am afraid of doing things when people might be watching	Davidson, J.R.(2000)	I am afraid of doing anything that might affect me badly in the future.
FES_5	When I have to inject myself; I feel afraid	Mollema et al. (2000)	Whenever I break the social norms, I get worried of its consequences.
FES_6	When I have to prick my finger; I become restless	Mollema et al. (2000)	Whenever I see my wastage, I get restless thinking about its bad effect on society.

4.8.1.3 Altruistic Self Scale

Altruistic refers to motivational construct aimed at others' well-beings (Schultz, 2001). The construct altruistic self has been used in several perspective. Altruistic self construct consists of different items from different researchers, and was used by other researchers in several contexts (Rushton, Chrisjohn & Fekken, 1981; Rushton et al., 1986; Krueger,

Hicks & McGue, 2001). Rushton et al. (1986) and Krueger, Hicks and McGue (2001) used Rushton, Chrisjohn and Fekken's (1981) 20 items based on five-point Likert scale to measure altruistic construct .

This thesis used the altruistic measure reported by Tapia-Fonllem et al. (2013) and Corral-Verdugo et al. (2008). The scale was based on ten items on a five-points Likert scale anchored from strongly disagree (1) to strongly agree (5). For better understanding, items are modified according to Malaysian culture. All the items of altruistic self-concept scale is shown in Table 4.6.

Table 4. 6: Altruistic Self Scale

Sr. No.	Original Scale	Reference	Adapted Scale
ALS_1	Gives clothes to the poor	Tapia-Fonllem, C. (2013)	I normally give food to the poor.
ALS_2	Assists people who fall or get hurt	Tapia-Fonllem, C. (2013)	I assist people who fall or get hurt.
ALS_3	Contributes financially with the Red Cross	Tapia-Fonllem, C. (2013)	I help strangers asking for directions.
ALS_4	Visit the Sick at hospitals/homes	Tapia-Fonllem, C. (2013)	I visit the sick at hospitals or their homes.
ALS_5	Helps olders or handicapped crossing street	Tapia-Fonllem, C. (2013)	I help old or handicapped whenever I see them.
ALS_6	Guides persons asking for direction	Tapia-Fonllem, C. (2013)	I provide some money to the homeless.
ALS_7	Provides some money to homeless	Tapia-Fonllem, C. (2013)	I donate money to organizations for charity.
ALS_8	Participates in fund-collection rallies	Tapia-Fonllem, C. (2013)	I donate money in response to flood affected campaigns.
ALS_9	Donates blood in response to campaigns	Tapia-Fonllem, C. (2013)	I participate in fund-collection activities for hungry people.
ALS_10	Cooperates with colleaues	Tapia-Fonllem, C. (2013)	I look after my neighbours.

4.8.1.4 Hunger Concern Awareness Scale

The assessment of hunger concern awareness questions are quite limited marketing research especially related to the plate food behaviour. The existing statements available in the literature do fit the purpose for this study. Therefore, this study need to develop statements on hunger concern awareness. Hence, five new items were generated and aligned with the consumer hunger awareness constructs. The face validity of these newly constructed items were tested during the pre test stage and construct validity was tested during the analysis stage. The reliability was tested during and pilot test stage as well as during the analysis stage. The new five items were uses a five points Likert type scale, anchored from highly unaware (1) to highly aware (5), reflected in Table 4.7.

Table 4. 7: Hunger Concern Awareness Scale

Sr.No.	Original Scale	Developed by Researcher
HC_1	Hungry people are increasing rapidly in the world.	
HC_2	Children are more affected by the scarcity of food.	
HC_3	There are many people around me who are food insecure.	
HC_4	Most of the people have knowledge about hungry people.	
HC_5	Several organizations are working to relieve world hunger.	

4.8.1.5 Environmental Concern Awareness Scale

Environmental awareness items were developed from a combination of three literatures. i.e Fujii et al. (2003), Clark et al. (2003), and Wall et al. (2007). Six items were adopted from these studies. A five-points Likert scale were used, anchored from highly unaware (1) to highly aware (5), reflected in Table 4.8.

Table 4. 8: Environmental Concern Awareness Scale

Sr.No.	Original Scale	Reference	Adapted Scale
ENC_1	The effects of pollution on public health are worse than we realize.	Fujii et al. (2003)	The effects of pollution on public health are likely to be worse than I realize.
ENC_2	Pollution generated in one country harms people all over the world.	Fujii et al. (2004)	Pollution generated in one country harms people all over the world.
ENC_3	Households like mine should not be blamed for environmental problems caused by energy production and use.	Clark et al. (2003)	Households hardly know the environmental problems caused by food waste.
ENC_4	Avoiding car use will help to solve wider environmental problems like global warming	Wall et al. (2007)	Avoiding food waste helps to solve environmental problems like global warming.
ENC_5	My transport choice can have an impact on the environment.	Wall et al. (2008)	Food consumption level can have an impact on the environment.
ENC_6	I contribute to pollution	Wall et al. (2009)	Over food consumption level contributes to environmental pollution.
ENC_7	I can help to solve my town/city traffic problems by avoiding car use.	Wall et al. (2010)	Avoiding plate food waste can help to solve community food waste problem.

4.8.1.6 Economic Concern Awareness Scale

Economic awareness construct scale is developed by adopting from Wall et al. (2007). The scale was developed to measure the consumer awareness related to consequences of car usage on environmental pollution. This study adopted the five items and transformed it into consumer awareness related to food waste consequences. A scale of five items and on a five-points Likert scale anchored from highly unaware (1) to highly aware (5) were developed. For better understanding, items are modified according to Malaysian culture. Thus, All the items of economic concern awareness scale are shown in Table 4.9.

Table 4. 9: Economic Concern Awareness Scale

Sr. No.	Original Scale	Referece	Adapted Scale
ECC_1	My transport choices can have an impact on the environment.	Wall et al. (2010)	Consumer purchasing choices can have an impact on the good imports of a country.
ECC_2	I contribute to pollution	Wall et al. (2010)	Over consumption contribute to high prices of food.
ECC_3	I can help to solve my town/city traffic problems by avoiding car use.	Wall et al. (2010)	I can help to control the prices of food by avoiding wastage.
ECC_4		Developed by Researcher	Over consumption increasing prices of goods
ECC_5	Avoiding car use will help to solve wider environmental problems like global warming.	Wall et al. (2010)	Avoiding food waste helps to solve economic problem like price increments of goods.

4.8.1.7 Landfill Concern Awareness Scale

Landfill awareness refers to the covering of land with waste. The evaluation of landfill awareness towards food waste instrument showed minimum availability in social science studies. Several studies were based on landfill public awareness but those studies could not verify the reliability and validity of the instruments. Moreover, non-reliable and non-validated items were mismatched with the aims of consumer landfill awareness towards food waste. However, this study developed the landfill awareness instrument to attain reliable and valid item that can represent the consumer landfill awareness. The new six items were on a five-point Likert scale anchored from highly unaware (1) to highly aware (5). For better understanding, items are developed according to Malaysian culture. All the items of landfill concern awareness scale are shown in Table 4.10.

Table 4. 10: Landfill Concern Awareness Scale

Sr. No.	Scale	Developed by researcher
LFC_1	Usable land will gradually be covered with waste.	
LFC_2	The waste disposal companies are dumping waste into the sea.	
LFC_3	There are several companies responsible for properly waste disposing.	
LFC_4	The land is continuously covered with garbage caused by household's waste.	
LFC_5	The coverage of land with food waste is harmful to the environment.	
LFC_6	The increasing landfill is threatening the environment's natural beauty.	

4.8.1.8 Water Shortage Concern Awareness Scale

Water shortage awareness refers to water scarcity in the world (Iscen, 2015). Iscen (2015) developed the waters scarcity/shortage instrument for three dimensions, namely water protection, water scarcity and water pollution, and water reeducation. Iscen (2015) measured the water scarcity instrument using an eleven point-likert scale from 0 to 10. Therefore, this study adopted the five items from Iscen (2015), and converted them into five point Likert scale anchored from highly unaware (1) to highly aware (1). All the items of water shortage concern awareness scale are shown in Table 4.11.

Table 4. 11: Water Shortage Concern Awareness Scale

Sr. No.	Original Scale	Reference	Adapted Scale
WTC_1	There may be wars in the future because of water scarcity	Iscen (2015)	Drinking water is very costly.
WTC_2	If we cannot protect it, drinking water will run out in the near future.	Iscen (2015)	Price of drinking water is increasing.
WTC_3	Water saving is unnecessary, because 2/3 of the world is covered by water	Iscen (2015)	The world is facing a problem of water shortage.
WTC_4	If human feces are removed in a healthy way, water-borne diseases will decrease.	Iscen (2015)	People are dying due to water shortage in the world.
WTC_5	An increased urbanization rate increases water pollution.	Iscen (2015)	People have to travel a lot further to get drinking water.

4.8.1.9 Attitude Scale

The concept of attitude is a pre-learned behavior against an object (Jalees, 2013). This concept eventually belongs to psychology for testing an entity's favorable or unfavorable rating (Eagly & Chaiken, 1993). However, many studies already used the attitude construct in consumer studies (Maldonado & Hume, 2005; De Matos et al., 2007; Marcketti & Shelley, 2009; Yung-Ming, 2009; Kim & Karpova, 2010; Jalees, 20013).

This study adapted items developed by Young-Ming (2004) for the attitude variable. It scale consists of five items adapted from Young-Ming (2004) and three items developed by the researcher for this study. All the items are measured using five-point scale anchored to 1 strongly agreed to 5 strongly disagree. All items of attitude variable are shown in Table 4.12.

Table 4. 12: Attitude Scale

Sr. No.	Original Scale	Reference	Adapted Scale
ATT_1	I prefer to buy products made from recycled paper or plastic.	Kareklas et al. (2013)	I prefer small quantity of food on the plate.
ATT_2	Generally speaking, buying counterfeit market goods is a better choice.	Jalees T. (2013)	I believe putting a lot of food on the plate is a better choice for taste.
ATT_3		Developed by researcher	I believe minimum quantity of food on the plate helps the environment.
ATT_4	I believe in being careful on how I spend my money	Kareklas et al. (2013)	I prefer a small quantity of food on the plate.
ATT_5		Developed by researcher	I believe minimum food on the plate saves the food for hungry people in the world.
ATT_6	There is nothing wrong with purchasing counterfeit luxury products.	Jalees T. (2013)	There is nothing wrong with plate food waste.
ATT_7	Buying counterfeit luxury products generally benefit the consumers.	Jalees T. (2013)	Eating in an ethical way generally benefits the society.
ATT_8		Developed by researcher	I believe minimum food on the plate which helps to save the water.

4.8.1.10 Socially Responsible Plate Food Consumption Behavior Scale

Socially responsible consumption refers to sustainable consumption in consumer lifestyles (Thøgersen & Ölander, 2002, 2003) socially responsible consumption scale was developed by several researchers. All the scales were developed in dissimilar context with other terms such as individual's social responsibility (Berkowitz & Lutterman, 1968); socially conscious consumer (Anderson & Cunningham, 1972); socially conscious consumer or ecologically conscious consumer (Anderson, Henion & Cox, 1974); socially conscious (Webster, 1975); socially conscious consumer (Brooker, 1975); socially and ecological concern (Belch, 1979; 1982); socially responsible consumer (Antil, 1984); and socially responsible consumption (Webb, Mohr & Harris, 2007).

The present research developed the new socially responsible consumption scale after adopting two items each from Antil (1984), Gonzalez et al. (2009), and Francois-LeCompte and Roberts (2006). Each item is modified with respect to socially responsible consumption towards plate food waste behavior. All the items of socially responsible plate food consumption scale are shown in Table 4.13

Table 4. 13: Socially Responsible Plate food Consumption Scale

Sr. No.	Original Scale	Reference	Adapted Scale
SRCB _1	People should be concerned about reducing or limiting the noise in our society.	Antil (1984)	People should be concerned about reducing or limiting the plate food waste in our society.
SRCB _2	Every person should stop increasing their consumption of products so that our resources will last longer.	Antil (1984)	Everyone should stop extra consumption of food so that our food resources will last longer.
SRCB _3	I limit my consumption to what I really need	Gonzalez et al. (2009)	I limit my plate food consumption to what I really need.
SRCB _4	In general, I try not to consume too much	Gonzalez et al. (2009)	I generally try to consume all the food that is available on my plate.
SRCB _5	I try not to buy objects that I can do by myself.	Francois-LeCompte, A and Roberts, A. James. (2006)	I hardly waste the plate food, which is attached to limited resources.
SRCB _6	I try to reduce my consumption to what I really need	Francois-LeCompte, A and Roberts, A. James., (2006)	I take only the portion of food I need to consume.

4.8.1.11 Self-Congruity Measurement

Primarily, there are two main methods to calculate the self-congruence score such as traditional measurement method (difference scores) and global or direct measurement method. The concern of the traditional measurement method is further calculated into two-step (Helgeson & Supphellen, 2004). In the first step, respondents rated a product or brand

with respect to a set of particular self-concept characteristics for a typical user of the product or brand concept. In the second step, the respondents' self-concepts would be associated or linked to the same characteristics. The estimation for congruity is done by computing the score difference for each characteristic, and then, summing up all characteristics. For the estimation of discrepancies, several mathematical indexes have been used such as: geometry distance measure; D^2 measure; generalized absolute difference measure; absolute arithmetic difference measure.

The generalized distance method of solid geometry to acquire self-congruity score D-measure¹ was first used by Birdwell (1968). The author had utilized this method to test the congruity level between consumers' self-image and perception of their cars. The zero value of D-measure shows total congruity or perfect perceptual agreement. The higher the value of D-measure, the more is the diversion from the congruity. On the contrary, lower the D-measure, the higher is the congruity between consumer's self-image and perception of their cars. The method of obtaining the self-congruity score has been replicated by different researchers like, Green, Maheshwari, and Rao (1969), and Karande, Zinkhan, and Lum (1997).

Furthermore, several studies utilized the absolute arithmetic difference² method to measure the congruence score between consumer self-concept and a brand concept, between two semantic differential instruments (Dolich, 1969; Sirgy, 1980; and Martin & Bellizzi, 1982). By summing up the differences of all scales, it provides a value which shows the congruence between self-concept and a brand concept. Samli and Sirgy (1981)

¹ $D_{ie} = \sqrt{\sum_i d_{ie}^2}$, where D_i is the linear distance between the points in the semantic space representing concepts **i** and **e** and **d_{ie}** is the algebraic difference between the coordinates of **i** and **e** on the same dimension or factor. Summation is over the k dimensions.

² $Self - Congruence = \sum |Self Image - Store Image|$

employed the same method of absolute arithmetic difference to measure the self-congruence score to attain the self- concept and store concept congruity score. Sirgy and Samli (1985) claimed that the absolute difference congruence method has been more predictive of product preference and purchase intention, than distance methods. In the recent decade, several researchers were using this method included Mehta (1999), Ekinci and Riley (2003), Magin et al. (2003), Kastenholz (2004), Kressmann et al. (2006).

There is also another method called ‘distance measure’ used to calculate the self-congruence: D^2 measure³ (Ross, 1971). The method affirms that when the D^2 value is at zero, Self-concept and brand concept are completely overlapped. On the contrary, when the D^2 has larger value, it shows that self-concept and brand concept have less similarity between each other. Beerli et al. (2007) had been used this method to estimate the self-congruity.

Sirgy and his colleagues have used several methods to calculate self-congruity (Sirgy, Johar, Smali & Claiborne, 1991). In the first study in the context of store concept, they used the same difference measure method to attain self-congruity as used in earlier two studies (Samli & Sirgy, 1981; Sirgy & Samli, 1985). In the second study in the context of store image, they also used semantic differential scales to measure the store concept, but the method to obtain self-congruity was different. In that study, they allocated a weight to each attribute for consideration⁴. In the third study (in the context of eight products), a five-point Likert scale was deployed to measure the actual self, social self, ideal self, ideal social self and product image. The distance index method was used for this to measure the

³ $D_{12} = \sum_{j=1}^k (X_{j1} - X_{j2})^2$, where, D_{12} is the distance between the points in the semantic space representing concepts **j1** and **j2**. Summation is over the k dimensions.

⁴ $\sum_{j=1}^m (STI_j)(SSI_j)(EW_j)$, where, STI_j = symbolic store image (j); SSI_j = social self-image (j); EW_j = evaluation weight of (j).

four self congruity models – actual self, ideal self, social self, ideal social self-congruity⁵ with respect to the product concept. In the fourth study (in the context of beer brand), the different distance index method⁶ is used to test the self-congruity models of actual self, ideal self, social self and ideal social congruity.

Despite the fact, different self-congruity scores methods were utilized comprehensively, several inherent problems were highlighted in those methods (Sirgy et al., 1997).

- i. Firstly, the features of predetermined image directed the respondents to point out the congruence with characteristics that may or may not be relevant to them.
- ii. Secondly, the utilization of the self-discrepancy index score consisted of multitude of problems such as being potentially unreliable; having systematic correlations with their components; having spurious correlations with other variables; having questionable construct validity; and restricting variance. Therefore, owing to these issues Sirgy and his colleague introduced the direct or global measurement method to tackle these problems.

In direct or global measurement method, respondents were asked directly to rate the congruity between a brand image and their own self-concept. In this connection, the direct or global method supposes that self-image congruity is a holistic, gestalt-like perception. Subsequently, this measurement method was used by Chon (1992), Jamal and Goode (2001), Helgeson and Supphellen (2004), Ekinci, Dawes and Massey (2008).

⁵ $\sum_{j=1}^m |P_j - S_j|$, where, P_j = product concept along attribute (j) ($1 \leq P_j \leq 5$); S_j = actual (or ideal, social, or ideal social) self-concept along attribute (j) ($1 \leq P_j \leq 5$). The greater the distance, the lower the congruity.

⁶ $\sum_{j=1}^n (D_j)$, where D_j = psychological or subjective difference between how one views oneself and image of beer brand. The greater the distance, the lower the congruity.

In addition, congruity score congruity score could also be measured by measuring the correlation between self-concept and product image. This method was also used by Bellenger, Steinberg and Stanton (1976), Ericksen (1996) and Li (2009). In this method, the higher the correlation was between variables, it meant the higher the self-congruity. Thus, the present study also followed the Ericksen (1996) method to measure the congruity between consumer self-concept and awareness.

4.8.2 Questionnaire Translation and Back Translation

Since the sample of this study involved non-English speakers (i.e. Malays consumers), the questionnaire was translated using forward-translation and back-translation method. Researchers such as Brislin et al. (1973), Malhotra et al. (1996), Temple (1997), Frazer and Lawley (2000), Mallinckrodt and Wang (2004), and Salciuviene et al. (2005) suggested the importance of forward-translation and back-translation since it takes into account cultural differences among respondents could cause non-equivalence that may affect the results of a study.

Malhotra et al. (1996, p. 24) highlighted that translators who are familiar with both cultures but not fluent in both languages could do erroneous direct translations of certain words or phrases. In marketing research, Bloemer and De Ruyter (1998), and De Wulf et al. (2001) also used this method. Translating the language used in the questionnaire involved the following stages:

- i. First, the original version of the questionnaire which was in English was translated into the Malay language by a translator who is a native Malaysian and fluent in both English and Malay languages.

- ii. This was followed by translation of the translated Malay questionnaire into English language by another translator who was also proficient in both Malay and English languages.
- iii. Finally, adjustments were made to the inconsistencies between first (English to Malay) and second (Malay to English) translations.

The translated instrument was evaluated through pretest before the final survey was conducted as suggested by Salciuvienė et al. (2005), Mallinckrodt and Wang (2004), and Sin et al. (1999). Both English and Malay versions of the questionnaires are shown in Appendix A and B.

4.9 Data Collection Procedure

The section explains the stages involved in the data collection procedures. This procedures for this study involved four stages (i.e. pre-test, pilot test one, pilot test two and actual data collection) presented in subsection 4.9.1, subsection 4.9.2, subsection 4.9.3 and subsection 4.9.4.

4.9.1 Pre-Test

The purpose of this stage is to identify any grammatical errors that could cause the respondents to conclude different meanings. Pallant (2011) stated that the researcher needs to ensure the respondents clearly understand the questions or directions of the questionnaire. A pre-test is suggested prior to doing the survey as country wide research is generally expensive as well as time demanding. A pre-test is often conducted on a small sample size of respondents for recognition and rectification of possible problem within the instruments, scale or a questionnaire (Zikmund, 2003). For the purpose of this study, the pretest is conducted prior to collecting the data for the main study. Practically, 35

questionnaires were distributed to marketing research experts who are from New Zealand, Australia, Malaysia and Pakistan to identify anticipated errors in the questionnaire. Out of the 35 questionnaires distributed, 20 were returned and amendments were made based on the feedback given.

4.9.2 Pilot Test One

A complete version of the questionnaire was distributed to the 50 respondents in Kuching, Sarawak, Malaysia. This pilot test had three objectives: firstly, to evaluate comprehensibility, wording, and clarity of the indicators which were in the instrument; secondly, to examine the time required to fill-out the questionnaire by respondents; And thirdly, to test the internal reliability of the measure. There was a portion at the end of the questionnaire for personal opinions on needed improvement, if any. This questionnaire would then be structured accordingly.

4.9.3 Pilot Test Two

Questions in the questionnaire were modified based on the suggestion provided by the respondents as highlighted earlier in 4.9.2. At this stage, the modified questionnaire was distributed to another 50 different respondents. The objective of this second pilot study was to identify the reliability and validity of the items and constructs by testing its Cronbach alpha. The results of reliability and validity of all the measures shows a strong reliability with Cronbach alpha 0.7, as shown in Table 4.2 and Table 4.14.

Table 4. 14: Reliability Estimates for Pilot Test I and II

Constructs		Alpha Reliability Value for Pilot Test I (N = 50)	Alpha Reliability Value for Pilot-Test II (N = 30)	Number of Items
Self-concept	Religious Self	.755	.759	10
	Feared Self	.873	.877	6
	Altruistic Self	.856	.856	10
Consumer Awareness	Hunger Concern Awareness	.754	.754	5
	Environmental Concern Awareness	.718	.718	5
	Economic Concern Awareness	.867	.870	7
	Landfill Concern Awareness	.785	.801	6
	Water shortage Concern Awareness	.418	.715	5
Attitude		.529	.750	8
Socially Responsible Plate Food Consumption		.600	.859	6

4.9.4 Actual Data Collection

The actual data collection was conducted from 1st June, 2015 to 15th November, 2015. The same questionnaire that has gone through the second stage of pilot test were used for this purpose. The questionnaires were distributed at public places in four major cities in Sarawak, i.e. Kuching, Sibu, Bintulu and Miri.

4.10 Data Analysis Techniques

The data collected were analyzed using Statistical Package for Social Science (SPSS) version 20 and (AMOS) also version 20.

The steps involved in the analysis process were as follows:

- i. In the first step, the **data screening process** was completed, which consisted of three main tests which were missing data treatment, detection of outlier and normality.
- ii. In the second step, **exploratory factor analysis (EFA)** was conducted to define the underlying structure among the variables in the analysis. The purpose of the EFA is to summarize the information embedded in the actual variables into a smaller number of factors without losing much information (Costello, 2009). Hence, newly created variables should represent the fundamental constructs which underlie the actual variables (Conway & Huffcut, 2003). The present study used the EFA with the multiple criteria as suggested by Willams, Brown and Onsman (2012) and Hair et al. (1995). Therefore, based on the distribution of the data extraction and rotation techniques chosen and Eigenvalues > 1 , the percentage of variance and scree plot was used to decide the number of components to retain. Moreover, a comprehensive guideline of EFA is explained in session 4.14
- iii. Third step, AMOS software was used for the **Structural Equation Modelling (SEM)** analysis based on the basic criteria provided by Hair et al. (2011). AMOS is appropriate for data analysis in this study for the following reasons:
 - a. In this study, all the formulated hypothesis are theory testing instead of theory development;
 - b. AMOS – SEM may be used to analyze a research model that consists of both reflective and formative constructs or combination of both; and

- c. The model of present study based on non-recursive approach which is also called covariance due to relationship between consumer self-concept and consumer awareness.

Based on the reasons above, AMOS (SEM) was deemed appropriate to measure the relationship between self-concept and consumer awareness. Subsections of 5.15, 5.16, and subsection 5.17 will discuss further regarding this matter.

4.10.1 Data Screening

Data analysis for this study started with the data screening process. The following Sections 4.10.1.1 remedy of missing data, Section 4.10.1.2 detection of outlier until Section 4.10.1.3 normality test.

4.10.1.1 Remedy of Missing Data

Hair et al. (2006) proposed that as much as ten percent missing data can be ignored from each individual observation in the sampling techniques. Schumacker and Lomax (2004) noted that the mean substitution technique is generally used for the missing data remedy from small amount sample data. Therefore, the mean substitution technique was used to deal with missing data in this study.

4.10.1.2 Detection of Outlier

Anderson, Sweeney, and Williams (2009) identified the extreme values which were unusually high or unusually low in the data set outliers. Hair et al. (2006) expressed that when a standardized value of data is less than -4 or greater than +4, it could be recognized as an outlier. Pallant (2007) recommended that researchers clear or eliminate as difficult outliers can distort statistical tests. When outlier is linked to data entry error or a recording

mistake, it could be eliminated. Thus, the standardized data was considered between the range of -4 and +4 for detection of outlier in this study.

4.10.1.3 Normality Test

Hair et al. (2006, p. 40) described that normality as the “degree to which the distribution of the sample data corresponds to a normal distribution”. Normality test refers to two indicators such as Skewness and Kurtosis. Skewness refers to the comparison of symmetry of a distribution with a normal distribution. Similarly, Kurtosis is described as the graphical shape in reference to the distribution peak if it is taller or smaller from the normal distribution (Morgan & Griego, 1998).

There are some cutoff values for skewness and kurtosis that could determine whether the practical variable has a normal distribution in the large sample such as 200 or more (Field, 2009). The normality is in problematic zone when the value of Skewness greater than 3, and similarly if kurtosis carries a value greater than 8 (Kline, 2005). However, the present study tested the normality of data with the aid of the observation of skewness and kurtosis value (see Table 5.3).

4.10.2 Exploratory Factor Analysis

Schumacker and Lomax (2004, p. 155) narrated that “the research explores how many factors there are, whether the factors are correlated, and which observed variables appear to best measure are factors”. In the same context, Kline (2005, p. 71) suggested that exploratory factor analysis as “a class of procedures that include centroid, principal component, and principal axis factor analysis, among many others, that differ in the statistical criteria used to derive factors”.

Exploratory Factor Analysis (EFA) has two basic kinds of modes to obtain the factor solutions: common factor analysis and component factor analysis (Ho, 2006). The purpose of the common factor analysis is to put in plain words the interrelationships among the new variables. On the contrary, the aim of the component factor analysis is for the selection of components which clarify as much as possible the variance from the sample (Hutcheson & Sofroniou, 1999).

Many researchers suggested that there was no major disparity between common factor analysis and component factor analysis. Hence, researchers gave more preferences to common factor analysis compared to component factor analysis (Steiger, 1990; Schonemann, 1990; Velicer & Jackson, 1990; Guadagnoli & Velicer, 1998). Furthermore, the application of component factor analysis is less challenging than common factor analysis (Velicer & Jackson, 1990). The researchers have used component factor analysis comprehensively (Jolliffe, 2002). Finally, the researcher concluded to use component factor analysis in this study.

4.10.3 Testing for Factor Analysis Correctness

Before doing factor analysis, data matrix is tested to identify if it would suitable correlations to verify the applicability of factor analysis by the researchers (Shu, 2010). Commonly, there are four methods which verify a data matrix, to see whether the present data matrix can support the factor analysis.

1. Assessment of the Correlation Matrix
2. Scrutiny of the Anti-Image Correlation Matrix
3. Bartlett's Test Sphericity
4. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

4.10.3.1 Assessment of the Correlation Matrix

The assessment of the correlation matrix gives an indication that suitable correlation exists within the data matrix. The low correlations throughout a correlation matrix point out that factor analysis is inappropriate (Stewart, 1981). Hardy and Bryman (2004) stated that correlation matrix has cutoff values to indicate its appropriacy for factor analysis – a correlation range from 0.10 to 0.30 is considered appropriate, and is considered inappropriate if less than that inappropriate (Hardy & Bryman, 2004). Another researcher, Pallant (2007), recommended that when significant numbers of correlations are more than 0.30 within a data matrix, then time factor analysis has its applicability. Otherwise, the data matrix cannot be accepted for factor analysis.

4.10.3.2 Scrutiny of the Anti-Image Correlation Matrix

The anti-image correlation matrix means a partial correlation has a negative value (Brace, Kemp & Snelgar, 2006). When the influence of other variables is accounted, a partial correction between variables is unexplainable. Therefore, the level of high partial correlations indicates that data matrix has high unexplained correlations (Hair et al., 2006). Namely, for performing factor analysis, there is no adequate latent factor (Brace et al., 2006). The lowest anti-image correlations indicate that a data matrix is suitable for factor analysis (Field, 2009; Tabachnick & Fidell, 2001).

4.10.3.3 Bartlett's Test Sphericity

The Bartlett's test of sphericity is a statistical test that analyses either a correlation matrix has meaningful correlation among the variables or not (Hinton, Brownlow, McMurray &

Cozens, 2004). The computation of Bartlett's test sphericity is based on the following formula:

$$- \left[(N - 1) - \left(\frac{2P + 5}{6} \right) \right] \text{Log} e^{|R|}$$

Whereas:

N is sample size

P is the number of variables and

|R| is the determinant of the correlation matrix

Hinton et al. (2004) and Pallant (2007) noted that when Bartlett's test of spherical is statistically significant at sig. <0.05, there exist sufficient correlation among the variables to implement factor analysis in a data matrix. . Else, the data matrix is not suitable for factor analysis.

4.10.3.4 Kaiser-Meyer-Olkin Measure of Sampling Adequacy

According to Stewart (1981), the Kaiser-Meyer-Olkin measure of sampling adequacy is an index which quantifies the intensity of inter-correlations among the variables. To calculate the Kasire-Meyer-Olkin the following formula is used:

$$MSA = \frac{\sum \sum_{j \neq k} r_{jk}^2}{\sum \sum_{j \neq k} r_{jk}^2 + \sum \sum_{j \neq k} q_{jk}^2}$$

Whereas:

q_{jk}^2 = Square of the off-diagonal anti-image correlation matrix

r_{jk}^2 = Square of the off-diagonal elements of the original correlations.

The range of Kaiser-Meyer-Olkin measure of sampling adequacy value is from 0 to 1. When Kaiser-Meyer-Olkin measure of sampling adequacy value is reached at 1, it shows that variables are entirely predicted without any error from the other variables. Kaiser and Rice (1974) stated that the data matrix is suitable for factor analysis by using the Kaiser-Meyer-Olkin measure of sampling adequacy with these cut-off values:

Table 4. 15: KMO Values

Level	Value
Marvelous	0.90 or above
Meritorious	0.80 or above
Middling	0.70 or above
Mediocre	0.60 or above
Miserable	0.50 or above
Unacceptable	Below than 0.50

4.10.4 Factor Extraction in Principal Components Analysis

The purpose of factor extraction is to extract the minimum number of factors that could be used to best correspond with the interrelations among the variables (Pallant, 2005). There are three kinds of factor extraction mostly used by researchers, which are Latent root criterion, Percentage of variance criterion, and scree test criterion (Hair et al., 2006).

4.10.4.1 Latent Root Criterion

Bryman and Cramer (2004) stated that the foundation of latent root criterion or the Kaiser's Criterion is that "only factors that account for the variance of more than one variable are retained for further analysis" (Hardy & Bryman, 2009, p. 29). Every variable

shares a value of 1 to the total eigenvalue. Furthermore, one factor having more than 1 latent root/eigenvalues, is retained which are known as the Kaiser's criterion (Hardy & Bryman, 2004). According to Child (1990), when the variables in the factor analysis range from 20 to 50, they are applicable for Kaiser's criterion analysis.

4.10.4.2 Percentage of Variance Criterion

The aim of the percentage of variance criterion is to verify the practical significance of the derived factor by verifying that those factors explain a minimum amount of the total variance (Hair et al., 2006). The sixty percent of the total variance is a satisfactory level for common consideration of solutions (Hair et al., 2006).

4.10.4.3 Scree Test Criterion

The scree test criterion assesses the eigenvalue graphically and finds the cutoff point where the curves are fattened out (Osborn & Costello, 2005). Stewart (1981, p.58) elaborates the process of the scree test criterion as follows:

“A straight edge is laid across the bottom portion of the roots to see where they form an approximately straight line. The point where the factor curve above the straight line gives the number of factors, the last factor being the one whose eigenvalue immediately precedes the straight line”.

4.10.5 Factor Rotation

Osborne and Costello (2005) explained that the aim of factor rotation is to find out the simpler and highly meaningful factor solution. There are two types of factor rotation such as orthogonal factor rotation and oblique factor rotation (Bryman & Cramer, 2005).

4.10.5.1 Orthogonal Rotation

Several researchers have defined the Orthogonal rotations that it strengthens the factors to be un-correlated (Bryman & Cramer, 2005; Pallant, 2005; Spicer, 2005). The interpretation of orthogonal output was made easier by Tabachnick and Fidell (2001). The orthogonal factor rotation is divided into three methods such as QUANTIMAX, VARIMAX and EQUIMAX (Larose, 2006; Kim & Mueller, 1978).

The QUARIMAX rotational method reduces the rows of the factor matrix via rotating the preliminary factors, so that the variable loadings are high at the beginning and going low gradually on other factors (Lorose, 2006). QUARIMAX method of factor rotation was not used much in previous researches (Meyers, Gamst & Guarino, 2006), and nor has this method been proved to be very successful in producing easy structure (Harman, 1976).

Larose (2006) narrated that VARIMAX rotational method simplifies the factor matrix via columns. The rationale of the VARIMAX rotational method is interpreted in two ways: When the variable-factor correlations are near to + 1 or -1, it indicates a clear positive or negative association between the variable and the factor; however, if the correlation is close to 0, it indicates a clear lack of association. According to Jobson (1991), the VARIMAX method of factor rotation is a successful way to get the orthogonal rotation method. Furthermore, VARIMAX factor rotation method has been frequently used in the orthogonal rotation method (Meyers et al., 2006).

The EQUIMAX method of orthogonal factor rotation, on the other hands, is a combination of QUARTIMAX and VARIMAX methods of factor rotation (Larose, 2006; Meyers et al., 2006). Hair et al. (2006) and Meyers et al. (2006) noted that EQUIMAX did not gain much acceptance among the researchers. Based on the reasons given, the

researcher was convinced to use the VARIMAX rotational method as a suitable factor rotation from an orthogonal rotation method in this study.

4.10.5.2 Oblique Rotation

Often, orthogonal rotation and oblique rotations have the same solutions, but the requirement of oblique rotation is different from orthogonal with factor correlation. Furthermore, oblique rotation has a more difficult method of interpretation (Meyers et al., 2006; Tabachnick & Fidell, 2001). According to Stewart (1981), oblique rotation is strongly helpful for the constructionism approach. After observing both factor rotations, the researcher decided to use the orthogonal rotation in this study as Field (2005) had suggested. As, several researchers have used orthogonal in their studies.

4.10.6 Interpretation of Factor

Factor loading is a representation of correlation between the factors and variables (Kim & Mueller, 1978). A high factor loading is a symbol of the higher relationship between variables and its factors (as cited in Shu, 2009). Hence, the largest value of factor loading is the most significant factor of the factor matrix (Brace et al., 2006). Further to that, Hair et al. (2006) recommended three guidelines for determining considerable factor loadings.

1. The range from ± 0.30 to ± 0.40 of factor loadings are treated for a minimal level of structure's interpretation.
2. Loadings From ± 0.50 or greater are treated as practical significant.
3. Loadings more than ± 0.70 an indication of well-defined structure.

Table 4. 16: Factor Loading and Required Sample

Factor Loadings	Required sample for Significance	Factor Loadings	Required sample for Significance
0.3	350	0.55	100
0.35	250	0.6	85
0.4	200	0.65	70
0.45	150	0.7	60
0.5	120	0.75	50

4.10.7 Unidimensionality Analysis

The uni-dimensionality analysis confirmed that the measurement scale is uni-dimensional. When there is one factor and all the items (indicators) load on that single factor, it is known as uni-dimensional measurement scale (Bernard, 2000). In this case, Hair et al., (2006) suggested that the items that are highly loaded with more than one factor would be deleted. On this base, the researcher used the uni-dimensionality analysis in this study.

4.10.8 Reliability

Reliability and validity are two main essential stages for the measurement of variables constructs (Li, 2009). Reliability means how measures collect comparable results from the respondents (Zikmund, 2003). There are two dimensions of Reliability named as repeatability and internal consistency. The internal consistency means the capability of the measurement items to correlate with one another items from the sample scale, that have the attitude to measure the same variables (Li, 2009). Mostly, Cronbach's alpha is used to assess the internal consistency of the construct items. Several researchers stated the moderation criteria of acceptable reliability at 0.70 or higher indicate Cronbach's alpha value (Nunnally, 1978; Nunnally & Bernstein, 1994). Meanwhile, the composition

reliability is used to measure the internal reliability in structural question modeling (SEM). This study tested the reliability of measures by assessing the Cronbach's alpha.

4.10.9 Validity

Zikmund (2003) referred to the term validity as to how well the scale apprehends, for which it has the attitude to measure. Furthermore, Pallant (2005) defines the concept of Validity as a level in which a scale is measured for the purposes it was created. There are three types of validity: criterion validity, face or content validity and construct validity. Criterion validity compares the response of new measures with exiting measure (De Vaus, 2002). When the answers of the new measures and existing measures are correlated, it means a new measure is valid. The face or content validity refers to when measurement measured item offers the appropriate meaning of the variable for which it has the intention to measure (Churchill 1979; De Vaus, 2002). This study measured the validity throught three approaches as face validity, convergent validity and discrimentent validity.

4.11 Structural Equation Modeling

Byrne (2001) viewed structural equation modeling as “a statistical methodology that takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon”. Structural equation modeling consists of a two-step approach which involves developing model and estimating the measurement models (James, Mulaik & Brett, 1982). According to Anderson and Gerbing (1988), the developing and estimating of a model contributes to discriminant validity and assessment of convergent as well as an evaluation of predictive validity. Furthermore, Joreskog and Sorbom (1993, p. 133) narrated that “the testing of the structural model, which is the testing of the initially specified theory, may be meaningless unless it is first established

that the measurement holds; if the chosen indicators for a construct do not measure that construct, the specified theory must be modified before it can be tested. Therefore, the measurement model should be tested before the structural relationships are tested”.

The structural equation model depicts the relationship among the unobserved variables, and specifies which latent variables directly or indirectly source of changes on other latent variables (Byrne, 1998). The structural equation model of this study is designed to examine the causal relationships among the latent variables (Consumer self-concept, consumer awareness, congruence and attitude and socially responsible plate food consumption). The specification of the structural equation model was based on an assessment of prior studies of consumer self-concept, consumer awareness, congruence of consumer self-concept and consumer awareness, attitude, socially responsible plate food consumption (refer to Chapter Two). The model identification, the model modification, the overall model fit, and the path estimates for the hypothesized relationship (See Chapter Four) are evaluated in the structural equation model.

4.12 Confirmatory Factor Analysis

Confirmatory factor analysis and exploratory factor analysis are two kinds of factor analysis (Schumacker & Lomax, 2004). Confirmatory factor analysis informs the researchers, how well the observed variables (indicators) are represented the latent variables (Schumacker & Lomax, 2004). The aim of confirmatory factor analysis is to specify the number of factors, which are associated, and accesses the observed variables to verify each factor before generating the results (Schumacker & Lomax, 2004).

4.12.1 Reflective Versus Formative Factor Models

The measurement models are developed and estimated on the bases of two methods – reflective factor models and formative factor models. Reflective factor models are dependent on the supposition which latent construct in measured variables (indicators). Conversely, formative factor models are dependent on the supposition which latent construct in measured variables (indicators) result in latent construct (Bollen & Lennox, 1991).

Reflective factor models are dissimilar to formative factor models from various aspects. The validation process is different for reflective factor models and formative factor model. Overall items (indicators) are the result of the same latent construct or facet which are highly associated with each other in formative factor models. The correlation among indicators is the source to determine the internal consistency and reliability of the construct (Bollen & Lennox, 1991). Contrarily, all the indicators of constructs are not highly associated with each other for formative factor models; and as a result, the assessment of indicator reliability might not be observed (Diamantopoulos & Siguaw, 2006).

Furthermore, the process used for reflective factor models to measure the validity and reliability are not suitable for formative factor models (Diamantopoulos & Winklhofer, 2001). Even though, Diamantopoulos and Winklhofer (2001) suggested that the reflective factor model's validation is easier to determine compared to formative factor modeling validation. Therefore, reflective factor model approach is used in this study.

4.12.2 Model Specification

Schumacker and Lomax (2004) clarified that the concept of model specification in structural equation modeling. It is to use all the applicable relevant theories, research and information to establish a theoretical model. Exploratory factor analysis and confirmatory factor analysis were used for model specification in this research after having reviewed related empirical research on consumer self-concept, consumer awareness, self-congruity, parental involvement, consumer attitude and plate food waste towards socially responsible consumption behavior. Furthermore, the models would be fulfilled by utilizing the models specification assumptions by Byrne (2001) and Mueller (1996).

4.12.3 Model Identification

In the long run, model identification is to be used to solve the problem of sufficient information to extract unique parameters estimated in a model (Diamantopoulos & Siguaw, 2000). A model is acknowledged as identified, when it obtains the exclusive estimate of each parameter theoretically (Kline, 2005).

Model Identification is classified at three levels as follows; under-identified model, just-identified model and over-identified model (Diamantopoulos & Siguaw, 2000). Maximum parameters to be estimated than the number of variance and covariance is negative degrees of freedom that indicate confirmatory factor analysis model is under-identified.

4.12.4 Model Fit Indices

The fit of the model is perfect, when the specified model is supported by the sample data (Schumacker & Lomax, 2004). Several model fit indices are used for sample data for the specified model such as: normed chi-square, goodness-of-fit-index (GFI, Standardized root

mean residual (SRMR), Comparative fit index (CFI), normed fit index (NFI), and root mean square error of approximation (RMSEA).

4.12.4.1 Normed Chi-Square

Normed Chi-Square is denoted as $\left(\chi^2 / df \right)$ whereas (χ^2) is a ratio of chi-square and (df) is the degree of freedom for a model. The ratio of chi-square (χ^2) quantifies the difference between the estimated covariance and observed matrices. Furthermore, df is a mathematical amount of available information for estimation of model parameters. Kline (2005) and Carmines and Mclver (1981) recommended the acceptable value of the normed chi-square should be less than 3.0 to be called good model fit).

4.12.4.2 Goodness-of-fit Index (GFI)

Tanaka and Huba (1989) described that goodness-of-fit index (GFI) is a presentation of variance's weight proportion in the sample covariance accounted from the estimated population of the covariance matrix. Furthermore, the R^2 is a multiple regression (Blunch, 2008; Tanaka & Huba, 1989). The suggested acceptable value of goodness-of-fit (GFI) is greater than 0.9 (Kline, 2005). Numerous researchers supported the comparative fit index (GFI) to above 0.8, while sample size is larger (Doll, Xia & Torkzadeh 1994; Baumgartner & Homburg, 1995; Cheng, 2011). The sample size of this study is accounted as a large; therefore, GFI value is accepted at 0.8 or larger.

4.12.4.3 Standardized Root Mean Residual (SRMR)

Kline (2005) defined the standardized root mean residual (SRMR) as a measure that quantifies the mean absolute correlation residual which resulted from observed and

predicted correlations. The acceptable value of standardized root mean residual is smaller than 0.10 (Kline, 2005).

4.12.4.4 Comparative Fit Index (CFI)

The comparative fit index (CFI) is a gauge that quantifies the relative perfection in the model fit with the help of an independent model (Kline, 2005). The acceptable value of the comparative fit index (CFI) is greater than 0.90 (Kline, 2005; Hu & Bentler, 1999). Nevertheless, numerous researchers supported the comparative fit index (CFI) to be above 0.8 when the sample size is large (Doll, Xia & Torkzadeh 1994; Baumgartner & Homburg, 1995; Cheng, 2011). The sample size of this study is accounted as a large; therefore, CFI value is accepted at 0.8 or larger.

4.12.4.5 Normed Fit Index (NFI)

Hair et al. (2006) defined the Normed Fit Index (NFI) as a gauge that quantifies the differences in the value of χ^2 for the fitted model and an independent model and divided by the value of χ^2 for independent model. Kelloway (1998) suggested the acceptable value of the Normed Fit Index (NFI) as greater than 0.90. Numerous researchers supported the Normed fit index (NFI) to above 0.8, when the sample size is large (Doll, Xia, & Torkzadeh 1994; Baumgartner & Homburg, 1995; Cheng, 2011). The sample size of this study is accounted as a large; therefore, NFI value is accepted at 0.8 or larger.

4.12.4.6 Root Mean Square Error of Approximation (RMSEA)

The root mean square error of approximation (RMSEA) is a gauge that quantifies how well the model is related to the population (Hair et al., 2006). The value of RMSEA indicates

the model fit, where a lower value means a better model fit. When RMSEA value is less than 0.08, it means the model fit is acceptable (Brown & Cudeck, 1993).

Table 4. 17: Goodness of Fit Indices

Goodness-of-fit indices	Acceptable values
Normed Chi-square	Less than 3.0
Goodness-of-Fit Index (GFI)	0.8 or larger
Standardized Root Mean Residual (SRMR)	0.10 or less
Comparative Fit Index (CFI)	0.8 or larger
Normed Fit Index (NFI)	0.8 or larger
Root Mean Square Error of Approximation (RMSEA)	0.08 or less

4.12.5 Model Modification

The aim of the model modification is to improve the general fit of the model to sample data by knowing any misspecification which lies in the model (Byrn, 2001). The process of improving the model fit with the source of model modification may be unsound, where the model is already well fitted (Diamantopoulos & Siguaw, 2000). MacCallum, Roznowski, & Necowhz (1992, p. 501) argued that “when an initial model fits well, it is probably unwise to modify it to achieve an even better fit because modification may simply be fitting small idiosyncratic characteristics of the sample”. Thus, the modification of the model is required in this study, while the fitness of the model has poor relations to sample data (Shu, 2009). Two kinds of model modification methods are used to fit the model which are modification indices and standardized residuals (Diamantopoulos & Siguaw, 2000), in this study.

4.13.5.1 Modification Indices

Modification indices mention the value that was possibly decreased from the chi-squared value of a model, as earlier fixed parameters are set free in a subsequent run (Byrne, 1998). The minimum value of modification indices highlights a favorable model fit, like the maximum value highlighted for a model fit, which can be made better by freeing a corresponding path (Hair et al., 2006). The usage of the modification indices is mostly linked with the clarification of the expected parameter change statistics (EPCs). An expected parameter change statistics (EPC's) leads to a projected value of a freed parameter (Schumacker & Lomax, 2004).

4.13.5.2 Standardized Residuals

Standardized residuals are derived from the residuals that are divided by their estimated standard errors (Joreskog & Sorbom, 1993). The large intensity of residuals that is correlated to specific parameter highlight their misspecification in a model which leads to the overall model misfit as suggested by Byrne (1998). When the standardized residual value is greater than 2.58, it indicates the likely misfit of a model (Diamantopoulos & Siguaw, 2000).

4.13 Measurement Models

Byrne (1998) narrated that measurement models discussed the relations between latent contrasts and observed variables (indicators). Joreskog and Sobom (1989) defined measurement models that also informed the researchers, how well observed variables (indicators) represent the latent variables with the help of observed variable's reliabilities and validities. Furthermore, the confirmatory factor analysis showed the measurement models which would be assessed in this study.

4.14 Mediation Analysis

Mediation processes refer to that processes which several constructs apply influence on other constructs with some intervening constructs as named mediators (Preacher & Hayes, 2008). When one construct mediates between two constructs, it is known as a simple mediation; while more than one mediating construct is referred to as multiple mediation (Preacher & Hayes, 2008).

Numerous criteria or test can be used to establish the mediation. In prior studies, Baron and Kenny (1986) mediation method were frequently used in social science studies. However, a number of researchers criticized on this mediation method stating that the criteria for mediation by Baron and Kenny (1986) showed some of the steps were superfluous. In the lens of recent research on mediation analysis, the only criterion that needs to be met with respect to this mediation is the significance of the indirect effect (Preacher & Hayes, 2008; Hayes, 2009; Zhao et al., 2010).

4.14.1 Types of Mediation

In any case, whenever there is a significant indirect influence on the construct, it can be claimed as a mediation process (Preachers & Hayes, 2008; Hayes, 2009; Zhao et al., 2010). In addition to that, after controlling the mediator, the significant effect of independent constructs on dependent construct can be categorized into five types of mediation (Zhao et al., 2010): i) *Complementary mediation* – When both the direct and the indirect effects after controlling for the mediator are significant and point in the same direct; ii) *Competitive mediation* – When both the direct and indirects effect after controlling for the mediator are significant but point in opposite directions;. iii) *Indirect-only mediation* – When the indirect effect is significant but the direct effect after controlling for the mediator

is not significant; iv) *Direct-only non-mediation* – When the indirect effect is not significant but the direct effect after controlling for the mediator is significant; and v) *No-effect no mediation* – When both the direct and indirect effects after controlling for the mediator is not significant.

4.14.2 Bootstrapping Procedure

The bootstrapping technique is used to identify the indirect effect. Bootstrapping is a nonparametric method which is more accurate than the Sobel test suggested by Baron and Kenny (1986). Further to that, bootstrapping does not assume multivariate normality (Preacher & Hayes, 2004; Preacher & Hayes, 2008; Zhao et al., 2010). Preacher and Hayes (2004, 2008) developed the bootstrapping technique, an empirical version of sampling distribution generated for the indirect effect. Preachers and Hayes (2008) stated that it involved the creation of a new sample by using the initial sample under study of size N and drawing from it, with replacement, N value. Once such a resample is obtained the values of the coefficient of the effect of the independent variable on the mediator and of the effect of the mediator on the dependent variable are estimated and their product recorded. This procedure is repeated at 'k' times, suggested 5000 times (Hayes, 2009). While, the estimation of the indirect effect is at 5000 times, it is generated as a confidence interval. In relation to this, inferences may be made concerning the significance of the indirect effect. According to the bootstrap test that indirect effect is significant, if the confidence interval does not contain the value zero (Preacher & Hayes, 2004; Preacher & Hays, 2008; Hayes, 2009).

4.15 Chapter Summary

In this chapter of the study, the research methodology was presented to commensurate with the research objectives, research questions and research hypothesis. The research methodology covers the philosophy of research, research design, research strategy, and sampling techniques; the measures for the scales of each constructs were also presented in this chapter. Further, pre-tests and results of their reliabilities based on Cronbach's Alpha are also presented. A comprehensive overview of data analysis with the aid of data screening, exploratory factor analysis (EFA), structural equation modeling (SEM) and mediation analysis through bootstrapping.

CHAPTER 5

DATA ANALYSIS AND FINDINGS

5.1 Introduction

This chapter comprises of different steps for various analyses pertaining to this study. Step one talks about a data screening process which includes treatment of incomplete questionnaire, detection of outliers, detection of multivariate outliers. The respondent's profile is developed on the base of construct reliability and assessment validity assessment. Step two explains the exploratory factor analysis (EFA). Step three explains the confirmatory factor analysis (CFA). Step four establishes the congruence of consumer self-concept and consumer awareness, while step five elucidates the mediation test through bootstrapping.

5.2 Step 1: Data Screening Process

In this section, the profile of respondents are analysed from the collected sample as part of the assessment of the data. This study depends upon self-administered questionnaire; hence, response error was an issue which is not under the control of the researcher as stated by Highman (1955). Therefore, the applicable data screening techniques as descriptive statistics, treatment of missing data and detection of outliers are discussed in this section.

5.2.1 Response Rate and Incomplete Questionnaires

The data were collected from household consumers of four major cities in Sarawak, Malaysia. A total of 1600 questionnaires were distributed in these four major cities of Sarawak. There were 446 questionnaires found to be incomplete, and responses which were more than 5% incomplete in the questionnaire were disqualified from the sample size of this study. After screening the data, 1072 responses were obtained. At beginning,

questionnaire responses were inputted into SPSSv-22. Missing data occurs in most of the time in behavior science (Agresti, 2002). There were 10 questionnaires with some type of omissions and missing values which were less than the 5% threshold as noted by Acuma and Rosdigner (2004). It demonstrated that missing data was not serious. However, missing values were replaced with mean substitution (Tabachnick, Fidell & Osterlind, 2001; Meyers et al., 2006; Shammout, 2007). Nevertheless, the findings of original and final responses are presented in Table 5.1.

Table 5. 1: Original and Final Responses

Major Cities	Sample Allocated/collected		Final Responses	
	Nos.	Percentage	Nos.	Percentage
Kuching	682	44.38%	457	42.63
Sibu	290	18.85%	167	15.58
Bintulu	212	13.84%	197	18.38
Miri	352	22.93%	251	23.41
	1536	100.00%	1072	100.00%

5.2.2 Detection of Outliers

Normality of data is a basic assumption for structural equation modeling (SEM) which was used in this study. Several steps were carried out for normality of data. To ascertain the normality of the data, three methods were used, namely Q-Q plots, Skewness and Kurtosis calculation, using and Kolmogrove-Smrinov Test (Hair et al., 2007; Meyers et al., 2006). Outliers were detected with the help of Box Plot after the screen process in this study. The outliers appeared within the one percent of prescribed limits. On that basis, no re-coding was required. Hence, all the 1072 responses of each construct were converted into standard

Z-scores, and further outliers were identified. In this study, 45 responses were accounted as outliers within the prescribed limit. Subsequently, 1027 responses were calculated after removing the univariate outliers. The overall results after outlier's removal are shown in Table 5.2.

Table 5. 2: Summary of Standardized Z-Score

Z-Scores	Minimum	Maximum
Z score Religious Self	-2.93	1.76
Z score Feared Self	-2.77	1.87
Z score Altruistic Self	-2.94	2.18
Z score Hunger Concern Awareness	-2.62	1.81
Z Score Environmental Concern Awareness	-2.73	2.03
Z score Economic Concern Awareness	-2.79	1.99
Z score Landfill Concern Awareness	-2.99	1.96
Z score Water Shortage Concern Awareness	-2.63	1.57
Z score Attitude	-2.39	2.64
Z score Socially Responsible Plate Food Consumption	-2.72	1.87

After transforming the data into standardized Z-Score, all the values were found in the range of -3 and +3 such as from -2.93 to 2.64 as per suggested by Tabacknick and Fidel (2007). Hence, the values being in range ensured that the data in hand have normal distribution in this study.

5.2.3 Detection of Multivariate Outliers

Mahalanobis Distance (D^2) method was also used to identify the multivariate outliers from the data set for structural equation modeling (SEM). Based on this analysis, 48 responses were identified as multivariate outliers and removed. After that, the valid sample size became 979 which were above the maximum required for structural equation modeling (SEM) sample size (Tabacknick & Fidel, 2007; Hooper, Coughlan & Mullen, 2008). However, the same 979 responses were also used for EFA and confirmatory factor analysis (CFA).

5.2.4 Descriptive Statistics of Preliminary Measures

In this study, Skewness and Kurtosis methods were also used to verify the normality of the data set. Therefore, Skewness and Kurtosis of each construct were tested one by one in this study. The results generated from Skewness and Kurtosis were within the range of ± 3 as suggested by Bollen (1989) and is presented in Table. 5.3. Since all the values of skewness and kurtosis are between the range of ± 3 , hence, the data for this study is normally distributed.

Table 5. 3: Descriptive Statistics

Constructs	Min-Max	Mean	Std. Dev.	Skewness	Kurtosis
Religious Self	1-5	3.6797	0.668	-0.556	0.485
Feared Self	1-5	3.7314	0.615	-0.166	-0.406
Altruistic Self	1-5	3.6450	0.561	0.167	0.036
Hunger Concern Awareness	1-5	3.7755	0.626	0.146	-0.426
Environmental Concern Awareness	1-5	3.6597	0.607	0.069	-0.286
Economic Concern Awareness	1-5	3.4966	0.688	-0.064	0.024
Landfill Concern Awareness	1-5	3.6812	0.626	-0.121	-0.048
Water Shortage Concern Awareness	1-5	3.7398	0.747	-0.168	-0.539
Attitude	1-5	3.1611	0.635	0.319	0.351
Socially Responsible Consumption Behavior	1-5	3.7203	0.629	0.135	-0.426

5.2.5 Respondents' Profile

In order to sample the demographics, respondents' characteristics were varied widely (Morgen & Hunt, 1994). In this study, profile of respondents consisted of seven variables such as, gender, age, current marital status, number of family members living at home, highest education completed, ethnicity, religion and income. In this study, demographic information has no impact on the level of analysis, which provides a general view with respect to gender, age, current marital status, number of family members living at home, highest education completed, ethnical group, religion and income participation. The results of all the profile variables are summarized in Table 5.4.

Table 5. 4: Summary of Respondent's Profile

	Variable	Number	Percentage
Gender	Female	565	57.71%
	Male	414	42.29%
	Total	979	100%
Age	Less than 20	61	6.23%
	21 to 25 Years	298	30.44%
	26 to 30 years	395	40.35%
	31 to 35 years	80	8.17%
	36 to 40 years	93	9.50%
	41 to 45 years	27	2.76%
	46 to 50 years	11	1.12%
	Above 51 years	14	1.43%
Current Marital Status	Single	470	48.01%
	Married	467	47.70%
	Widowed	33	3.37%
	Separated	3	0.31%
	Divorced	6	0.61%
	Total	979	100%
Number of family members living at home	None	13	1.33%
	One	51	5.21%
	Two	65	6.64%
	Three	72	7.35%
	Four	73	7.46%
	Five	217	22.17%
	Six	115	11.75%
	More Than Six	373	38.10%
	Total	979	100%
Highest Education Completed	High School or Less	386	39.43%
	Bachelor Degree	463	47.29%
	Master	72	7.35%
	Doctorate	25	2.55%
	Other	33	3.37%
	Total	979	100%
Ethnicity	Malay	456	46.58%
	Indian	18	1.84%
	Chinese	281	28.70%
	Iban	68	6.95%
	Melanau	35	3.58%
	Orang Ulu	45	4.60%
	Bidayuh	34	3.47%
	Other	42	4.29%
	Total	979	100%
Religion	Muslim	458	46.78%
	Hindu	18	1.84%
	Christian	319	32.58%
	Buddhist	158	16.14%
	Others	26	2.66%
	Total	979	100%

Table 5. 4 continued

Income Level (RM)	Less Than RM 1500	359	36.67%
	RM 1501 - RM 2500	329	33.61%
	RM 2501 - RM 3500	168	17.16%
	RM 3501 - RM 4500	79	8.07%
	RM 4501 - RM 5000	25	2.55%
	More than RM 5000	19	1.94%
	Total	979	100%

As per Table 5.4, 979 respondents participated in this survey in which 565 were females and 414 are males. These 565 of female respondents were equivalent to 57.71%, while another 42.29% were male respondents. The biggest group of respondents were aged between 26 to 30 years old and were stood at 40 %, which was equivalent to 395 respondents. The respondents aged 21 to 30 years old were the second highest consumer; and represented about 30.44% which was equivalent to 298 respondents. The third highest respondents were aged 36-40 years old, stood at 93 respondents or 9.50% of the total respondents. Respondents aged 31-35 years old amounted to 80 or 9.17%, which is the fourth highest respondents level. About 61 respondents fell under the age of less than 20 years old and equated to 6.23% from the total respondents. Respondents from the age groups of 41-50, 46-50, and above 51 years old amounted to 27, 11 and 14 respondents, which was equivalent to 2.76%, 1.12%, and 1.43% respectively.

The marital status consisted of single, married, widowed, separated, and divorced categories in this study. About 48.01% respondents were single (470 respondents); 47.70% were married (467 respondents); 3.37% were widowed (33 respondents); 0.31% were separated (3 respondents); and 0.61% were divorced (6 respondents).

In terms of family members living at home, there were 373 or 38.10% respondents whose family consisted of more than six members; 217 or 22.17% respondents consisted of five members; and 115 or 11.75% respondents had six family members. Less than 100 respondents had a family size ranging from one to four, or none at all.

In profiling the respondents' education qualification, bachelor degree holders appeared to be the highest one from all the respondents as mounted to 463 or 47.29% of the respondents had a first degree qualification; 386 or 39.10% of the respondents had a maximum of high school qualification; 72 or 7.35% of the respondents had Masters degree; 25 or 2.55% of the respondents had doctorates; and finally, 33 or 3.37% or the respondents had certificate or diploma.

For ethnicity, Malays were noted as the highest number amounting to 456 (46%) of the respondents. This is followed by the Chinese with 281 respondents (28.70%), Ibans with 68 (6.95%) respondents, Orang Ulus were 45 (4.60%), Melanaus were 35 (3.58%), Bidayuhs were 34 (3.47%), Indians comprised of 18 (1.84%) the respondents. Finally, members of other non-listed ethnic groups made up for 42 (4.29%) of the respondents for this study.

For religion, Muslims were the highest with 458 respondents (46.78%), followed by Christians at 319 (32.58%) of the total respondents, Buddhists amounted at 158 (16.14%) of the total respondents, Hindus had 18 (1.84%) respondents, and those of other religions amounted to 26 (2.66%) respondents.

In terms of income profiling, 359 (36.67%) of the respondents earned less than RM 1500 incomes, 329 (33.61%) of the respondents earned about RM 1501 to RM 2500, 168 (17.16%) respondents earned about RM 2501to RM 3500, 79 (8.07%) of the respondents earned an income of RM 3501to RM 4500, 29 (2.55%) earned an income between RM4501to 5000, while 19 (1.94%) of the respondents earned more than RM 5000.

5.2.6 Reliability of Constructs

The reliability value measures the consistency of the items used in the survey questionnaire (Hair et al., 2006). In business research, the internal consistency measure is a reliability

coefficient which assesses the whole scale. Cronbach's Alpha is widely used to measure internal consistency (Cronbach, 1951; Nunnally, 1979; Churchill, 1979; Perter, 1979; Santo, 1999). Hence, numerous researchers suggested that Cronbach's alpha below 0.7 is considered good for internal consistency (Robinson, Shaver & Wrightsman, 1991; kline, 1999; Cortina, 1993). The reliabilities of all the constructs are summarized in Table 5.5.

Table 5. 5: Overall Constructs' Reliability

Construct	Items	Reliability
Religious Self	10	0.83
Feared Self	6	0.71
Altruistic Self	10	0.84
Hunger Concern Awareness	5	0.81
Environmental Concern Awareness	7	0.74
Economic Concern Awareness	5	0.75
Landfill Concern Awareness	6	0.73
Water Shortage Concern Awareness	5	0.77
Attitude	8	0.74
Socially Responsible Consumption Behavior	6	0.72

Table 5.5 highlighted the Cronbach's alpha values for each of the scale, such as religious self, feared self, altruistic self, hunger concern awareness, environmental concern awareness economic concern awareness, landfill concern awareness, water shortage concern awareness, attitude, and socially responsible consumption behavior are above 0.7 which was also at acceptable level (Robinson, Shaver & Wrightsman, 1991).

5.2.7 Validity of Constructs

Validity of construct reflects the accuracy of the instrument's measurement. It aids in determining the polarity between the observed variables and expected results of the variables (Rosenthal & Rosnow, 1991). The validity of all the constructs was measured by

calculating the correlation between constructs. Therefore, all the constructs were significantly correlated to one another and correlation value above than 0.30 as suggested by researchers (Kline, 2005; Shammout, 2007). Thus, all the results are presented in Table 5.6.

Table 5. 6: Inter Correlation

	1	2	3	4	5	6	7	8	9	10
1. Religious Self	1.00									
2. Feared Self	0.71	1.00								
3. Altruistic Self	0.52	0.63	1.00							
4. Hunger Concern Awareness	0.45	0.56	0.66	1.00						
5. Environmental Concern Awareness	0.50	0.48	0.59	0.79	1.00					
6. Economic Concern Awareness	0.51	0.37	0.43	0.66	0.41	1.00				
7. Landfill Concern Awareness	0.63	0.51	0.62	0.59	0.56	0.80	1.00			
8. Water Shortage Concern Awareness	0.76	0.47	0.41	0.69	0.48	0.61	0.44	1.00		
9. Attitude	0.57	0.60	0.58	0.65	0.64	0.48	0.77	0.67	1.00	
10. Socially Responsible Plate Food Consumption Behavior	0.62	0.45	0.66	0.82	0.56	0.46	0.57	0.37	0.35	1.00

5.3 Step 2: Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) was used to analyze the data which was mostly utilized in the primary stage of data analysis to verify construct and to generate hypotheses about underlying processes (Tabachnick & Fidell 2007, p. 935). The main rationale is to identify the smallest number of meaningful latent variables or factors that closely generate the actual correlations and covariance amongst a larger set of measured variables (Gorsuch,

1997). A series of EFAs were performed on survey data of the main study. However, EFA of each construct was performed one by one to ascertain the factor and latent variables, and also explore its correlation in the proposed conceptual model.

5.3.1 Exploratory Factory Analysis (EFA) for Religious Self (RE_Self)

Religious self-concept construct was measured with ten items. At the first step of exploratory factor analysis, the correlation matrix of the items of the religious self-concept construct was examined. Correlation may be used to assess the adequacy of the variables for inclusion in the factor analysis (Field, 2009; Beavers et al., 2013). Based on the definition of correlation matrix, the items which are not associated with other items would be excluded from the factor analysis. It was observed that RES_1, RES_2, RES_3 and RES_10 have a weak correlation with one another. Thus, these items were considered for elimination from the factor analysis (Tabachnick & Fidell, 2007).

However, in this first run of exploratory factor analysis items RES_1, RES_2, RES_3 and RES_10 have low and cross loading. After excluding the RES_1, RES_2, RES_3 and RES_10, again correlation matrix is generated. The correlation matrix confirmed strong correlation between RES_4, RES_5, RES_6, RES_7, RES_8, and RES_9, which was > 0.3 .

It was confirmed if the data were adequate for the exploratory factor analysis. Therefore, the Kaiser-Meyer-Olkin (KMO) value was 0.866 which exceeded the acceptable value of 0.6. Bartlett's Test of Sphericity value was significant ($df = 45$ and $P = 0.000$), and hence factor analysis was suitable for religious self-concept construct. Further, factor analysis carried out on the RES_4, RES_5, RES_6, RES_7, RES_8, and RES_9 of religious self and varimax rotation was performed on them. In response to varimax

rotation, one component was extracted and the results of factor loadings are exhibited in Table 5.7.

Table 5. 7: Exploratory Factor Analysis (EFA) of Religious Self (RE_Self)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Religious Self		51.193%	0.80
RES_4	I find that my religion answers many questions.	0.65		
RES_5	My religious beliefs lie behind my whole approach to life.	0.67		
RES_6	I enjoy spending time with others of my religious affiliation.	0.66		
RES_7	Religious beliefs influence all my dealings in life.	0.80		
RES_8	It is important for me to spend periods of time in private religious thoughts.	0.77		
RES_9	I enjoy working in the activities of my religious organization.	0.73		

1. Kaiser-Meyer-Olkin Measure = $0.849 > 0.70$
2. Bartlett's test of Sphericity was Significant ($\chi^2(15) = 997.269, p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.2 Exploratory Factory Analysis (EFA) for Feared Self (FE_Self)

Exploratory factor analysis (EFA) was selected to analyze of the feared self-concept construct and related measures. The initial EFA suggested a two-factor solution for the six items. However, one of the factors consisted of only two items FES_1 and FES_2. Generally, two items are insufficient for factorial stability, unless highly correlated with the factor and same as uncorrelated with other variables (Worthington & Whittaker, 2006). The two items FES_1 and FES_2 had low correlation $r = 0.378$ which is lower than the criteria ($r > 0.7$). Thus, the two Items FES_1 and FES_2 were deleted from the EFA. The

remaining four items FES_3, FES_4, FES_5 and FES_6 suggested one factor which had an eigenvalue above 1 (2.434) and explained 60.858 % of the variance.

EFA results for feared self-concept construct and its related items are illustrated in Table 5.8. Factor loading for the entire items of feared self-concept construct were acceptable, with the highest loading of 0.89 and the lowest loading of 0.60. For the verification of good internal consistency of the sample data, the Cronbach's Alpha value for feared self-concept construct was 0.78, as presented in Table 5.8.

Table 5. 8: Exploratory Factor Analysis (EFA) for Feared Self (FE_Self)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Feared Self		60.858%	0.78
FES_3	I am afraid of doing anything bad when people are watching.	0.86		
FES_4	I am afraid of doing anything that might affect me badly in the future.	0.74		
FES_5	Whenever I break the social norms, I get worried of its consequences.	0.89		
FES_6	Whenever I see my wastage, I get restless thinking about its bad effect on society.	0.60		

1. Kaiser-Meyer-Olkin Measure = 0.731 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (6) = 794.476, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.3 Exploratory Factory Analysis for Altruistic Self (AL_Self)

To estimate the measures of altruistic self-construct, an EFA was used. Overall, ten items to measure the altruistic self-constructs were utilized. In initial EFA results suggested a two-factor solution for the ten items of altruistic self-concept constructs. However, each factor comprised of five items. Five items ALS_6, ALS_7, ALS_8, ALS_9 and ALS_10 were comprised of one factor with high factor loading. Similarly, the other five items ALS_1, ALS_2, ALS3, ALS_4, and ALS_6 had relatively low factor loading in factor two.

Also, ALS_2, ALS_3 and ALS_5 traced out cross loading from factor two of altruistic self-concept construct. In the first round of EFA, these three items were removed from the analysis. The results suggested a two-factor solution for the seven items. However, two items ALS_1 and ALS_4 comprised of one factor which had insufficient factorial stability, and a low correlation of less than 0.7 (Worthington & Whittaker, 2006). In second round of EFA, ALS_1 and ALS_4 were also excluded from the analysis. After that, the remaining five items suggested one factor which had an eigenvalue of above 1 (2.955), and explained 59.105% of the variance.

EFA results for altruistic self-concept construct and its related items illustrated in Table 5.9. Factor loading for the entire item on altruistic self-concept construct were acceptable, with the highest loading of 0.83 and the lowest loading of 0.71. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for altruistic self-construct was at 0.83, as shown in Table 5.9.

Table 5. 9: Exploratory Factor Analysis (EFA) for Altruistic Self (AL_Self)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Altruistic Self		59.105%	0.83
ALS_6	I provide some money to the homeless.	0.71		
ALS_7	I donate money to organizations for charity.	0.77		
ALS_8	I donate money in response to flood affected campaigns.	0.83		
ALS_9	I participate in fund-collection activities for hungry people.	0.75		
ALS_10	I look after my neighbours.	0.77		

1. Kaiser-Meyer-Olkin Measure = 0.835 > 0.70
2. Bartlett's test of Sphericity was Significant ($\chi^2(10) = 1004.646$, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.4 Exploratory Factory Analysis (EFA) for Hunger Concern Awareness (HC_A)

EFA was deployed to measure the hunger concern awareness constructs. Overall, five items were used to measure the hunger concern awareness construct. In initial results, the KMO value was 0.733 and Bartlett's Test of Sphericity value was 1741.760 (df = 10 and $p = 0.000$) which were significant for the EFA. The results suggested HC_4 had low communality value of 0.189 from threshold value of 0.40. Also, item, HC_4 had a lower correlation ($r = 0.284$) with other items of hunger concern awareness construct. Thus, item HC_1 was excluded from the second round of EFA, In response of exclusion of HC_4, new results found with new KMO value of 0.72.492, Bartlett's test of Sphericity was at 1658.066 (df = 6 and $p.0.000$) and explained 72.492% of the variance as shown in Table 5.10.

EFA results for hunger concern awareness construct and its related items are illustrated in Table 5.10. Factor loading for the entire items of hunger concern awareness construct were acceptable, with the highest loading of 0.91 and the lowest loading of 0.72. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for hunger concern awareness construct was 0.83, as presented in Table 5.10.

Table 5. 10: Exploratory Factor Analysis (EFA) for Hunger Concern Awareness (HC_A)

Items	Factor Items Hunger Concern Awareness	Factor Loading	Variance Explained 72.492%	Cronbach's Alpha
HC_1	Hungry people are increasing rapidly in the world.	0.90		0.87
HC_2	Children are more affected by the scarcity of food.	0.86		
HC_3	There are many people around me who are food insecure.	0.72		
HC_5	Several organizations are working to relieve world hunger.	0.91		

1. Kaiser-Meyer-Olkin Measure = $0.728 > 0.70$
2. Bartlett's test of Sphericity was Significant ($\chi^2 (6) 1658.066 =$, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.5 Exploratory Factory Analysis (EFA) for Environmental Concern Awareness (ENC_A)

The measure of environmental concern awareness was analyzed by utilizing EFA. The measure consisted of seven items. In initial findings, the KMO value was 0.759 and Bartlett's Test of Sphericity value was 1043 (df = 21 and $p = 0.000$) which are significant for EFA of environmental concern awareness construct. The initial EFA also suggested a two factor solution for the seven items. Additionally, factor two comprised three items and two of the items, ENC_1 and ENC_2, had cross loading with one factor. In the second round of EFA, cross loaded items ENC_1 and ENC_2 were excluded from the analysis. The results of second round EFA suggested a one factor recorded an eigenvalue of above 1 (2.497) which explained a total of 49.935% of the variance. The communality of item ENC_3 was 0.029 which was less than 0.4, and also had lower correlation ($r = 0.053$) compared with other items of environmental concern awareness measure. Owing to that, a

third round of EFA was performed without ENC_3 and found KMO value of 0.770, and Bartlett's test of Sphericity was 722.123 (df = 6 and p.0.000), and explained 61.986% of the variance as shown in Table 5.11.

At the end, EFA, final results for environmental concern awareness construct and its related items are illustrated in Table 5.11. Factor loading for the entire items of environmental concern awareness construct were acceptable, with the highest loading 0.86 and the lowest loading of 0.73. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for environmental concern awareness construct was 0.79, as discussed in Table 5.11.

Table 5. 11: Exploratory Factor Analysis (EFA) for Environmental Concern Awareness (ENC_A)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Environmental Concern Awareness		61.986%	0.79
ENA_4	Avoiding food waste helps to solve environmental problems like global warming.	0.76		
ENA_5	My food consumption level can have an impact on the environment.	0.86		
ENA_6	My food consumption level contributes to environmental pollution.	0.73		
ENA_7	I can help to solve my area's food waste problem by avoiding plate food waste.	0.79		

1. Kaiser-Meyer-Olkin Measure = 0.770 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (6) = 722.123 , p < 0.05)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.6 Exploratory Factory Analysis for Economic Concern Awareness (ECC_A)

EFA was deployed to measure the economic concern awareness. Economic concern awareness construct was measured with five items. In initial results, the KMO value was

0.745 and Bartlett's Test of Sphericity was 709.107 (df = 10 and p = 0.000). EFA suggested a one factor solution for the five items of economic concern awareness constructs. Additionally, Item ECC_1 had low communality value of 0.340 and also lower correlation ($r = 0.243$) with other items of economic concern awareness measure. In the second round of EFA, Item ECC_1 was removed to fill the basic threshold of EFA. Thus, results of the second round of EFA found significant value of KMO at 0.722 and Bartlett's test of Sphericity at 751.012 (df = 6 and p = 0.000). Moreover, eigenvalue was above 1(2.285) which explained 57.114% of the variance.

At the end, EFA's the final results for economic concern awareness construct and its related items are illustrated in Table 5.12. Factor loading for the entire items of economic concern awareness construct are acceptable, with the highest loading 0.80 and the lowest loading of 0.65. For the verification of good internal consistency of the sample data the Cronbach's alpha value for economic concern awareness construct was 0.75.

Table 5. 12: Exploratory Factor Analysis (EFA) for Economic Concern Awareness (ECC_A)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Economic Concern Awareness		57.114%	0.75
ECC_2	My over consumption of food contributes to high prices of food.	0.65		
ECC_3	I can help to control the prices of food by avoiding wastage.	0.80		
ECC_4	Increases in the prices of goods are tired to over consumption.	0.76		
ECC_5	Avoiding food waste helps to solve economics problem like price increments of goods.	0.80		

1. Kaiser-Meyer-Olkin Measure = 0.722 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (6) = 751.012, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.7 Exploratory Factory Analysis (EFA) for Landfill Concern Awareness (LFC_A)

Landfill concern awareness construct was measured with EFA. This construct consisted of six items. In initial results, The KMO value was 0.797, and Bartlett's test of Sphericity was 699.685 (df = 15 and p = 0.000). Thus, the data was appropriate for EFA. One factor solution was found with an eigenvalue above 1 (2.637), which explained 50.337% of the variance for six items suggested by EFA. The communality of item LFC_2 and LFC_3 were 0.181 and 0.390, which was less than the thresh hold value of 0.40 (Field, 2006). In the second round, EFA was performed without items LFC_2 and LFC_3. The results suggested one factor solution an eigenvalue of above 1 (2.244), which explained 56.100% of the variance for four items.

To sum up, EFA final results for landfill concern awareness construct and its related items is illustrated in Table 5.13. Factor loading for four items of landfill concern awareness construct are acceptable, with the highest loading of 0.80 and the lowest loading of 0.66. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for landfill concern awareness construct was 0.74.

Table 5. 13: Exploratory Factor Analysis (EFA) of Landfill Concern Awareness (LFC_A)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Landfill Concern Awareness		56.100%	0.74
LFC_1	Usable land will gradually be covered with food waste	0.66		
LFC_4	The land is continuously covered with garbage caused by household's waste.	0.78		
LFC_5	The coverage of land with food waste is harmful to the environment.	0.80		
LFC_6	The increasing landfill is threatening the environment's natural beauty.	0.74		

1. Kaiser-Meyer-Olkin Measure = 0.736 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (6)= 513.002, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.8 Exploratory Factory Analysis (EFA) for Water Shortage Concern Awareness (WTC_A)

Water shortage concern awareness construct was measured by using the EFA. The KMO value was 0.753, and Bartlett's test of Sphericity was 815.512 (df = 10 and $p = 0.000$). Hence, data was suitable to utilize EFA for this construct. One factor solution was found with an eigenvalue above 1 (2.637), which explained 52.747% of the variance for five items suggested by exploratory factor analysis (EFA).

EFA results for water shortage concern awareness construct and its related items are illustrated in Table 5.14 Factor loading for the entire items of water shortage concern awareness construct are acceptable, with the highest loading of 0.79 and the lowest loading of 0.60. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for water shortage concern awareness construct was 0.77.

Table 5. 14: Exploratory Factor Analysis (EFA) for Water Shortage Concern Awareness (WTC_A)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Water shortage Concern Awareness		52.747%	0.77
WTC_1	Drinking water nowadays is very costly.	0.71		
WTC_2	Price of drinking water is increasing day by day.	0.76		
WTC_3	The world is facing a problem of water shortage.	0.79		
WTC_4	People are dying due to water shortage in the world.	0.70		
WTC_5	People have to travel a lot further to get drinking water.	0.60		

1. Kaiser-Meyer-Olkin Measure = $0.753 > 0.70$
2. Bartlett's test of Sphericity was Significant ($\chi^2 (10) = 815.512$, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.9 Exploratory Factory Analysis for Attitude (ATT_M)

Exploratory factor analysis (EFA) was selected to analyze the attitude construct and related measures. The initial EFA suggested one-factor solutions for the seven items. However, one of the factors consisted of only two items ATT_2 and ATT_3. Generally, two items are insufficient for factorial stability, unless highly correlated with the factor and at the same time, being uncorrelated with other variables (Worthington & Whittaker, 2006).

The two items ATT_2 and ATT_3 had low correlation $r = 0.358$ which is lower than the criteria ($r > 0.7$). Also, ATT_1 had a lower communality value of 0.368 than the threshold value of 0.40. Nevertheless, three Items ATT_1 (Factor 1), ATT_2, ATT_3 (Factor 2) were deleted from the EFA. The remaining five items ATT_4, ATT_5, ATT_6 and ATT_7 suggested one factor which had an eigenvalue above 1 (2.367) and explained 54.843 % of the variance.

To summarize, EFA results for attitude construct and its related items are illustrated in Table 5.15. Factor loading for five items of attitude construct are acceptable, with the highest loading of 0.80 and the lowest loading of 0.70. For the verification of good internal consistency of the sample data the Cronbach's alpha value attitude construct was 0.78.

Table 5. 15: Exploratory Factor Analysis (EFA) for Attitude (ATT_M)

Items	Factor Items	Factor Loading	Variance Explained	Cronbach's Alpha
	Attitude		54.843%	0.78
ATT_4	I prefer a small quantity of food on the plate because it helps to save money.	0.78		
ATT_5	I believe minimum food on the plate saves the food for hungry people in the world.	0.80		
ATT_6	There is nothing wrong with plate food waste.	0.71		
ATT_7	Eating in an ethical way generally benefits the society.	0.71		
ATT_8	I believe minimum food on the plate because it helps to save the water.	0.70		

1. Kaiser-Meyer-Olkin Measure = 0.814 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (10)= 811.826, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.10 Exploratory Factory Analysis for Socially Responsible Plate Food

Consumption Behavior (SRCB_D)

The EFA was deployed to measure the socially responsible consumption behavior construct. That construct was measured with six items. In initial results, the KMO value was 0.772 and Bartlett's Test of Sphericity was 521.253 (df = 15 and $p = 0.000$). The EFA

suggested a one factor solution for the six items of socially responsible consumption behavior constructs. Additionally, Item SRCB_2 had low commonality value of 0.298 as well as lower correlation ($r = 0.250$) with other items of socially responsible consumption behavior measure. In the second round of EFA, item SRCB_2 was removed to meet the basic criteria of EFA. Thus, results of second round of EFA found significant value of KMO at 0.761 and Bartlett's test of Sphericity at 420.745 ($df = 10$ and $p = 0.000$). Moreover, eigenvalue was above 1(2.230) which explained 44.59% of the variance.

In summary, exploratory factor analysis (EFA) results for socially responsible consumption behavior construct and its related items are illustrated in Table 5.16 Factor loading for the five items of socially responsible consumption construct are acceptable, with the highest loading of 0.73 and the lowest loading of 0.60. For the verification of good internal consistency of the sample data, the Cronbach's alpha value for socially responsible plate food consumption behavior construct was 0.69.

Table 5. 16: Exploratory Factor Analysis (EFA) for Socially Responsible Plate Food Consumption Behavior (SRCB_D)

	Factor Items	Factor Loading	Variance Explained	Cronbach Alpha
	Socially Responsible Consumption Behavior		44.60%	0.7
SRCB_1	People should be concerned about reducing or limiting the plate food waste in our society.	0.6		
SRCB_3	I limit my plate food consumption to what I really need.	0.64		
SRCB_4	I generally try to consume all the food that is available on my plate.	0.73		
SRCB_5	I hardly waste the plate food, which is attached to limited resources.	0.7		
SRCB_6	I take only the portion of food I need to consume.	0.65		

1. Kaiser-Meyer-Olkin Measure = 0.761 > 0.70
2. Bartlett's test of Sphericity was Significant (χ^2 (10) = 420.745, $p < 0.05$)
3. The diagonals of the anti-image correlation matrix were also all over 0.5
4. Communalities were all above 0.4

5.3.11 Consolidated Detail of all Constructs

Ten simple structured factors were retained from the EFA series, which were based on the proposed framework for the socially responsible plate food consumption behavior in Kuching Sarawak. The reliabilities of all the constructs showed good internal consistency of the items. Therefore, 46 out of 68 items from actual survey were retained and used in the next stage of confirmatory factor analysis (CFA) in step 3, structural equation modeling (SEM). All the ten factors results are summarized in Table 5.17.

Table 5. 17: Summary for Exploratory Factor Analysis (EFA) Results

Constructs	Initial items	Kaiser-Meyer Olkin	Bartlett's Test of Sphericity	Cumulative Factor Loading	Items Retained
Religious Self	10	0.849	997.269	51.193%	6
Feared Self	6	0.731	794.476	60.858%	4
Altruistic Self	10	0.835	1004.646	59.105%	5
Hunger Concern Awareness	5	0.728	420.745	72.492%	4
Environmental Concern Awareness	7	0.770	722.123	61.986%	4
Economic Concern Awareness	5	0.722	751.012	57.114%	4
Landfill Concern Awareness	6	0.785	641.287	50.337%	4
Water shortage Concern Awareness	5	0.753	815.512	52.747%	5
Attitude	8	0.814	811.826	54.843%	5
Socially Responsible Plate Food Consumption Behavior	6	0.761	420.745	51.595%	5

5.4 Step 3: Structural Equation Modeling (SEM)

Structural equation modeling (SEM) was conducted on the data to authenticate the results of exploratory factor analysis (EFA). By using SEM, a series of confirmatory factor analysis (CFA) were conducted to test the objects to see how well it fits. As a comparison, “CFA is a more complicated and sophisticated technique, used in the advanced states of the research process to test the theory about latent processes or to test specific hypotheses usually performed through SEM” (Tabacknick & Fidell, 2007; Pallant, 2007). The software application AMOS version 22 was used, to evaluate the individual measurement models, pooled measurement models, and covariance structure analysis was carried out.

5.4.1 First-order Measurement Model for Self-Concept

The first-order confirmatory factor analysis for consumer self-concepts had been designed to test the relationships between different sub-dimensions (Actual self, Ideal self, Social self and Ideal social self) and their observed indicators by different researchers (Li, 2009). Likewise, consumer self-concept was designed to test the relationship between three sub-dimensions (Religious self, Feared self and Altruistic self) and their observed variables in this study. Self-concept measurement model consisted of 15 observed variables. The number of observed variances and covariances ($15 [15+1]/2$) was 120, and the number of estimated parameters in the model was 35 (15 regression weights, 5 covariances and 15 variances). According to t-rule, the measurement model for self-concept was over-identified (the number of observed variances and covariances > than the number of estimated parameters), and tested with 85 degrees of freedom ($120 - 35$).

The pooled measurement model for self-concept results exposed a good fitness to the sample data. All the recommended thresholds for good fitness of model were sufficiently satisfied. Therefore, no modification was needed to improve the fitness of the model as in the individual confirmatory factor analysis of self-concept sub-dimensions. The basis results of goodness-of-fit indices for first-order self-concept confirmatory factor analysis are summarized in Table 5.18. Furthermore, Modification Indices (MIs) suggested two modifications such as RES_6 and FES_6 have numerous correlations with different items. At adhoc bases, RES_6 and FES_6 items were removed the analysis, as a result, self-concept measurement model was improved from CMIN//DF 3.041 to 1.960 and RMSEA 0.051 to 0.040 as presented in Table 5.18.

Table 5. 18: Summary of First-Order Findings (CFA): Self-Concept

Items	Initial Standardized Loadings	Final Standardized Loadings	Sub-dimensions	C.R	AVE
RES_4	0.56	0.60(12.18)	Religious Self RE_Self	0.80	0.41
RES_5	0.58	0.58(12.23)			
RES_6	0.55	Removed			
RES_7	0.74	0.80 (15.22)			
RES_8	0.69	0.65(13.13)			
RES_9	0.68	0.61(14.44)			
FES_3	0.81	0.82(10.97)	Feared Self FE_Self	0.80	0.51
FES_4	0.60	0.62(9.80)			
FES_5	0.91	0.88(15.13)			
FES_6	0.45	Removed			
ALS_6	0.79	0.58(12.71)	Altruistic Self AL_Self	0.90	0.48
ALS_7	0.65	0.66(14.38)			
ALS_8	0.69	0.80(16.91)			
ALS_9	0.61	0.68(14.84)			
ALS_10	0.67	0.73(12.84)			
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial	3.650 (310.271/85)	0.051	0.941	0.931	0.921
/Final	1.960 (117.573/60)	0.040	0.973	0.970	0.979
Correlation	AL_Self < - > RE_Self 0.39 , AL_Self < - > FE_Self 0.24 RE_Self < - > FE_Self 0.59				

Note: C.R = Composite Reliability, AVE = Average variance Extracted

The construct reliability values (C.R) and average variance extracted (AVE) of each sub-dimension (Religious self, Feared self and Altruistic self) of self-concept is summarized in above Table 5.18. The composite constructs reliability for the three sub-dimensions ranged from 0.80 to 0.90, which were above the recommended threshold of 0.60 as suggested by Nunnally (1978). Therefore, these values indicating that the measures for the three sub-dimensional factors were appropriate reliability.

Overall factor loading was statistically significant (t -value >1.96), and ranged from 0.46 to 0.90 (Table 4.4) which were above the recommended threshold 0.60 as suggested by Hair et al. (2006), recommending proper convergent validity. Moreover, the AVEs range from 0.41 to 0.51 (Table 4.4) which were below acceptable ranged from 0.56 to 0.59 accepted one sub-dimension feared self. The AVEs value less than 0.50 is acceptable, while composite construct reliability is higher than 0.6 (Fornell and Larcker, 1981; Huang et al., 2013). Therefore, composite constructs reliability and AVE's showing that the measures for the three-dimensional factor had accurate convergent validity. The range of correlation coefficients of the three sub-dimensions was 0.39 to 0.59 (refer to figure 5.1) which was below the recommended level of 0.85 according to Kline (2005). These values indicated that measures of these sub-dimensions had suitable discriminant validity.

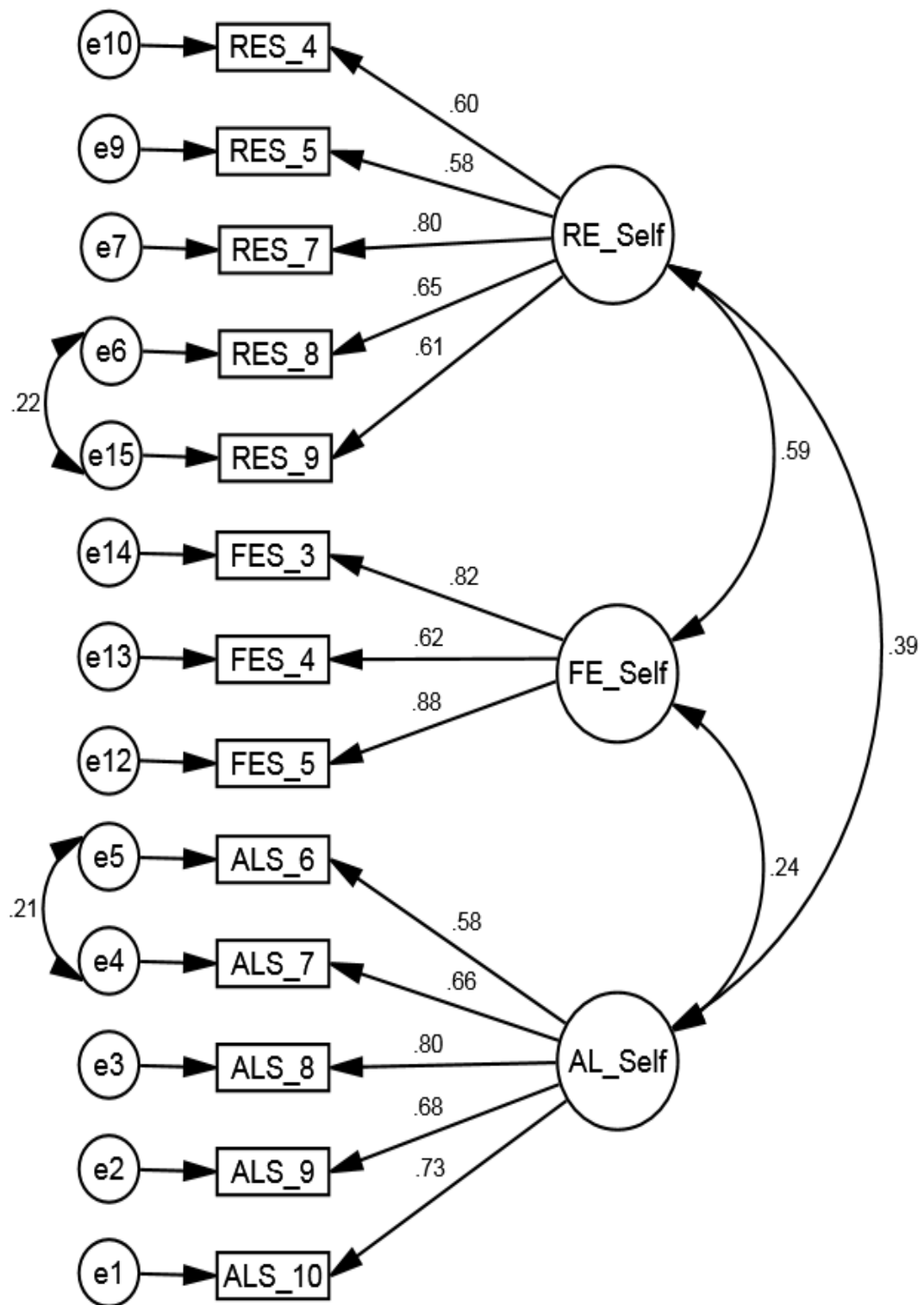


Figure 5.1: First-order Confirmatory Factor Analysis Model for Self-Concept

5.4.2 First-order Measurement Model for Consumer Awareness

First-order confirmatory factor analysis model for consumer awareness was designed to verify the relationship between five sub-dimensions of consumer awareness (Hunger Concern, Environmental Concern, Economic Concern, Landfill Concern and Water Shortage Concern) and their observed indicators as shown in Figure 5.2. In initial findings, consumer awareness pool confirmatory factor analysis consisted of 22 observed variables. At present, model has a good fit with χ^2 value of 645.788 (df = 195 and p = 0.000), CMIN/DF of 3.312, and RMSEA of 0.062. According to MIs suggestion, measurement model might be improved due to higher CMIN/DF and RMSEA. In ad hoc attempt, ECC_2 and WTC_5 factors were excluded to improve the fitness indices one by one. Both factors had a significant effect on the fitness of the model. Therefore, Items ECC_2 of economic concern and WTC_5 of water shortage concern were removed from the consumer awareness pooled confirmatory factor analysis. The model was improved from χ^2 value of 645.788 (df = 195 and p = 0.000) to 457.625 (df = 157 and p = 0.000) as shown in Table 5.19.

In this study, consumer awareness model had 20 observed variables. The number of observed variances and covariances ($19 [20+1] / 2$) was 190, and the number of estimated parameters in the model was 51 (19 regression weights, 13 covariances and 19 variances). According to t-rule, the measurement model for consumer awareness was over-identified (the number of observed variances and covariances > than the number of estimated parameters), and tested with 139 degrees of freedom (190 – 51).

Table 5. 19: Summary of First-order Findings (CFA): Consumer Awareness

Items	Initial Standardized Loadings	Final Standardized Loadings (t-value)	Sub-dimensions	AVE	C.R
HC_1	0.94	0.94(40.21)***	Hunger Concern HC_A	0.64	0.87
HC_2	0.70	0.70(21.60)***			
HC_3	0.50	0.50(13.35)***			
HC_5	0.96	0.96(39.55)***			
ENC_4	0.66	0.66(13.19)***	Environmental Concern ENC_A	0.50	0.80
ENC_5	0.84	0.84(15.38)***			
ENC_6	0.61	0.61(12.56)***			
ENC_7	0.71	0.71(14.16)***			
ECC_2	0.42	Removed	Economic Concern ECC_A	0.50	0.75
ECC_3	0.62	0.62(11.13)**			
ECC_4	0.69	0.68(12.46)**			
ECC_5	0.81	0.82(13.06)***			
LFC_1	0.59	0.60***	Landfill Concern LFC_A	0.40	0.74
LFC_4	0.71	0.70(12.79)***			
LFC_5	0.66	0.66(12.12)***			
LFC_6	0.55	0.54(10.60)***			
WTC_1	0.55	0.56(9.11)***	Water shortage concern WTC_A	0.44	0.75
WTC_2	0.60	0.61(14.04)***			
WTC_3	0.78	0.76(12.22)***			
WTC_4	0.72	0.70(11.76)***			
WTC_5	0.48	Removed			
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial	3.312 (645.788/195)	0.062	0.903	0.911	0.918
Final	2.942 (409.048/139)	0.057	0.923	0.933	0.945
Correlation	HC_A< - >ENC_A 0.33 , HC_A< - >ECC_A 0.30 , HC_A< - >LFC_A 0.40 , HC_A< - >WTC_A 0.43 ENC_A< - >ECC_A 0.33 , ENC_A< - >LFC_A 0.48 , ENC_A< - >WTC_A 0.36 ECC_A< - >LFC_A 0.63 , ECC_A<->WTC_A 0.50 LFC_A < - > WTC_A 0.84				

Note: C.R = Composite Reliability, AVE = Average variance Extracted

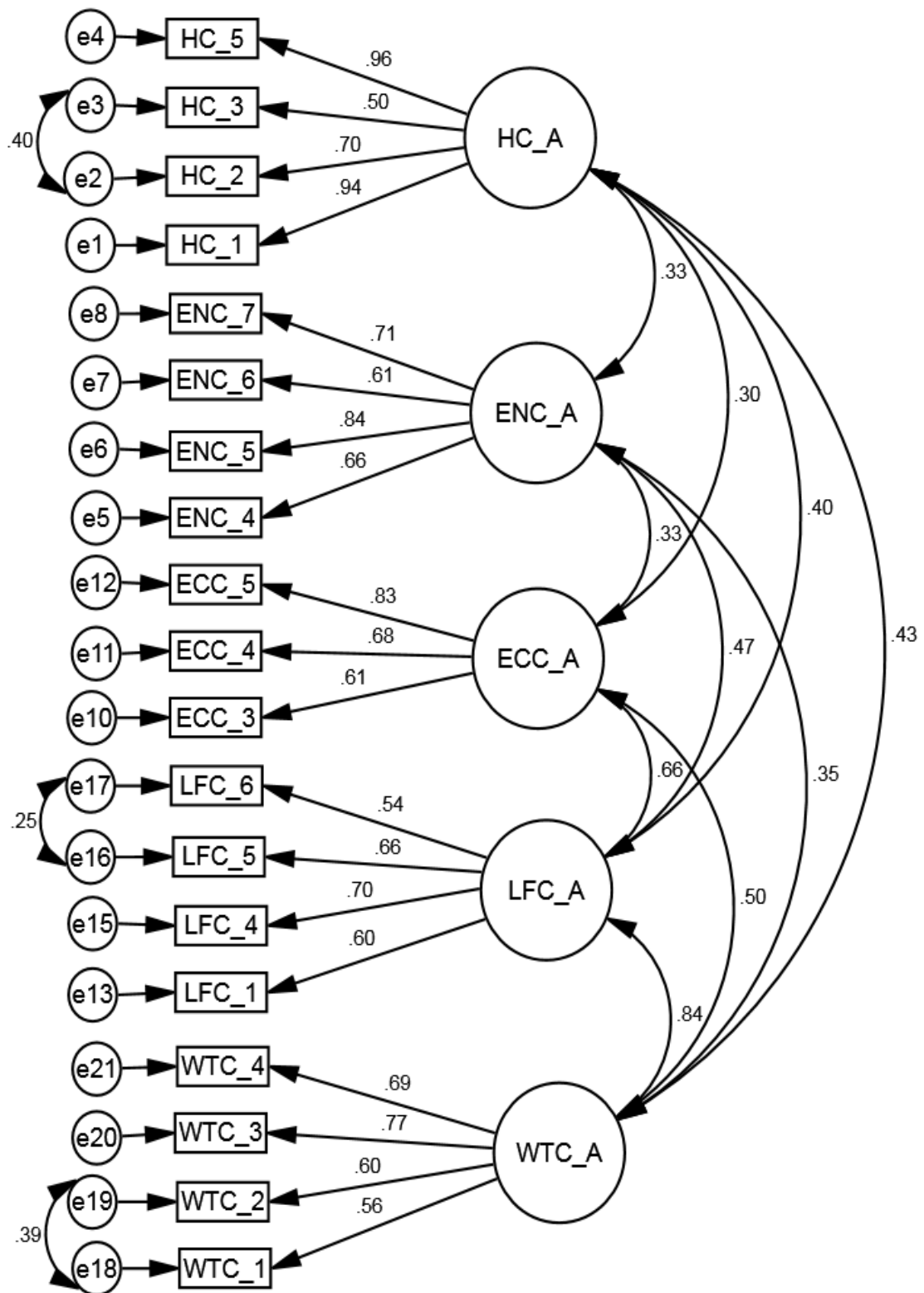


Figure 5.2: Pooled First-order Confirmatory Factor Analysis Model for Consumer

Awareness

The construct reliability values (C.R) and average variance extracted (AVE) of each sub-dimension (Hunger Concern, Environmental Concern, Economic Concern, Landfill Concern and Water Shortage concern) of consumer awareness are summarized in above Table 5.19. The composite constructs reliability for the five sub-dimensions ranged from 0.74 to 0.87, which were above the recommended threshold of 0.60 as suggested by Nunnally (1978). Therefore, these values indicating that the measures for the three sub-dimensional factors were appropriate reliability.

Overall factor loading were statistically significant (t-value >1.96), and ranged from 0.50 to 0.96 (Table 4.4) which were above the recommended threshold 0.40 as suggested by (Hair et al., 2006), recommending proper convergent validity. Moreover, the AVEs range from 0.37 to 0.64 (Table 4.4) which were below acceptable ranged from 0.56 to 0.59 instead of three sub-dimensions, (hunger concern, environmental concern and economic concern). The AVEs value less than 0.50 is acceptable, while composite construct reliability is higher than 0.6 (Fornell & Larcker, 1981; Hair, Ringle & Sarstedt, 2011). Therefore, composite constructs reliability and AVE's showing that the measures for the five dimensional factors had accurate convergent validity.

The range of correlation coefficients of the five sub-dimensions was 0.30 to 0.84 (Figure 5.2 and Table 5.19) which were below the recommended level of 0.85 accords with Kline (2005). These values indicated that measures of these five sub-dimensions had suitable discriminant validity.

5.4.3 First-Order Measurement Models Results

In this present study, there are two variables consumer self-concept and consumer awareness that have sub dimensions. Thus, the first order measurement model was used for consumer self-concept and consumer awareness variable. The results of two variables measurement models are summarized into Table 5.20.

Table 5. 20: Summary of the First-order Measurement Models Fit Statistics for Self-Concept and Consumer Awareness

	Overall Individual Model Fit				
	Model Fit		Model Comparison		
	CMIN/DF	RMSEA	GFI	TLI	CFI
Self-Concept	1.960 (117.573/60)	0.040	0.973	0.970	0.979
Consumer Awareness	2.942 (409.048/139)	0.057	0.923	0.933	0.945

5.4.4 Second-Order Confirmatory Factor Analysis Model for Self-Concept

To test the relationships between three sub-dimensions (Religious self, Feared Self and Altruistic Self) and one primary dimension of consumer self-concept in second-order confirmatory factor analysis (Figure 5.3). There are 15 observed variables presented in the model. The number of variances and covariances $[13(13+1)/2]$ was 91 data points, and the number of estimated parameters in the model was 31 (13 regression weights, 5 covariances and 13 variances). According to t-rule, the measurement model for self-concept was over-identified (the number of observed variances and covariances > than the number of estimated parameters), and tested with 60 degrees of freedom (91 – 31).

Moreover, in second-order confirmatory analysis, Byrne (2001, p.123) suggested it was necessary to “check the identification status of the higher order portion of the model”. Self-concept second-order confirmatory factor analysis with three first order factors were just-identified $[3(3+1) / 2] = 6$, estimated parameters (three factor loadings and three residuals) with zero degree of freedom.

To solve the problem of just identification of the model, two of the first-order factor residuals variances might be constrained to be equal for model identification as suggested by Rindskopf and Rose (1988). Therefore, an equality constraint was used to help out the correct identification. The variances of two first-order factors (Feared self and Altruistic self) were forced to be identical.

The residual variances of two first-order factor (Feared self and Altruistic self) were selected from the analysis, based on that they were small and close in size as per suggested by Byrne (1998). Consequently, higher-order portion was converted from just-identified to over-identified $[6 \text{ pieces of information } 3(3+1)/2] > 5$ estimated parameters (three factors loading and two residuals) with 1 degree of freedom.

At initial results of self-concept, second-order confirmatory factor analysis model had good model fitness to the sample data. All the recommended thresholds for model fit indices were adequately satisfied with χ^2 value of 117.573 (df = 60 and p = 0.000), CMIN/DF of 1.960 and RMSEA of 0.040, the rest of the indices are shown in Table 5.21. Thus, modification for model fitness was not required. The results of goodness-of-fit of self-concept second-order confirmatory factor analysis are summarized in Table 5.21 and Figure 5.3.

Table 5. 21: Summary of Initial Findings (Second-order CFA): Self-Concept

Items	Initial/Final Standardized Loadings (t-value)		Sub-dimensions of Self-Concept	C.R	AVE
RES_4	0.60	12.18	Religious Self RE_Self	0.80	0.41
RES_5	0.58	12.23			
RES_7	0.80	15.22			
RES_8	0.65	13.18			
RES_9	0.61	14.44			
FES_3	0.82	10.97	Feared Self FE_Self	0.80	0.51
FES_4	0.62	9.80			
FES_5	0.88	11.13			
ALS_6	0.58	12.71	Altruistic Self AL_Self	0.90	0.48
ALS_7	0.66	14.38			
ALS_8	0.80	16.91			
ALS_9	0.68	14.84			
ALS_10	0.73	14.02			
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial/Final	1.960 (117.573/60)	0.040	0.973	0.970	0.979

Note: C.R = Composite Reliability, AVE = Average Variance Extracted

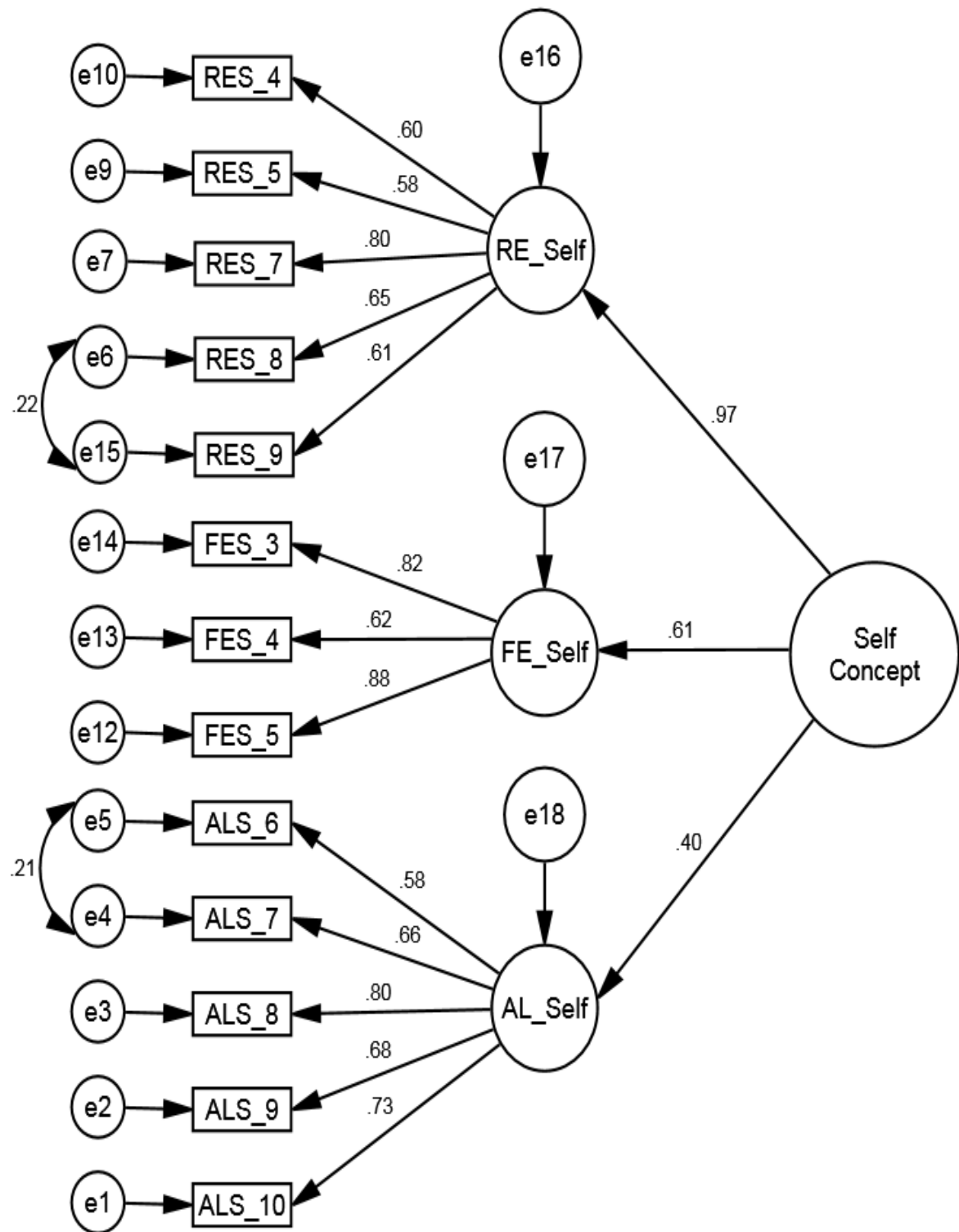


Figure 5.3: Second-order Confirmatory Factor Analysis Model for Self-Concept

5.4.5 Second-Order Confirmatory Factor Analysis Model for Consumer Awareness

To test the relationships between five sub-dimensions (Hunger concern, Environmental concern, Economic concern, Landfill concern and Water shortage concern) and one primary dimension of consumer awareness in second-order confirmatory factor analysis (Figure 5.4). There were 19 observed variables presented in the model. The number of variances and covariances $[19(19+1)/2]$ was 190 data points, and the number of estimated parameters in the model was 46 (19 regression weights, 3 covariances and 25 variances and residual). According to t-rule, the measurement model for consumer awareness was over-identified (the number of observed variances and covariances > than the number of estimated parameters), and tested at 144 degrees of freedom (190 – 46).

Initial results of consumer awareness second-order confirmatory factor analysis model indicated a good model fitness to the sample data. All the recommended thresholds for model fit indices were adequately satisfied with χ^2 value of 430.982 (df = 144 and p 0.000), CMIN/DF of 2.992 and RMSEA of 0.058, rest of the indices were shown in Table 5.22. Thus, modification for model fitness was not required. The results of goodness-of-fit of consumer awareness second-order confirmatory factor analysis are summarized in Table 5.22 and Figure 5.4

Table 5. 22: Summary of Initial Findings (Second-order CFA): Consumer Awareness

Items	Final Standardized Loadings (t-value)		Sub-dimensions Of Consumer Awareness	AVE	C.R
HC_1	0.94	35.44	Hunger Concern HC_A	0.64	0.87
HC_2	0.70	21.60			
HC_3	0.50	13.35			
HC_5	0.96	39.55			
ENC_4	0.66	12.30	Environmental Concern ENC_A	0.50	0.80
ENC_5	0.84	15.38			
ENC_6	0.61	12.56			
ENC_7	0.70	14.16			
ECC_3	0.62	11.15	Economic Concern ECC_A	0.50	0.75
ECC_4	0.68	12.46			
ECC_5	0.83	13.06			
LFC_1	0.58	10.40	Landfill Concern LFC_A	0.40	0.74
LFC_4	0.70	12.79			
LFC_5	0.67	12.12			
LFC_6	0.54	9.23			
WTC_1	0.56	10.60	Water shortage concern WTC_A	0.44	0.75
WTC_2	0.61	14.04			
WTC_3	0.76	12.22			
WTC_4	0.70	11.76			
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial/Final	2.992 (430.982/144)	0.058	0.930	0.908	0.941

Note: C.R = Composite Reliability, AVE = Average Variance Extracted

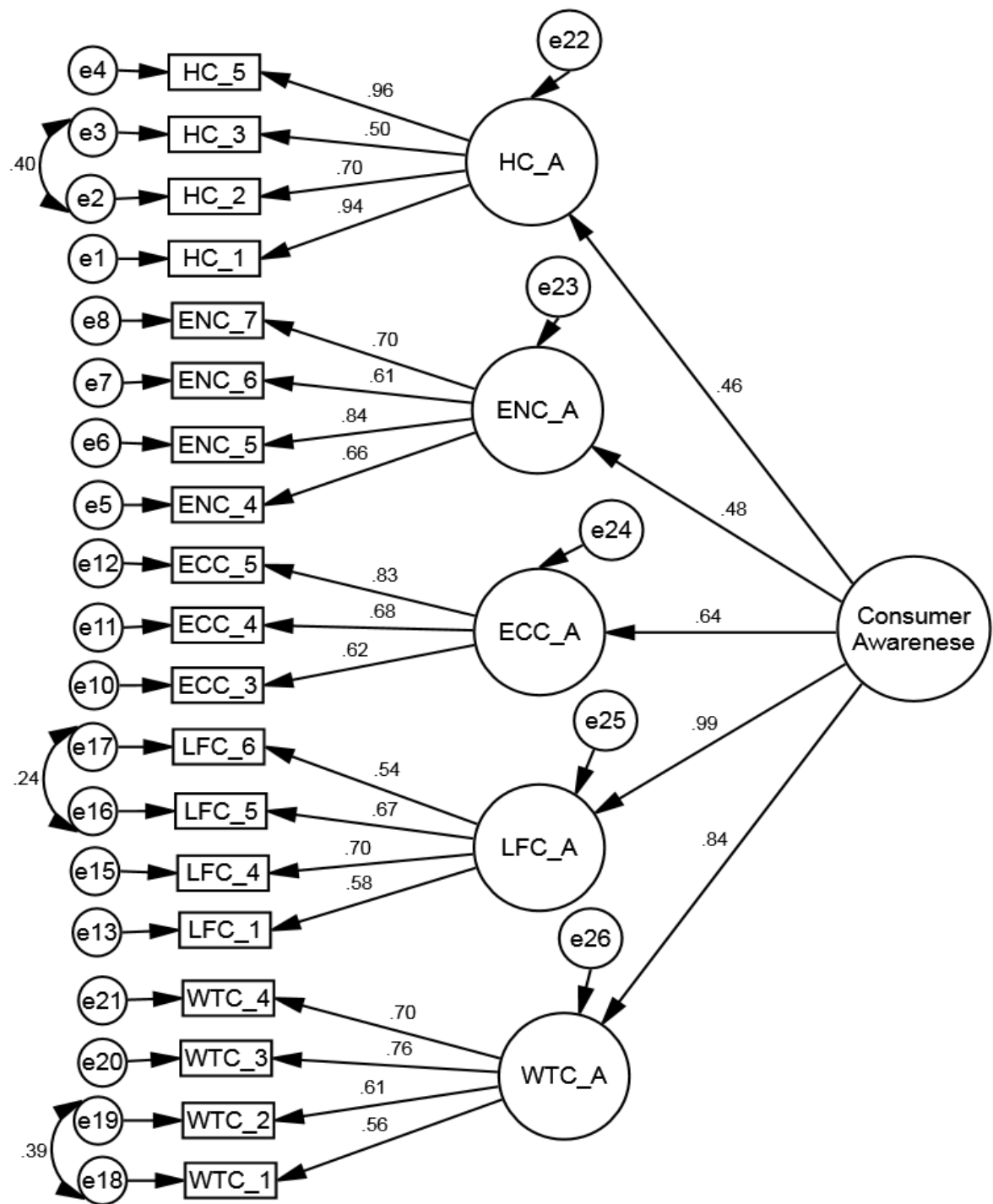


Figure 5.4: Second-order Confirmatory Factor Analysis Model for Consumer Awareness

5.4.6 Second-Order Measurement Models Results for Self-concept and Consumer Awareness

Consumer self-concept and consumer awareness variables were used as a second order variable in this study. Thus, the results of consumer self-concept in Table 5.21, and consumer awareness in Table 5.22, are presented separately. Additionally, the results of second order constructs consumer self-concept and consumer awareness were summarized in Table 5.23.

Table 5. 23: Summary of the Second-Order Measurement Models Fit Statistics For Self-Concept and Consumer Awareness

Second order constructs	Overall Individual Model Fit					C.R	AVE
	Model Fit		Model Comparison				
	CMIN/DF	RMSEA	GFI	TLI	CFI		
Self-Concept	1.960 (117.573/60)	0.040	0.973	0.970	0.979	0.71	0.48
Consumer Awareness	2.992 (430.982/144)	0.058	0.930	0.908	0.941	0.83	0.51

Note: C.R = Composite Reliability, AVE = Average Variance Extracted

5.4.7 Confirmatory Factor Analysis (CFA) for Attitude

Attitude was measured by eight items. The initial verification of the inter-item correlation matrix revealed that ATT_2, ATT_3 were relatively poorly correlated with other items in the scale. In spite of that, all eight items were subjected to a CFA and the results are shown in Table 5.24. The results of these two items slightly indicated the poor fitness of the model as compared to ATT_1. Although, ATT_1 and ATT_6 that have a significant factor loading but mainly responsible for poor fit for the attitude measurement model. On ad hoc bases, Items ATT_1 and ATT_2 were deleted, and the overall model fitness improved with unreasonable CMIN/DF and RMSEA. Despite that, factor loadings of ATT_2 and ATT_3 could not achieve their acceptable value. However, items ATT_1, ATT_2 ATT_3, and

ATT_6 were deleted and modification showed significant effects on overall attitude measurement model with χ^2 value from 16.148 (df = 35, p = .000) to 7.107 (df = 14 and p = .000), also, all acceptable fit indices. All the good-of-fit indices are summarized in Table 5.24.

Table 5. 24: Summary of Findings (CFA): Attitude (ATT)

Items	Initial Standardized Loadings	Final			
		Standardized Loadings	C.R (t)		
ATT_1	0.60	Removed			
ATT_2	0.05	Removed			
ATT_3	0.26	Removed			
ATT_4	0.68	0.73	12.00		
ATT_5	0.73	0.76	10.94		
ATT_6	0.60	Removed			
ATT_7	0.59	0.64	14.09		
ATT_8	0.68	0.59	15.15		
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial	13.025 (260.499/20)	0.142	0.728	0.902	0.806
Final	2.807 (11.229/4)	0.055	0.976	0.993	0.991
Composite Construct Reliability 0.77, Average Variance Extracted 0.46					

Note: ATT = Attitude, C.R = Composite Reliability

The composite construct reliability for these six-item is 0.77, which is at acceptable level according to Hair et al. (1995). Nevertheless, after modification, these four items measurement were considered reliable as well as valid for construct measure.

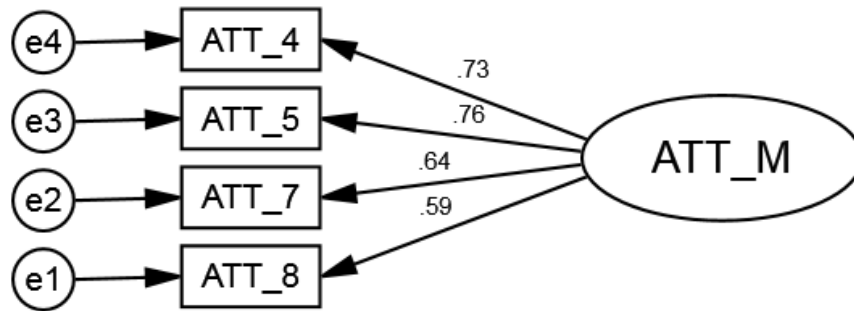


Figure 5.5: Confirmatory Factor Analysis Model for Attitude

5.4.8 Confirmatory Factor Analysis (CFA) for Socially Responsible Consumption Behavior

Socially responsible consumption behavior comprised as dependent variable and measured by six items. However, six items of attitude were utilized for confirmatory factor analysis (CFA). The initial inquiry of the inter-item correlation matrix suggested that the only one item 'SRCB_2' was poorly correlated with all other items. First CFA results were exhibited in Table 5.25. The CFA of six items presented that the model was fit to the data because the cut-off values of fit indices had achieved the recommended levels (refer to Table 52) except with a large χ^2 of 39.133 (df = 9 and $p = 0.000$), CMIN/DF of 4.348. Observing the loading significant, the standardized regression weight for SRCB_2 was relatively low at 0.40.

In the MIs section for this construct, it was suggested one modification was necessary due to high error covariances with another item. However, item SRCB_2 had high error covareiance with items 'SRCB_1' and 'SRCB_3'. During an ad hoc attempt, item SRCB_2 was deleted from the CFA. And as a result, socially responsible consumption

behavior construct achieved a significant level of model fit indices with χ^2 value of 39.133 (df = 9 and p = 0.000) to 14.452 (df = 5 and p = 0.013), CMIN/DF 2.890 and RMSEA 0.056.

Table 5. 25: Summary of Initial Findings (CFA): Socially Responsible Plate Food Consumption Behavior (SRCB)

Items		Initial Standardized Loadings		Final	
				Standardized Loadings	C.R (t)
SRCB_1		0.69	0.71	15.16	
SRCB_2		0.40	Removed		
SRCB_3		0.70	0.72	14.47	
SRCB_4		0.53	0.66	11.63	
SRCB_5		0.59	0.60	13.00	
SRCB_6		0.72	0.80	14.24	
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial	4.348 (39.133/9)	0.075	0.901	0.979	0.941
Final	2.890 (14.452/5)	0.056	0.951	0.990	0.977
Composite Construct Reliability 0.83, Average Variance Extracted 0.49					

Note: SRCB = Socially Responsible Plate food Consumption, C.R = Composite Reliability

The composite construct reliability of these five-items is at 0.83 which is at acceptable level according to Hair et al., (1995). Nevertheless, after modification, these five item measurements are considered reliable as well as valid for construct measure.

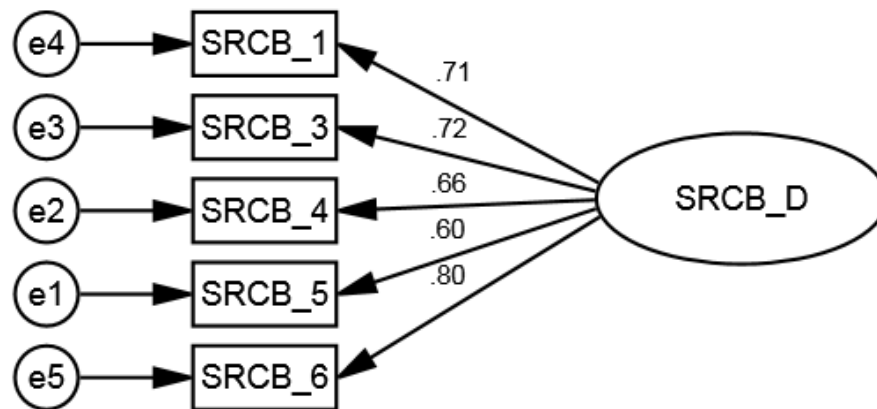


Figure 5.6: Confirmatory Factor Analysis Model for Socially Responsible Plate Food Consumption

5.5 Step 4: Self Congruency between Self-Concept and Consumer Awareness

Self-congruence is measured using the mathematical formula used by Ericksen (1996). Before using the formula, reliable and valid measures of self-concept and consumer awareness were traced out with the support of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Thus, self-concept has three dimensions, which includes religious self, feared self and altruistic self. Basically, religious self-concept consist of 10 items. After exploratory factor analysis (EFE) and confirmatory factor analysis (CFA), reliable and valid measure found with 5 items.

Next, the dimension feared self, was measured with 6 items. After employing EFA and Confirmatory Factory analysis (CFA), feared self-concept reliability and valid measure were found with 3 items.

In addition to that, third dimension altruistic self was initially measured with 10 items. After the utilization of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), the measure of altruistic self-concept found 5 reliable and valid items. In

the same way, consumer awareness variable was based on 5 dimensions, such as hunger concern, environmental concern, economic concern, landfill awareness and water shortage concern. Further to that, initially, hunger concern dimension measured with 5 items. Subsequently, the use of EFA and confirmatory factor analysis (CFA), a reliable and valid measure of hunger concern was achieved with four items.

Initially, environmental concern dimension was measured with 7 items. A measure based on reliability and valid scale, 4 items' measures were identified after applying the EFA and CFA.

Originally, economic concern dimension of consumer awareness was measured with 5 items. EFA and CFA were used to identify the reliable and valid measures; 3 items of economic concern remained in this study.

Basically, landfill concern dimension of consumer awareness was measured with 7 items. To identify the reliable and valid measure, exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) were used. Thus, 5 items remained which presented the reliable and valid measure for this study.

In the beginning, water shortage concern was measured with 5 items. To determine the reliable and valid measure of the water shortage concern, the EFA) and CFA were used. Hence, 4 items measure of water shortage was found in this study.

After that, a database was created on the base of the respondent's response. The database was established by using the mathematical formula (refer to page. 111). In that formulation, each item of every dimension of self-concept (religious self, feared self and altruistic self) and consumer awareness (hunger concern, environmental concern, economic concern, landfill concern and water shortage concern) were compared. Thus, 15 new congruity constructs were developed between consumer self-concept and awareness. Based

on the correlation chart, all the congruity constructs were significantly correlated at an acceptable value from 0.577 to 0.109 (Hair et al., 2016; Ericksen, 1996), as presented in Table 5.26.

Table 5. 26: Correlations between Congruities Constructs

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. RES_HC	1.00														
2. RES_ENC	.416**	1.00													
3. RES_ECC	.436**	.447**	1.00												
4. RES_LFC	.408**	.383**	.546**	1.00											
5. RES_WTC	.397**	.355**	.534**	.526**	1.00										
6. FES_HC	.573**	.297**	.332**	.236**	.298**	1.00									
7. FES_ENC	.125**	.442**	.260**	.193**	.262**	.223**	1.00								
8. FES_ECC	.263**	.278**	.533**	.388**	.381**	.316**	.274**	1.00							
9. FES_LFC	.265**	.278**	.321**	.425**	.350**	.386**	.305**	.401**	1.00						
10. FES_WTC	.200**	.165**	.237**	.330**	.433**	.308**	.303**	.269**	.358**	1.00					
11. ALS_HC	.354**	.224**	.297**	.185**	.169**	.282**	.133**	.196**	.233**	.135**	1.00				
12. ALS_ENC	.128**	.212**	.221**	.238**	.229**	.159**	.267**	.194**	.230**	.276**	.375**	1.00			
13. ALS_ECC	.147**	.126**	.388**	.274**	.289**	.107**	.101*	.269**	.149**	.186**	.297**	.403**	1.00		
14. ALS_LFC	.096*	.114**	.137**	.258**	.136**	.102*	.113**	.085*	.192**	.125**	.424**	.464**	.524**	1.00	
15. ALS_WTC	.108**	.209**	.247**	.204**	.342**	.196**	.179**	.253**	.301**	.271**	.421**	.466**	.477**	.577**	1.00

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

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

5.5.1 Measurement Model of Self-Concept and Consumer Awareness Congruity

Pooled first-order confirmatory factor analysis model for consumer self-concept and consumer awareness congruence was designed to verify the relationship between consumer self-concept (religious self, feared self, and altruistic self) and consumer awareness (hunger concern, environmental concern, economic concern, landfill concern and water shortage concern) and their observed indicators as shown in Figure 5.7. In this study, self-concept and consumer awareness congruence model had 15 observed variables. The number of observed variances and covariances ($15 [15+1] / 2$) was 120, and the number of estimated parameters in the model was 33 (15 regression weights, 3 covariances and 15 variances). According to t-rule, the measurement model for consumer awareness was over-identified (the number of observed variances and covariances > than the number of estimated parameters), and tested with 87 degrees of freedom ($120 - 33$).

At initial results of consumer self-concept and consumer awareness measurement model had a good model fit to the sample data. All the recommended thresholds for model fit indices were adequately satisfied with χ^2 value of 358.107 (df = 87 and p 0.000), CMIN/DF of 4.116 and RMSEA of 0.056, rest of the indices were shown in Table 5.27. Thus, modification for model fitness was not required. The results of good-of-fit of consumer awareness second-order confirmatory factor analysis are summarized in Table 5.27.

Table 5. 27: Summary of Measurement Model of Self-Concept and Consumer Awareness Congruity

Items	Final Standardized Loadings (t-value)		Sub-dimensions Of Congruity	AVE	C.R
RES_HC	0.58	10.75	Religious self and consumer Awareness Congruity (Religious_CA)	0.45	0.80
RES_ENC	0.57	10.60			
RES_ECC	0.75	13.35			
RES_LFC	0.71	29.55			
RES_WTC	0.71	12.30			
FES_HC	0.75	15.38	Feared self and Consumer Awareness Congruity (Feared_CA)	0.54	0.85
FES_ENC	0.85	29.56			
FES_ECC	0.62	14.16			
FES_LFC	0.64	11.15			
FES_WTC	0.78	18.46			
ALS_HC	0.81	13.06	Altruistic self and consumer awareness Congruity (Altruistic_CA)	0.59	0.88
ALS_ENC	0.87	35.44			
ALS_ECC	0.65	12.79			
ALS_LFC	0.74	12.12			
ALS_WTC	0.76	15.23			
Achieved Fit Indices					
	CMIN/DF (x2/df)	RMSEA	TLI	GFI	CFI
Initial/Final	4.115 (358.107/87)	0.056	0.957	0.936	0.944
Correlation	Religious_CA Congruity < - > Feared_CA Congruity 0.83 Religious_CA Congruity < - > Altruistic _CA Congruity 0.73 Feared_CA Congruity< - > Altruistic _CA Congruity 0.65				

Note: RES_HC = Congruity of religious self and hunger concern, RES_ENC = congruity of religious self and environmental concern, RES_ECC = congruity of religious self and economic concern, RES_LFC = congruity of religious self and landfill concern, RES_WTC = congruity of religious self and water shortage concern, FES_HC = Congruity of feared self and hunger concern, FES_ENC = congruity of feared self and environmental concern, FES_ECC = congruity of feared self and economic concern, FES_LFC = congruity of feared self and landfill concern, Feared_WTC = congruity of feared self and water shortage concern, ALS_HC = Congruity of altruistic self and hunger concern, ALS _ENC = congruity of altruistic self and environmental concern, ALS _ECC = congruity of altruistic self and economic concern, ALS _LFC = congruity of altruistic self and landfill concern, ALS _WTC = congruity of altruistic self and water shortage concern.

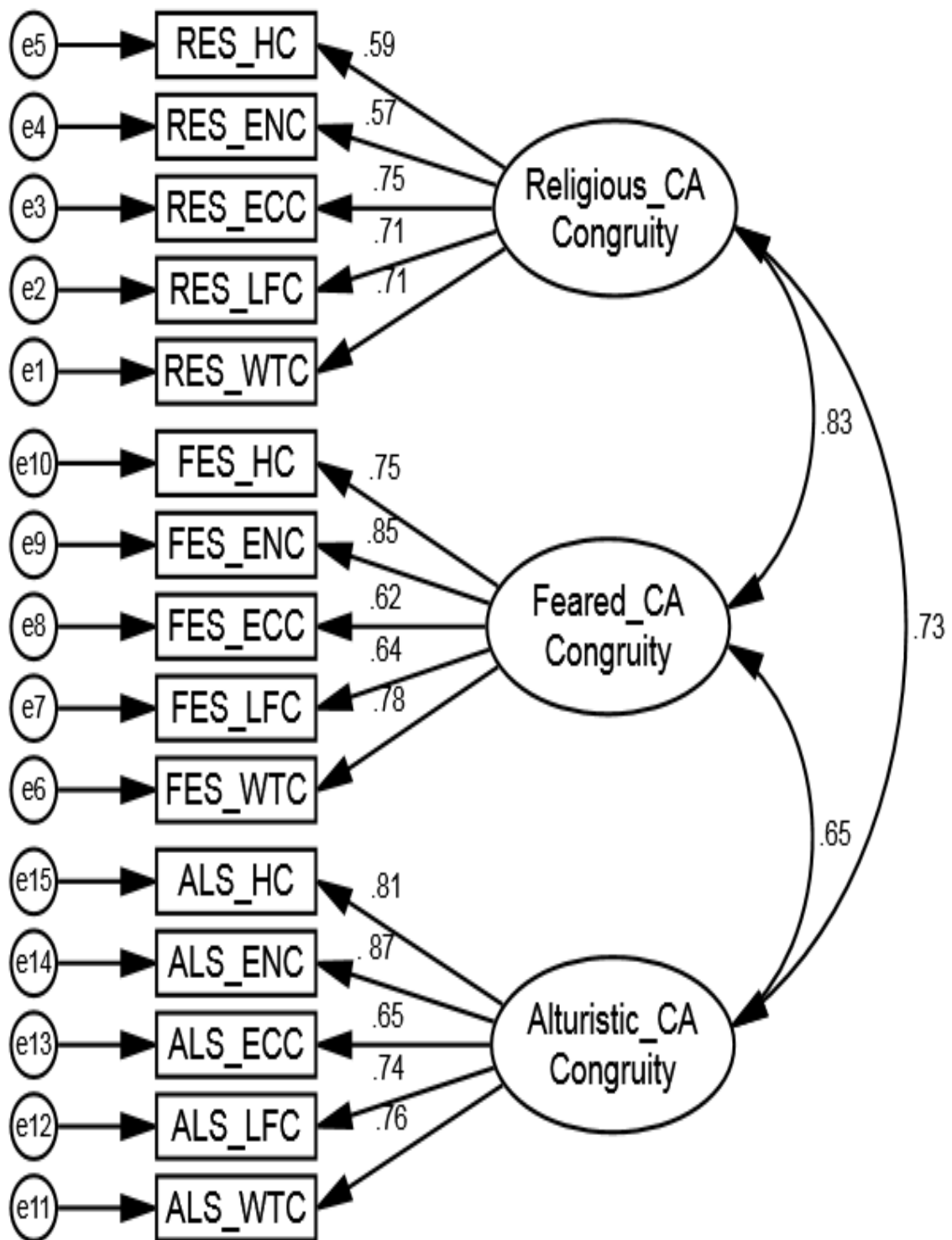


Figure 5.7: Measurement Model for Consumer Self-Concept and Consumer Awareness
Congruence (SC_CA Congruence)

5.5.2 Second-Order Confirmatory Factor Analysis (CFA) Model for Consumer Self-Concept and Awareness Congruity (SC_CA Congruence) with Item Parceling

There were three dimensions of self-concept as religious self, feared self and altruistic self, and at the same time, consumer awareness had five dimensions. Therefore, after using the mathematical formulation, there were fifteen congruent constructs were produced that were presented in correlation Table 5.26 and measurement model Table 5.26 and Figure 5.7. Due to the high number of congruity constructs, an item parceling technique was used in this study to summarize the fifteen consumer self-concept and consumer awareness congruent constructs into three self-congruity constructs, such as religious-CA, Feared-CA and Altruistic-CA. Additionally, the second order confirmatory factor analysis (CFA) model for consumer self-concept and awareness congruity have significant factor loadings. Due to three observed variables such as, religious-ca, feared-ca and altruistic-ca, model is unidentified. Thus, the status of the model is saturated and results are not presented in Table or further dealt with it in measurement model.

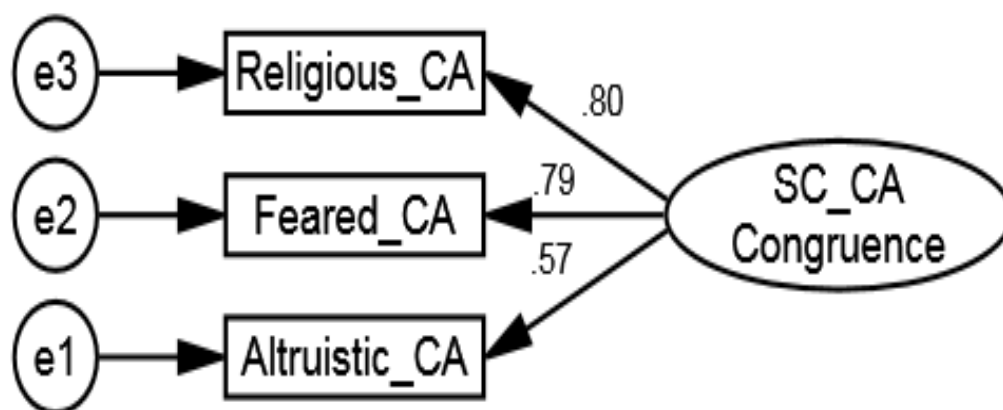


Figure 5.8: Second-Order Confirmatory Factor Analysis (CFA) Model for SC-CA Congruence

5.5.3 Constructs Convergent and Discriminant Validity

Discriminant validity is achieved when the square root of the average variance extracted (AVE) values exceeds the correlations between the measure, and loadings of indicators are higher against their respective constructs compared to other constructs (Awang, 2014). Thus, all the constructs in this study achieved the satisfactory level of convergent and discriminant validity criteria (Awang, 2014) as presented in Table 5.28. In Table 5.28 above, all the constructs including congruity between self-concept and consumer awareness are shown in column one. In column two construct composite reliability and column three exhibit the average variance extracted (AVE) values. However, all the values of composite reliability (CR) and average variance extracted (AVE) are at acceptable levels (Hair et al., 2006). Further, the diagonal values which are bold is the square root of the AVE values of the constructs, although other values are the correlation among the constructs. In this study, discriminant value has been achieved since all the bold values of each construct are higher than the correlation values between each construct which are lower under the bold value of each construct (Awang, 2015).

Table 5. 28: Constructs Convergent and Discriminant Validity

	CR	AVE	SRCB_D	AL_Self	RE_Self	FE_Self	HC_A	ENC_A	ECC_A	LFC_A	WTC_A	WTC_A	SC_CA Congruity
SCRB_D	0.83	0.493	0.702										
AL_Self	0.813	0.464	0.41	0.681									
RE_Self	0.786	0.426	0.386	0.386	0.653								
FE_Self	0.823	0.615	0.349	0.239	0.592	0.784							
HC_A	0.872	0.642	0.289	0.61	0.184	0.243	0.801						
ENC_A	0.8	0.504	0.440	0.383	0.482	0.483	0.336	0.71					
ECC_A	0.755	0.506	0.420	0.230	0.271	0.359	0.306	0.326	0.711				
LFC_A	0.742	0.42	0.542	0.351	0.266	0.312	0.407	0.46	0.646	0.648			
WTC_A	0.754	0.437	0.580	0.391	0.392	0.302	0.427	0.355	0.501	0.813	0.661		
ATT_M	0.768	0.455	0.515	0.432	0.37	0.419	0.206	0.772	0.287	0.397	0.283	0.674	
SC_CA Congruity	0.741	0.499	0.285	0.336	0.171	0.191	0.100	0.269	0.320	0.351	0.250	0.225	0.706

5.5.4 Overall Measurement Confirmatory Factor Analysis (CFA)

First-order confirmatory factor analysis (CFA) models were used to develop the overall measurement model to verify the relationship between eleven constructs. The eleven constructs were classified into first order construct and second order construct. In this study, self-concept and consumer awareness constructs were used as second order construct. Therefore, religious self, feared self, and altruistic self were used as a first order construct for consumer self-concept construct and hunger concern, environmental concern, economic concern, landfill concern and water shortage concern were used first order construct for consumer awareness constructs. Thus, attitude, congruence between self-concept and awareness, and socially responsible plate food consumption constructs were used as first order construct. To test the clear relationship of each construct, an overall measurement model developed with first order constructs (Shu, 2013). The model presented 44 observed variables. The number of observed and covariances ($44 [44+1] / 2$) was 990 data points, and the number of estimated parameters in the model was 146. Based on the t-rule, the overall measurement model of eleven constructs was over-identified (the number of observed variances and covariances greater than the number of estimated parameters), as tested with 844 degrees of freedom (990-146).

The overall measurement for model fit is based on the results for the eleven constructs indicating a good model fit to the sample data. All the recommended thresholds for model fit indices were adequately satisfied with χ^2 value of 2886.926 (df = 844 and p 0.000), CMIN/DF of 3.421 and RMSEA of 0.067, GFI TLI and CFI values above 0.8, that were also acceptable (Baumgartner & Homburg, 1995; Doll, Xia & Torkzadeh, 1994; Cheng, 2011) as presented in Table 5.29 and Figure 5.9. Thus, modification for model fitness was not required further.

Table 5. 29: Summary of Overall Measurement Confirmatory Factor (CFA)

Items	Final Standardized Loadings (t-value)	Constructs	AVE	Composite Reliability
RES_4	0.63(12.50)***	Religious Self RE_Self	0.45	0.79
RES_5	0.58(12.29)***			
RES_7	0.79(15.29)***			
RES_8	0.65(12.10)***			
RES_9	0.60(14.44)***			
FES_3	0.82(11.02)***	Feared Self FE_Self	0.62	0.82
FES_4	0.63(9.90)***			
FES_5	0.88(11.21)***			
ALS_6	0.59(12.91)***	Altruistic Self AL_Self	0.48	0.82
ALS_7	0.67(14.60)***			
ALS_8	0.80(17.18)***			
ALS_9	0.67(14.93)***			
ALS_10	0.73 (14.80)***			
HC_1	0.94(18.07)***	Hunger Concern HC_A	0.65	0.87
HC_2	0.71(21.59)***			
HC_3	0.52(13.33)***			
HC_5	0.96(39.66)***			
ENC_4	0.66(14.03)***	Environmental Concern ENC_A	0.50	0.80
ENC_5	0.84(16.72)***			
ENC_6	0.60(12.95)***			
ENC_7	0.71(14.78)***			
ECC_3	0.65(13.01)***	Economic Concern ECC_A	0.51	0.54
ECC_4	0.69(12.58)***			
ECC_5	0.79(13.31)***			
LFC_1	0.58(9.09)***	Landfill Concern LFC_A	0.42	0.74
LFC_4	0.69(12.87)***			
LFC_5	0.71(12.29)***			
LFC_6	0.60(10.62)***			
WTC_1	0.57(11.01)***	Water shortage concern WTC_A	0.44	0.56
WTC_2	0.61(14.33)***			
WTC_3	0.76(12.56)***			
WTC_4	0.69(12.07)***			
ATT_4	0.70 (12.45)***	Attitude ATT_M	0.56	0.77
ATT_5	0.70(12.38)***			
ATT_7	0.71(12.80)***			
ATT_8	0.58(9.01)***			
SCRC_1	0.75(12.82)***	Socially Responsible Consumption Behavior SRCB_D	0.54	0.85
SCRC_3	0.76(12.30)***			
SCRC_4	0.61(10.74)***			
SCRC_5	0.65(11.314)***			
SCRC_6	0.86(12.08)***			

Note: Significance at various levels: 0.001***, 0.01** and 0.05 * levels

Table 5. 29 continued

Religious_CA	0.83 (32.23)***	SC_CA Congruence		0.54	0.78
Feared_CA	0.76(12.65)***				
Altruistic_CA	0.49(9.13)**				
	CMIN/DF (χ^2/df)	RMSEA	TLI	GFI	CFI
Initial/Final	3.421 (2886.926/844)	0.064	0.836	0.825	0.887

Note: Significance at various levels: 0.001***, 0.01** and 0.05 * levels

Fit Values

Chi Square = 2886.926

df = 844

GFI = .825

AGFI = .871

TLI = .836

CFI = .887

RMSEA = .064

NORMEDCHISQ = 3.421

p-value = .000

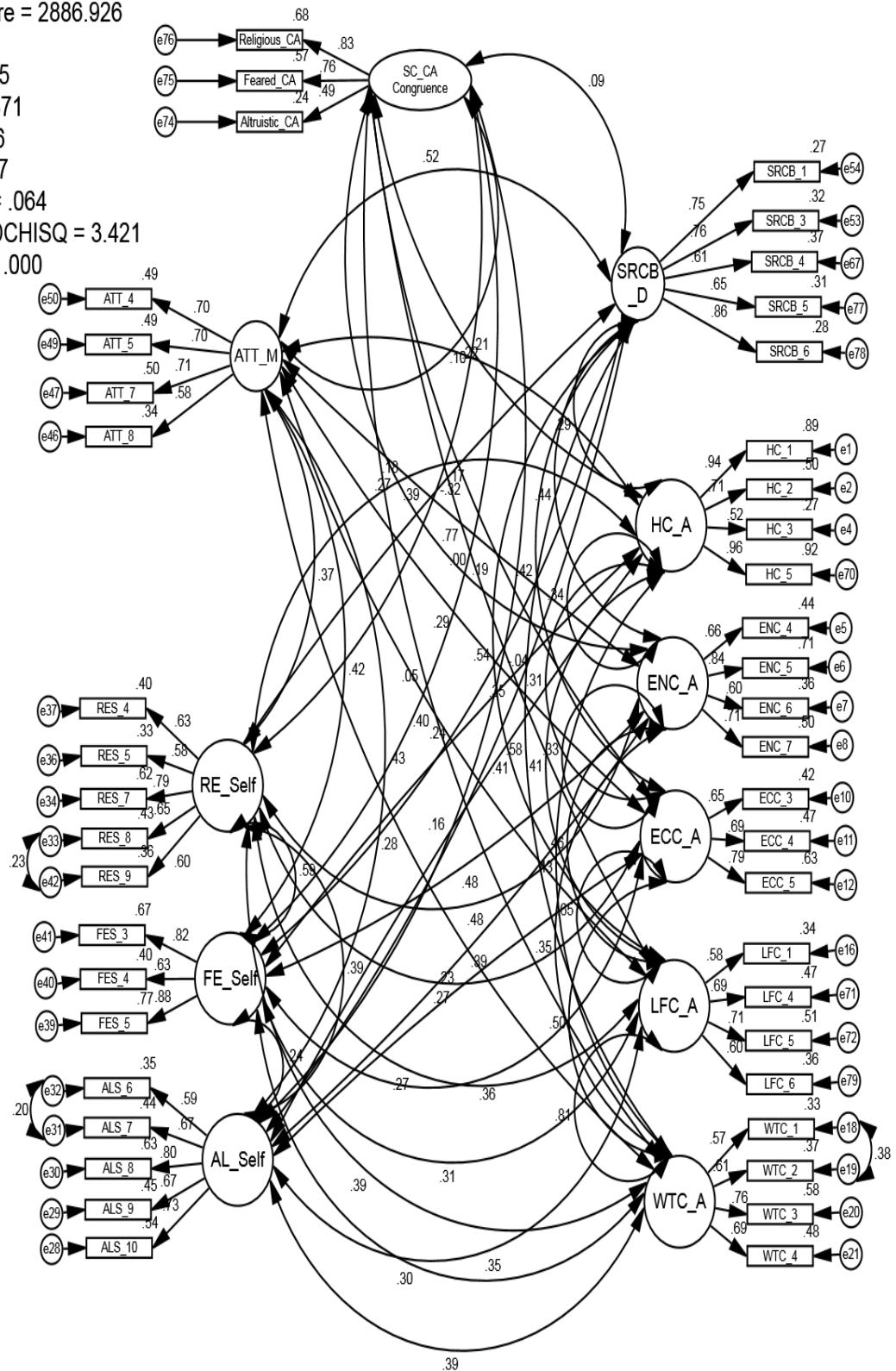


Figure 5.9: An Overall Measurement Model

5.5.5 Structured Model

The structured model was developed to test the relationships between consumer self concepts, consumer awareness, attitude, congruence between self concept and consumer awareness, and socially responsible plate food consumption (refer to figure 5.10). There was one exogenous variable (Socially Responsible Plate Food Consumption), and four endogenous variables (consumer self-concept, consumer awareness, attitude and congruence between self concept and consumer awareness) used. In addition to that, consumer self concept, consumer awareness and congruence between self concept and consumer awareness were used as a second order variable in the present study. Thus, structural model presented with 44 observed variables, the number of observed variances and covariances ($44 [44+1] / 2$) were 990 data points, and the number of estimated parameters in structured model was 108. Based on the t-rule, the structural model was overidentified (the number of observed variance and covariances were greater than the number of estimated parameters), and tested with 882 degrees of freedom (990-108).

The Structural model results' highlighted a good model fit to the sample data. All model fit indices sufficiently satisfied their recommended threshold. Thus, there was no modification required as the structured model had fulfilled the satisfactory level of model fit indices with χ^2 value of 3335.927 (df = 882 and p 0.000), CMIN/DF of 3.782 and RMSEA of 0.068, and GFI TLI and CFI values above 0.8, that were also acceptable (Doll Xia & Torkzadeh, 1994; Baumgartner & Homburg, 1995) as presented in Table 5.30 and Figure 5.10. Thus, modification for model fitness was not required further.

Table 5. 30: Summary of Structural Model

Items	Final Standardized Loadings (t-value)	Sub-dimensions	Variables
RES_4	0.62(12.50)***	Religious Self RE_Self	Self-concept (SC)
RES_5	0.57(12.29)***		
RES_6	0.80(11.43)***		
RES_7	0.65(15.29)***		
RES_8	0.60(11.10)***		
RES_9	0.62(14.44)***		
FES_3	0.82(11.02)***	Feared Self FE_Self	
FES_4	0.63(9.90)***		
FES_5	0.87(12.00)***		
ALS_6	0.58(12.91)***	Altruistic Self AL_Self	
ALS_7	0.66(14.60)***		
ALS_8	0.80(17.18)***		
ALS_9	0.68(14.93)***		
ALS_10	0.74(14.00)***		
HC_1	0.94(21.09)***	Hunger Concern HC_A	Consumer Awareness (CA)
HC_2	0.71(21.59)***		
HC_3	0.52(13.33)***		
HC_5	0.96(39.66)***		
ENC_4	0.66(9.00)***	Environmental Concern ENC_A	
ENC_5	0.84(16.72)***		
ENC_6	0.61(12.95)***		
ENC_7	0.71(14.78)***		
ECC_3	0.63(12.00)***	Economic Concern ECC_A	
ECC_4	0.68(12.58)***		
ECC_5	0.82(13.31)***		
LFC_1	0.56(10.00)***	Landfill Concern LFC_A	
LFC_4	0.69(12.87)***		
LFC_5	0.73(12.29)***		
LFC_6	0.60(10.62)***		

Note: Significance at various levels: 0.001***, 0.01** and 0.05 * levels

Table 5. 30 continued

WTC_1	0.55(9.00)***	Water shortage concern WTC_A	Consumer Awareness (CA)		
WTC_2	0.60(14.33)***				
WTC_3	0.76(12.56)***				
WTC_4	0.7071(12.07)***				
ATT_4	0.72 (12.60)***	Attitude ATT_M	Attitude (ATT_M)		
ATT_5	0.71(12.65)***				
ATT_7	0.70(12.38)***				
ATT_8	0.55(8.09)***				
SCRC_1	0.76(13.82)***	Socially Responsible Consumption Behavior SRCB_D	Socially Responsible Consumption Behavior SRCB_D		
SCRC_3	0.74(12.30)***				
SCRC_4	0.78(14.74)***				
SCRC_5	0.65(11.31)***				
SCRC_6	0.86(16.99)***				
Religious_CA	0.81(25.13)***	SC_CA Congruence	SC_CA Congruence		
Feared_CA	0.78(15.32)***				
Altruistic_CA	0.48(11.79)***				
Achieved Fit Indices					
	CMIN/DF (x ² /df)	RMSEA	TLI	GFI	CFI
Initial/Final	3.782 (3335.927/882)	0.068	0.836	0.802	0.887

Note: Significance at various levels: 0.001***, 0.01** and 0.05 * levels

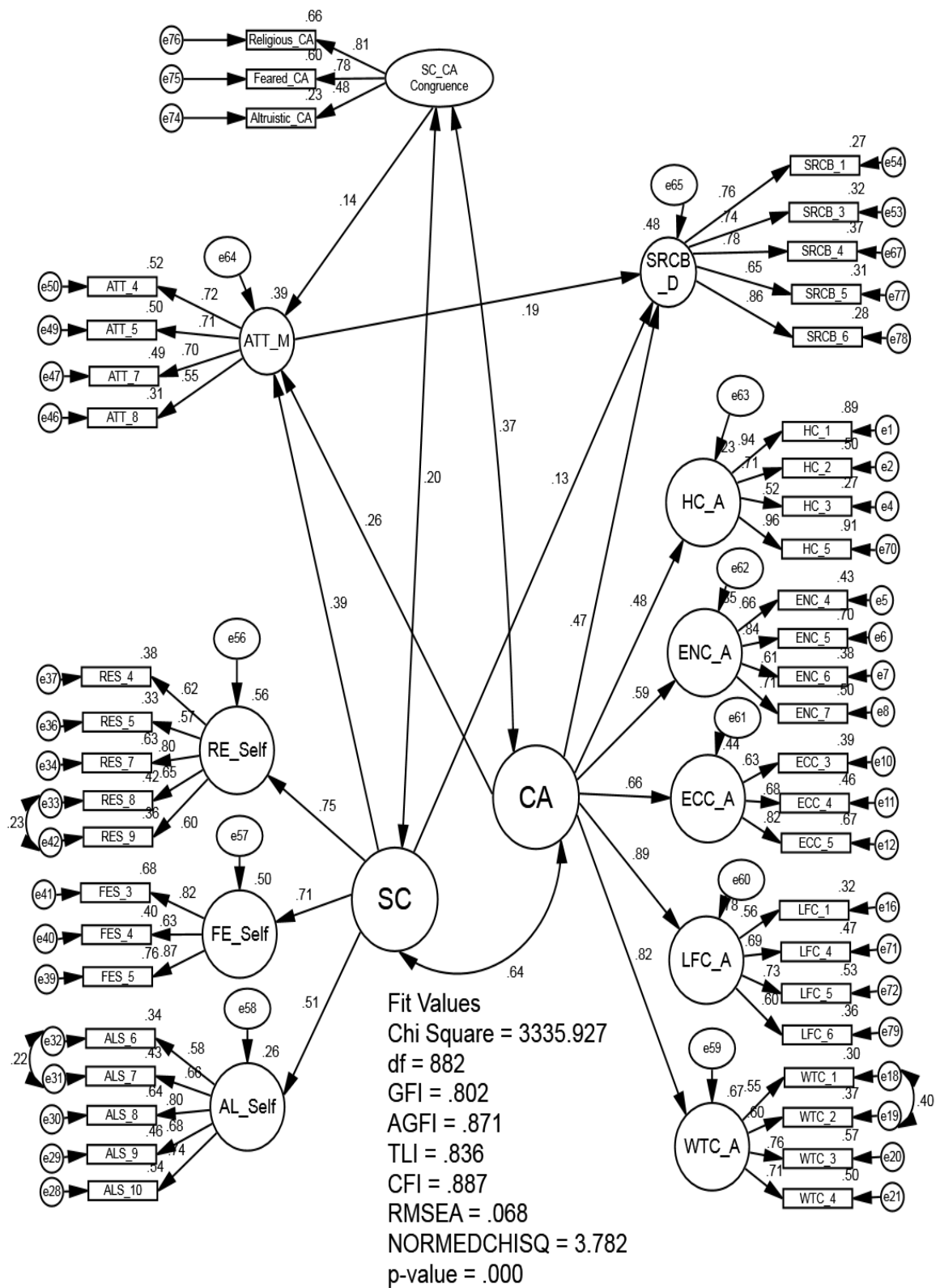


Figure 5.10: Structured Model

5.6 Step 5: Mediation Test: Bootstrapping

Bootstrapping is used to allow the researcher to create multiple sub samples on the base of the original data set (Byrne, 2001). A number of advantages are associated with the process of bootstrapping in SEM as: 1) it allows the researcher to verify the stability of parameter estimates, therefore, present fit statistics with a greater degree of accuracy (Byrne, 2001), 2) it also provides a mechanism to address situations where assumptions of normality may not hold or sample size is slightly inadequate. Thus, the present study has no major issues of non-normality in the data set. It was considered reasonable to run bootstrap analysis to verify that the non-normality did not affect the results. One bootstrapping approach used for this analysis which is maximum likelihood (ML) estimated. This approach is a standard bootstrapping method provided by AMOS 22.0.

The present study used the bootstrapping method for mediating in structural equation modeling (SEM) with a sample size of under 5000 suggested by Hayes (2009); Preacher and Hayes (2008). Attitude variable was a mediator between self-concept and socially responsible plate food waste behavior, as well as, mediator between consumer awareness and socially responsible plate food consumption behavior. On that , two times mediation was run to test the mediation role of attitude between self concept and socially responsible plate food consumption, as well as, between consumer awareness and socially responsible plate food consumption. The results are presented in Table 5.29 and Table 5.30 respectively.

5.6.1 Attitude as a Mediator between Self-concept and Socially Responsible Plate Food Consumption

Attitude as a mediator was tested by using the bootstrapping method as proposed by Efron (1979). Later, few researchers used this method to test the mediating effect with the help of using bootstrapping such as, Hayes (2009); Preacher and Hayes (2008). According to previous researchers, bootstrapping is divided into two parts that direct model and mediation model. In the present study, in a direct model consumer self-concept has a significant effect on socially responsible plate food consumption with (Beta = 0.14 and $p = 0.058$) level. Moreover, in mediation model, self-concept also affects the socially responsible plate food consumption significantly with (Beta = 0.139 and 0.022) level. In this way, attitude partially mediates between consumer self concept and socially responsible plate food consumption with (Beta = 0.216 and $p = 0.011$) level as presented in Table 5.31.

Table 5. 31: Bootstrap Results of Mediation Test for Attitude on Relationship between Self- Concept and Socially Responsible Consumption Behavior

Model/ Hypothesized Paths			Beta	P	95 % CI Bootstrap BC	
					LB	UB
Direct Model						
SC	→	SRCB	0.140	0.068		
Mediation Model						
SC	→	SRCB	0.139	0.022		
Standardized Indirect Effect (SIE)			0.216	0.011	0.016	0.177

Note: SC = Self concept, SRCB =Socially Responsible Plate Food Consumption Behav

5.6.2 Attitude as a Mediator between Consumer Awareness and Socially Responsible Plate Food Consumption

Further to that, mediation test demonstrated the mediation effect of attitude between consumer awareness and socially responsible plate food consumption. Therefore, mediation was run in two steps as direct model and mediation model. In the first step, direct model, consumer awareness has a significant effect on socially responsible plate food consumption with (Beta = 0.495 and $p = 0.000$) level. In the second step, mediation model consumer awareness has also significant effects on socially responsible plate food consumption with (Beta = 0.468 and $p = 0.000$) level. However, attitude partially mediates between consumer awareness and socially responsible consumption with (Beta = 0.039 and $p = 0.047$) level as shown in Table 5.32.

Table 5. 32: Bootstrap Results of Mediation Test for Attitude on Relationship between Consumer Awareness and Socially Responsible Consumption Behavior

Model/ Hypothesized Paths			Beta	<i>p</i>	95 % CI Bootstrap BC	
					LB	UB
Direct Model						
CA	→	SRCB	0.495	0.000		
Mediation Model						
CA	→	SRCB	0.468	0.000		
Standardized Indirect Effect (SIE)			0.039	0.047	0.000	0.103

Note: CA = Consumer Awareness, SRCB = Socially Responsible Consumption Behavior

5.6.3 Summary of Mediation Results

The mediation results through bootstrapping between consumer self concept, consumer awareness and socially responsible plate food consumption behavior has been tested by using the bootstrapping analysis separately in Tables 5.29 and Table 5.30. Additionally, mediation of attitude between self concept, consumer awareness and socially responsible consumption behavior results' are summarized in Table 5.33.

Table 5. 33: Overall Results of Test of Indirect Effects of Predictors, Attitude and Socially Responsible Consumption Behavior

Constructs	SIE	SE	95% CI Bootstrap BC		p
			LB	UB	
Self-Concept	0.216	0.034	0.016	0.177	0.011
Consumer Awareness	0.039	0.461	0.000	0.103	0.047

Note: SIE = Standardized Indirect Effect , BC = Bias-corrected

5.7 Hypothesis Testing

The structural model specifies the relations between latent variables. The structural model is tested with the support of estimating the paths between the constructs, that are indicative of the structural model's predictive ability. Structural equation modeling (SEM) AMOS provides the beta (β) for each endogenous construct in the model and value of significance (p). Beta indicate the effect size of an endogenous construct's on the exogenous constructs. Moreover, beta also indicate the strengths of the relationship between the constructs (Chin, 1998b). Consistent with Chin (1998b), bootstrapping (5000 re-samples) was utilized to test the mediation effect of attitude between self concept, consumer awareness and socially responsible plate food consumption.

The statistical objectives of structural equation modeling (SEM) AMOS based on beta value and p value. However, hypothesis of this study are rejected and accepted by testing the beta and p values of each construct and presented the results in Table 5.34 and Figure 5.9. Further to that, the detail of beta and p value discussed in Chapter 6.

Table 5. 34: Summary of Hypothesis Results

Hypothesis No.		<i>r</i>	<i>Beta</i> (β)	<i>p-value</i> (<i>p</i>)	Accepted or Rejected
H1a	Religious self is a significant dimension of consumer self-concept.	0.748		0.000	Accepted
H1b	Feared self is a significant dimension of consumer self-concept.	0.71		0.000	Accepted
H1c	Altruistic self is a significant dimension of - consumer self-concept.	0.51		0.000	Accepted
H2a	Hunger concern is a significant dimension of consumer awareness.	0.495		0.000	Accepted
H2b	Environmental concern is a significant dimension of consumer awareness.	0.621		0.000	Accepted
H2c	Economic concern is a significant dimension of consumer awareness.	0.646		0.000	Accepted
H2d	Landfill concern is a significant dimension of consumer awareness.	0.839		0.000	Accepted
H2e	Water-shortage concern is a significant dimension of consumer awareness.	0.792		0.000	Accepted
H3	Self-concept and consumer awareness are correlated to one another.	0.664		0.000	Accepted
H4	Self-concept has a significant influence on consumer attitude towards socially responsible plate food consumption.		0.354	0.000	Accepted
H5	Self-concept has a significant influence on socially responsible plate food consumption behavior.		0.125	0.054	Accepted
H6	Consumer awareness has a significant influence on consumer attitude towards socially responsible plate food consumption.		0.299	0.000	Accepted
H7	Consumer awareness has a significant influence on socially responsible plate food consumption.		0.471	0.000	Accepted
H8	SC-CA congruence has a significant influence on attitude towards socially responsible plate food consumption.		0.143	0.005	Accepted
H9	Consumer Attitude has a significant influence on socially responsible plate food consumption.		0.185	0.01	Accepted
H10	Consumer attitude significantly mediates between consumer self-concept and socially responsible plate food consumption.		0.216	0.011	Accepted
H11	Consumer attitude significantly mediates between consumer awareness and socially responsible plate food consumption.		0.039	0.047	Accepted

5.8 Chapter Summary

In the present study, the instruments of each constructs that were presented in chapter four were tested through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). All the instruments were found reliable and valid. Congruence between self-concept and consumer awareness was traced out statically and tested its effect on consumer attitude. Further to that, the relationships between the constructs were tested and presented in this study. Additionally, a comprehensive discussion on hypothesis acceptance and rejection is continued in the next Chapter 6.

CHAPTER 6

DISCUSSION AND CONCLUSIONS

6.1 Introduction

This chapter is based on discussions related to the results of the hypotheses. The discussion is related to three parts, firstly, discussion of the finding which have been explained, the discussion based on exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural model. Secondly, the study explained the contributions to theoretical implications, managerial implications and recommendations. Thirdly, limitations of the study and future research directions are provided. At the end, the final conclusion is drawn based on the structural models.

6.2 Discussion of the Findings

The following sections discuss the results pertaining to the multidimensional model of self-concept and consumer awareness, as well as, the uni-dimensional models of congruity of consumer self-concept and awareness, attitude, and socially responsible plate food consumption. Subsequently, all the results are connected to the structural equation model.

6.2.1 Discussions based on Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA)

This section discusses the findings of the exploratory factor analysis (EFA) relating to the factor of consumer self-concept (religious self, feared self, altruistic self), consumer awareness (hunger concern, environmental concern, economic concern, landfill concern, water shortage concern), attitude and socially responsible plate food consumption. The proposed conceptual framework of this study was presented in Chapter 3, and then tested

in Chapter 4. A detailed review of literature was conducted on the constructs which were involved in this study and was presented in Chapter 2. Moreover, Consumer self-concept, consumer awareness and congruence of self-concept and consumer awareness (SC_CA) were proposed as an endogenous variable, attitude as a mediator and socially responsible plate food consumption as an exogenous variable and their relationship were in the Theory of Symbolic Interactionism and theory of Self-Congruence (refer to Chapter 3 and Figure, 3.1). The present study used all the operationalized constructs and their relationships translated into hypothesis. Therefore, all constructs have instruments which are mostly in Western orientation. Based on the theories', the entire constructs are attached, a questionnaire which contained 68 items to attain responses from household plate food consumers in four major cities in Sarawak, Malaysia, was developed. In this connection, 10 items for religious self, 6 items for feared self, 10 items for altruistic self, 5 items for hunger concern, 7 items for environmental concern, 5 items for economic concern, 6 items for landfill concern, 5 items for water shortage concern, 8 items for attitude, and 6 items for socially responsible plate food consumption. All the items of each construct were exposed to exploratory factor analysis (EFA). All the constructs which involved in this study were used according to the recommendation about re-specification and modifications of scale offered by Haire et al. (1998) and Field (2009).

6.2.1.1 Discussion Based on Exploratory Factor Analysis (EFA)

In the present study, consumer self-concept and consumer awareness were used as multidimensional constructs. Therefore, consumer self-concept had three dimensions namely religious self, feared self and altruistic self. Similarly, consumer awareness constructs were based on five dimensions like hunger concern awareness, environmental

concern awareness, economic concern awareness, landfill concern awareness, and water shortage concern awareness. However, the consumer self-concept and consumer awareness were measured by their dimensions.

The religious self-concept scale was used after adopting from an earlier study (Worthington et al., 2003) for exploratory factor analysis (EFA). At the beginning, religious self-construct consisted of 10 items (refer to Table 5.7, Chapter 5) in exploratory factor analysis (EFA). Only 6 items were retained after EFA. According to the reliability testing through Cronhbach's Alpha 0.80, this is consistent with Jalees (2013) and Worthington et al. (2003) observations. The prior studies also proposed single factor structure for religious constructs. Nevertheless, this study also confirmed the one factor solution with 6 items based on Cattle's scree plot and eigenvalue rule of exploratory factor analysis (EFA). Therefore, study was labeled as "religious self". Hence, religious self-concept scale is validated in Malaysian context.

Feared self-concept scale consisted of 6 items for exploratory factor analysis (EFA). In feared self-concept literature, the researcher was unable to trace out the appropriate scale of feared self, therefore, 6 items scale was developed by adopting the items of feared self from Davidson (2000) and Mollema et al. (2000) from their non-validated scale. After the exploratory factor analysis (EFA), 4 items were retained with 0.79 reliability and 60.86 % variance explained (refer to Table 5.8, Chapter 5). However, study confirmed the one factor solution based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). Hence, study labeled as "feared self" and confirmed 6 items feared self-concept scale in Malaysian Context.

Altruistic self-concept scale consisted of 10 items for exploratory factor analysis (EFA) in this study. In prior studies too, a ten-item scale was used to identify altruism

behavior (Tapia-Fonllem, 2013). Therefore, researcher adopted the scale of altruism for altruistic self and tested in exploratory factor analysis (EFA) in this study. After exploratory factor analysis (EFA), the study retained 5 items with 0.83 Cronbach's Alpha and 59.11 % variance explained (refer to Table 5.9, Chapter 5). Further to that, study confirmed the single factor solution based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). Hence, 5 items one factor solution construct was labeled as "altruistic self" and validated in Malaysian context.

Hunger concern awareness scale consists of 5 items for exploratory factor analysis (EFA) in this study. Hunger concern awareness scale is mostly used in hunger web based surveys. In this connection, in hunger website based scales were non-validated. Therefore, present study developed the five items hunger concern awareness scale. At the beginning, for exploratory factor analysis (EFA), 5 times of hunger concern awareness were presented. After EFA, 4 items were retained with 0.87 Cronbach's Alpha and 72.49% variance explained (refer to Table 5.10, Chapter 5). One factor solution was made based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). However, 4 items and one factor solution construct was developed and validated in Malaysian context.

Environmental concern awareness consisted of 7 items for exploratory factor analysis (EFA). Several researchers used environmental awareness scale in various contexts (Fujii et al., 2003; Clark et al., 2003; Wall et al., 2007). However, based on the prior studies, 7 items relating to environmental concern awareness scale were used in socially responsible plate food consumption prospective. After exploratory factor analysis (EFA), 4 items were retained with 0.79 Cronbach's Alpha and 61.98% variance explained (refer to Table 5.11, Chapter 5). Therefore, one factor solution was made based on Cattle

scree plot and eigenvalue rule of exploratory factor analysis (EFA). Thus, 4 items based scale for environmental concern awareness was validated in Malaysian context.

Economic concern awareness consisted of 5 items and was presented for exploratory factor analysis (EFA). The scale was adopted by Wall et al. (2010). After exploratory factor analysis (EFA), 4 items were retained with 0.75 Cronbach's Alpha and 57.11% variance explained (refer to Table 5.12). Based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA), one factor solution was found and consistent with Wall et al. (2007). However, 4 items scale of economic concern awareness was validated in Malaysian context.

Landfill concern awareness contained 6 items, which were processed for exploratory factor analysis (EFA). The researcher developed the scale of Landfill concern awareness due to non-availability and suitability for the present study. After exploratory factor analysis (EFA), 4 items were retained with 0.74 Cronbach's Alpha and 56.1 % variance explained (refer to Table 5.13, Chapter 5). Consequently, one factor solution was drawn based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). A four-item scale of landfill concern awareness was developed and validated in Malaysian context.

Water shortage consisted of 5 items and was processed for exploratory factor analysis (EFA). These items are adopted by Iscen (2015). After exploratory factor analysis (EFA), all items were retained with 0.77 Cronbach's Alpha and 52.75 % variance explained (refer to Table 5.14, Chapter 5). As a result, one factor solution was found based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). The one factor solution of water shortage concern awareness is consistent with Iscen (2015).

Further, 5 items based scale of water shortage concern awareness validated in Malaysian context.

Attitude consisted of 8 items and was used in exploratory factor analysis (EFA). The items in attitudes scale were adopted by Jalees, (2013), Kareklas, et al. (2014). The researcher developed a few of the items in the questionnaire. After exploratory factor analysis (EFA), 5 items were retained with 0.78 Cronbach's and 54.84 % variance explained (refer to Table, 15). Further, one factor solution was drawn based on Cattle scree plot and eigenvalue rule of exploratory factor analysis (EFA). A 5 items based scales of attitude were validated in Malaysian context.

Socially responsible plate food consumption consisted of 6 items and was utilized for exploratory factor analysis (EFA). The items of socially responsible plate food consumption were adopted by Antil, (1984), Francois-Lecompte and Roberts, (2006), Gonzalez, et al. (2009). After exploratory factor analysis, 5 items were retained with 0.70 Cronbach's Alpha and 44.59 % variance explained (refer to Table 5.16, Chapter 5). Based on the cattle scree plot and eigenvalue rules of exploratory factor analysis one factor solution were found in this study. Therefore, 5 items based scale of socially responsible plate food consumption validated in Malaysian context.

After exploratory factor analysis (EFA) of each construct, all the constructs were traced out as one factor solution. Therefore, researcher observed that there was no such need to revise the proposed research model (refer to Figure 3.1) in this study.

6.2.1.2 Discussion Based on Confirmatory Factor Analysis (CFA)

Earlier sections presented the discussions based on exploratory factor analysis. The present section presents the discussion based on Confirmatory factor analysis by using co-variance

based structural equation modeling (SEM) with the support of AMOS software. Firstly, confirmatory factor analysis (CFA) was executed to confirm the three dimensions (religious self, feared self, and altruistic self) of self-concept with first order and second order measurement model (refer to Figure 5.1 and 5.3). Similarly, confirmatory factor analysis (CFA) was performed to confirm the five dimensions (hunger concern awareness, environmental concern awareness, economic concern awareness, landfill concern awareness, and water shortage concern awareness) of consumer awareness with first order and second order measurement model (refer to figure 5.2 and 5.4). The result of second order confirmatory factor analysis (CFA) measurement model of self-concept model fitness was consistent with Li, (2009) (refer to Table 5.21). Similar CFA results were obtained for consumer awareness, and it was consistent with Rousseau and Venter (1995) and Makanyeza and De Toit (2015) (refer to Table 5.22).

Initially, attitude consisted of eight items scale. After exploratory factor analysis (EFA), three items were removed and five were retained. Further, on the application of confirmatory factor analysis (CFA), one item was removed and four items were confirmed as a one factor solution. In this connection, attitude emerged as a one factor and confirmed as a homogenous construct that is consistent with Kareklas, et al. (2013) and Jalees (2013) (refer to Fig 5.5). The results of the attitude confirmatory factor analysis (CFA) model can be referred to Table 5.24.

The one factor solution of socially responsible plate food consumption was confirmed in exploratory factor analysis (EFA) by using five items. Furthermore, one of the application of confirmatory factor analysis (CFA), the socially responsible plate food consumption model fitness was also obtained with five items which is similar to exploratory factor analysis (EFA). As a result of CFA, single factor solution was drawn

and confirmed a homogenous construct of socially responsible plate food consumption (refer to Figure 5.6 and Table 5.25).

Besides the exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), this study developed the congruity of consumer self-concept and consumer awareness as prior studies developed in marketing (Back, 2005; Kressmann et al., 2006; He & Mukherjee, 2007; Ibrahim & Najjar, 2008; Wkak & Kang, 2009; Li, 2009). Based on the assumption of congruity development a significant correlation was found between consumer self-concept and consumer awareness in each dimension of both constructs (refer to Table 5.26). Additionally, congruity between self-concept and consumer awareness have been developed by using Ericksen's (1996) mathematical formula of and which is consistent with Li (2009). There are 15 congruity dimensions developed from consumer self-concept and consumer awareness congruity (refer to Figure 5.7 and Table 5.27). In this study, researcher used the items parceling method in structural equation modeling (SEM) to fine tune the structural model (Bandalos 2002, 2008; Little et al., 2002; Yang, Nay & Hoyle, 2010). In this regard, three dimensions (religious_CA, feared_CA, altruistic_CA) of consumer self-concept and consumer awareness congruity (SC_CA) were established to summarize the 15 consumer congruities of consumer self-concept and consumer awareness constructs into three constructs by item parceling techniques in this study.

Thus, based upon above EFA and CFA related discussions aided to the achievement of the following objectives of the present study as stated below.

Research objective (1) (refer to Section 1.6, Chapter 1): To identify and validate the multi-dimensional structure of consumer self-concept with respect to socially responsible plate food consumption in Malaysian context.

Research objective (2) (refer to Section 1.6, Chapter 1): To identify and validate the multi-dimensional structure of consumer awareness with respect to socially responsible plate food consumption in Malaysian context.

Research Objective (3) (refer to Section 1.6, Chapter 1): To identify and validate the congruity (SC_CA) between consumer self-concept and consumer awareness.

6.2.2 Discussion Based on Structural Model

Based on the empirical results of the study, the multidimensional and uni-dimensional model of socially responsible plate food consumption consisted of two first order (Attitude and socially responsible plate food consumption), and three second order (consumer self-concept, consumer awareness, and congruence of consumer self-concept and consumer awareness) dimensions. Self-concept as a second order comprised three aspects namely religious self, feared self and altruistic self. The first order dimensions and consumer awareness comprised of five first order (Hunger concern, Environmental concern, Economic concern, landfill concern and water shortage concern) dimensions, and congruence of consumer self-concept and consumer awareness into three dimensions (religious_ca, feared_ca, and altruistic_ca).

6.2.2.1 Multidimensional Model of Self-Concept (H1a, H1b, H1c)

Self-concept research has uncovered the immense diversity and complexity and its significance in managing behavior (Markus & Nurius, 1986; Cantor et al., 1986). Various researchers conceptualized self-concept as a uni-dimensional construct and denoted with actual self-concept (Sirgy, 1982). A few researchers claimed that self-concept should be multi-dimensional construct (Onkvisit & Shaw, 1987; James, 1890; Todd, 2001). On that bases, Sirgy (1982; 1985) used self-concept as multidimensional constructs which predict

the consumer behavior with respect to commercial marketing context. The multidimensional construct of self-concept consists of actual self-concept, ideal self-concept, social self-concept and ideal social self-concept. Hence, this study used the self-concept as a multidimensional construct (religious self, feared self, and altruistic self) with respect to social marketing.

The results of the measurement model (Figure 5.1 and 5.3) for self-concept supported Hypothesis H1a, H1b, and H1c and have satisfied research objective one. The results confirmed that the three sub-dimensions (religious self, feared self, and altruistic self) of self-concept have significant positive relationships between each other. By and large, self-concept indicates that consumers evaluate their self-concept by assessing the three primary dimensions in socially responsible plate food consumption. The results are consistent with the research conducted by Sirgy (1982; 1985) and Li (2009), whose studies reveal significant positive relationships between the four dimensions (actual self, ideal self, social self, and ideal social self).

The religious self-concept sub-dimension of self-concept is the most significant indicator for measuring the consumers' self-concept with respect to socially responsible plate food consumption. The results confirmed that religious self positively relates to the consumer's self-concept at ($r = 0.748$ and $p = 0.000$), and the outcomes presented in Table 5.30 and Figure 5.9. A new dimension of religious self of consumer self-concept has been found in this study. However, no such direct evidence is available in the existing literature of religious self and consumer self-concept. The results of hypothesis H1a is consistent with the numerous researchers' that have conducted research on consumer self-concept, like, Sirgy (1982), Todd (2001), and Li (2009).

In this study, feared self-concept sub-dimension is the next most significant predictor of consumer self-concept. The result confirmed that feared self-concept dimension has a significant positive relationship with consumer self-concept at ($r = 0.71$ and $p = 0.000$) as presented in Table 5.30 and Figure 5.9. The results of hypothesis H1b is consistent with the numerous researches' conducted on consumer self-concept, Sirgy (1982), Todd (2001), and Li (2009). Plate food consumer must have to focus on feared self that is the main sub-dimension of the consumer self-concept towards socially responsible plate food consumption.

The altruistic self is the third significant sub-dimension of consumer self-concept with respect to socially responsible plate food consumption. The result confirms that altruistic self is a significant positive relationship with consumer self-concept at ($r = 0.51$ and $p = 0.000$), as shown in Table 5.30 and Figure 5.9. Hypothesis H1c result is consistent with numerous researchers' studies which have conducted in consumer behaviors' studies, such as, Sirgy (1982), Todd (2001), and Li (2009). However, altruistic self is a significant predictor of consumer self-concept towards socially responsible plate food consumption in this study.

6.2.2.2 Multidimensional Model for Consumer Awareness (H2a, H2b, H2c, H2d, H2e)

Consumer awareness explains the extent to which consumers are alert to their responsibilities and rights in the market place (Rousseau & Venter, 1995). In commercial marketing, the awareness of the consumer to their responsibility and rights is critical that provides some sense to the consumer for making purchase decisions (Du Plessis, Rousseau & Blem, 1994). Numerous researchers used the consumer awareness as a multidimensional

variable, such as Makela and Peters (2004); Makanyeze and Du Toit (2015); and Du Plessis et al. (2007).

The results of the measurement model for consumer awareness were supported by Hypothesis H2a, H2b, H2c, H2d, and H2e. This confirmed the five sub-dimensions (hunger concern, environmental concern, economic concern, landfill concern, and water shortage concern) of consumer awareness which were significant positive relationships between each other (refer to Figure 5.2 and 5.4)). In short, consumer awareness indicates that consumers evaluate their awareness by assessing the five primary dimensions in socially responsible plate food consumption. The results are consistent with the research conducted by Du Plessis et al. (2007), and Makanyeze and Du Toit (2015), whose studies revealed significant positive relationships between the five dimensions (bargain hunting, general consumer knowledge, product knowledge, information search, price consciousness) of consumer awareness for commercial marketing.

Firstly, the landfill concern sub-dimension is the most significant indicator in measuring consumer awareness of socially responsible plate food consumption in this study. The result confirms that landfill concern sub dimension has significant positive relationship with consumer awareness primary dimension at ($\beta = 0.891$ and $p = 0.000$) level, as presented in Chapter 5, Table 5.30 and Figure 5.9. This result is consistent with the research conducted by Du Plessis et al. (2007), and Makanyeze and Du Toit (2015), whose studies also uncovered a significant relationship between five dimensions (bargain hunting, general consumer knowledge, product knowledge and price consciousness) of the consumer awareness for commercial marketing. Therefore, this study found that landfill concern sub-dimension of consumer awareness is the most important predictor for socially responsible plate food consumption.

Secondly, the water-shortage concern is the second significant indicator in measuring consumer awareness of socially responsible plate food consumption in this study. The result confirmed that water shortage sub-dimension has significant positive relationship with consumer awareness primary dimension at (beta = 0.821 and $p = 0.000$) level, which is presented in Chapter 5, Table 5.30 and Figure 5.9. This result is consistent with the findings by Du Plessis et al. (2007), Consumers International (2012), and Makanyeze and Du Toit (2015).

Thirdly, the economic concern is the third important sub-dimension of consumer awareness with respect to socially responsible plate food consumption in the present study. The result assured that economic concern sub-dimension has significantly positive relationship with consumer awareness primary dimension at (beta 0.66 and $p = 0.000$) level, which is shown in Chapter 5, Table 5.30 and Figure 5.9. This result is consistent with the previous studies, such as, Du Plessis et al. (2007), Consumers International (2012), Makanyeze and Du Toit (2015). Therefore, economic concern is the third sub-dimension of consumer awareness for social marketing in this study.

Fourthly, the environmental concern is the fourth significant predictor of consumer awareness for socially responsible plate food consumption in this study. The result demonstrated that environmental concern indicator has significantly contributed to consumers' awareness' primary dimension at (beta 0.59 and $p = 0.000$) level, which is presented in Chapter 5, Table 5.30 and Figure 5.9. This result is consistent with different researchers that have conducted their studies in commercial marketing prospective, which includes Du Plessis et al. (2007), and Makanyeze and Du Toit (2015). On those bases, environmental concern is the fourth significant sub-dimensions of consumer dimension for socially responsible plate food consumption.

Finally, in this study, hunger concern is the fifth important indicator of consumer awareness for socially responsible plate food consumption. The result demonstrates that hunger concern sub-dimension has significantly contributes with consumer awareness primary dimensions at ($\beta = 0.48$ and $p = 0.000$) level, which is shown in Chapter 5, Table 5.30 and Figure 5.9. This result is consistent with prior studies conducted by Makanyeze and Du Toit (2015), and Du Plessis et al. (2007) in commercial marketing prospective. Hence, in this study found that hunger concern awareness is the fifth significant predictor of consumer awareness for socially responsible consumption plate food consumption for social marketing prospective.

6.2.2.3 Relationship between Self-Concept and Consumer Awareness (H3)

The results pertaining to hypothesis H3 that consumer self-concept as a whole (religious self, feared self, and altruistic self) and consumer awareness as a whole (hunger concern, environmental awareness, economic awareness, landfill awareness and water shortage awareness) have significant relationship between each other at ($r = 0.664$, $p = 0.000$) level, as presented in Chapter 5, Table 5.30 and Figure 5.9.

The result of this study is consistent with few researchers, such as, Rabiei, Sharifirad and Hassanzadeh (2013), whose study found that the awareness of consumer nutrition and self-concept positively correlated. The results of Bringle and Bagby (1992) study is consistent with the present study, whereas, consumer self-concept is a source of influence to the cognitive processes, emotions, motivations decision and choice. Consumer self-concept and consumer awareness supported each other as, consumer self-concept increased the consumer awareness and consumer awareness, enhance the consumer self-concept (Schafer et al., 1999).

6.2.2.4 Consumer Self-Concept and Attitude (H4)

Self-concept as a whole (religious self, feared self, and altruistic self) is significantly predictive of the consumers' attitude towards socially responsible plate food consumption. The result of H4 confirms that consumer self-concept is a positive influence on consumer attitude towards socially responsible plate food consumption at (Beta = 0.35 and $p = 0.000$) level, as presented in Table 5.30 and Figure 5.9.

This result is consistent with the results of others' studies such as Katz (1967), Alvord (1971), Furnham, Badmin and Sneade (2002), and Breiner and Reeve (2009). The findings of these authors reveal a significant positive relationship between human self-concept and attitude. Furnham, Badmin and Sneade (2002) suggest that human self-concept significantly influences the eating attitude. In short, while consumer has weight control self-concept, the attitude is developed to take minimum calories. Alvord (1971) recognized that academic self also has positive significant influence on student reading attitude.

However, study proved that higher the academic self-concept in students, higher the attitude towards reading. Additionally, a positive relationship between consumer self-concept and attitude is revealed by Lerner, Karabenich and Stuart (1973) and Lerner, Orlos and Knapp (1976). Moreover, Jacobson and Kssoff (1963) traced out that self-concept is associated with consumer attitude towards American small cars purchase. According to the findings of this study, it is significant to enhance the consumer self-concept through religious self, feared self and altruistic self for developing the attitude towards socially responsible plate food consumption.

6.2.2.5 Consumer Self-Concept and Socially Responsible Plate Food Consumption (H5)

The results of this study revealed that self-concept as a whole (religious self, feared self, and altruistic self) influences the socially responsible plate food consumption at (beta = 0.125 and $p = 0.054$) level, which is presented in chapter 5, Table 5.30 and Figure 5.9. In prior studies, consumer self-concept has been approved that it significantly influences the consumer behavior, such as, stated by Grubb and Grathwohl (1967), Franken (1994), and Heath and Scott (1998).

Additionally, in an empirical prospective, few researchers traced it out that consumer self-concept influenced the consumer behavior (Li, 2009). Chang (2002) approved that consumer with positive self-concept may reply more significantly in regards the ads and brand as compared to others. In 2008, Xue found that consumer self-concept significantly influenced consumers' brand choice.

Based on prior studies, the results of hypothesis H5 is consistent with the studies that were conducted by Grubb and Grathwohl (1967), Franken (1994), Heath and Scott (1998), Chang (2002), and Xue (2008), Li (2009). Accordingly, in this study, it is significant to improve the consumer self-concept to develop the socially responsible plate food waste consumption behavior among the consumers.

6.2.2.6 Consumer Awareness and Attitude (H6)

The results pertaining to hypothesis H6 indicates that consumer awareness as a whole (hunger awareness, environmental awareness, economic awareness, landfill awareness and water shortage awareness) significantly influence the attitude towards socially responsible plate food consumption at (beta = 0.299 and $p = 0.000$) level, as shown in Chapter 5, Table

5.320 and Figure 5.9. In earlier studies, the results of consumer awareness and attitude are consistent. Similarly, Orr (1992) found that consumer awareness and attitude have significant relationships, and therefore, consumer awareness is crucial to form the consumer attitude. Madsen (1996) indicated that consumer awareness is the ultimate driving force that forms the consumer attitude towards solid waste management.

Moreover, the results of this study is validated with the studies from previous researches. Likewise, the improvement of social problem awareness in consumer has caused of positive attitude change (Spehr & Curnow, 2011). Several problems were attached to food wastage such as hunger, environmental pollution, economic issue, and landfill and water shortage. Solution is explicit between consumer awareness and consumer attitude change (Daniluk, 2014). Marra (2014) established the relationship between hunger awareness and attitude towards food consumption. Further to that, Athman and Monroe (2000) suggested that the dissemination of awareness related to environmental problem in the consumer, a vital source to develop the environmental problem-solving attitude. Accordingly, in this study, the improvement in consumer awareness influenced the consumer attitude towards socially responsible plate food consumption.

6.2.2.7 Consumer Awareness and Socially Responsible Plate Food Consumption (H7)

The results pertaining to hypothesis H7 that consumer awareness as a whole (Hunger concern, environmental concern, economic concern, landfill concern and water shortage concern) positively influence the socially responsible plate food consumption at (beta = 0.471 and $p = 0.000$) level, as presented in Chapter 6, Table 5.30 and Figure 5.9. The result is consistent with previous studies conducted by Dommeryer and Gross (2003), Chartrand (2005), Coulter et al., (2005), Thomas and Mills (2006), MaEachern and Warnaby (2008),

Hartlieb and Jone (2009), Donoghue and De Klerk (2009), and Ishak and Zabil (2012). According to that, consumer awareness significantly influences the socially responsible plate food consumption.

6.2.2.8 Congruity of Consumer Self-Concept and Consumer Awareness and Attitude (H8)

The results pertaining to hypothesis H8 indicates that consumer self-concept and consumer awareness congruity significantly influence the consumer attitude towards socially responsible plate food consumption at ($\beta = 0.143$ and $p = 0.005$) level, as shown in chapter 5, Table 5.30 and Figure 5.9. The result of this study is persistent with other studies who have used the congruence between consumer self-concept and brand image or personality.

Ibrahim and Najjar (2008) verified the congruence between consumer actual self and store image, followed by a significant effect of congruity of actual self and store image on consumer attitude. Further to that, Sirgy (1983) found that consumer self-congruity with store image has significantly influence the consumer attitude towards purchase decision process. Consumer self-congruity is an antecedent construct of consumer attitude and behavior (Lee & Hyman, 2008).

6.2.2.9 Attitude and Socially Responsible Plate Food Consumption (H9)

The results pertaining to hypothesis H9 highlights that consumer attitude significantly influences the socially responsible plate food consumption at ($\beta = 0.185$ and $p = 0.001$) level, as presented in Chapter 5, Table 5.30 and Figure 5.9. The result is consistent with other authors, whose studies were conducted in relation to consumer behavior. Consumer attitude does influence significantly the consumer consumption behavior (Chisnall, 1995).

Mutlu (2007) found that consumer attitude towards organic food consumption developed from the awareness and significantly influenced the consumer consumption behavior. Hence, this study also proved that consumer attitude significantly influenced the socially responsible plate food consumption.

6.2.2.10 Attitude as a Mediator between Consumer Self-Concept and Socially Responsible Plate Food Consumption (H10)

The results pertaining to hypothesis 10 indicates that attitude partially mediates between consumer self-concept and socially responsible plate food consumption at (beta = 0.216 and $p = 0.011$) level, as demonstrated in Chapter 5 and Table 5.31. The result of this study is consistent with other researchers who have conducted their studies in the field of consumer behavior. Similarly, Cabuk, Tanrikulu, and Gelibolu (2014) claimed that consumer attitude significantly mediates between health consciousness, environmental concern, food safety concern and intention to buy the organic food. Furthermore, consumer attitude not only directly affects on consumer local food consumption, but also significantly mediates between consumer personal variables and local food consumption (Bianchi & Mortimer, 2015). Additionally, it also partially mediates between consumer self-concept and socially responsible plate food consumption.

6.2.2.11 Attitude as a Mediator between Consumer Awareness and Socially Responsible Plate Food Consumption (H11)

The results pertaining to hypothesis 11 indicates that attitude mediate between consumer awareness and socially responsible consumption partially at (beta = 0.039 and $p = 0.047$) level, as presented in Chapter 5, Table 5.32. The result of this study is consistent with other researchers who have conducted their research on awareness, attitude and behavior.

Takaizumi et al. (2011) and Takaizumi et al. (2012) claimed that consumer awareness performs a pivotal role for consumer eating behavior. In addition to that, consumer awareness influenced consumer attitude, and consumer attitude affect the consumer eating behavior more significantly. Thus, consumer attitude significantly mediates between consumer awareness and eating behavior.

However, based upon above structural model related discussion give help to the achievement of the following objectives of the present study as stated below.

Research Objective (4) (refer to Section 1.7, Chapter one): To investigate the influence of consumer self-concepts and consumer awareness on attitude and socially responsible plate food consumption behavior.

Research Objective (5) (refer to Section 1.6, Chapter one): To investigate the mediating role of attitude between consumer self-concept, consumer awareness and socially responsible plate food consumption.

Research Objective (6) (refer to Section 1.6, Chapter one): To investigate the congruity (SC_CA) effect on consumer attitude towards socially responsible plate food consumption.

6.3 Contributions

The contribution of this study has increased into two folds: firstly, in theoretical implications and secondly in managerial implications.

6.3.1 Theoretical Implications

The process of Theory building and theory development focused on the advancing of knowledge, establishing new relationships through earlier concepts, and exploring the practical applications of these connections (Corley & Gioia, 2011). The present study contributes to the understanding of the consumer self-concept (religious self, feared self,

and altruistic self), Consumer awareness (Hunger concern, environmental concern, economic concern, landfill concern, and water shortage concern), congruity between consumer self-concept and consumer awareness, and their effect on consumer attitude towards socially responsible plate food consumption through the Theory of Symbolic Interactionism and Theory of Self-congruence. This study contributes in terms of content, context, and concepts towards the development of the theory of Symbolic Interactionism and Theory of Self-congruence. The following theoretical contributions are identified based upon the conceptual framework, methodology of the research and data analysis:

- i) To the researchers' knowledge, this is the first study in Sarawak context to examine the construct of consumer self-concept in the food waste management industry by literature review of various research fields, such as, social psychology, and marketing.
- ii) To the researchers' knowledge, this is the first research to conduct a comprehensive, systematic literature review with respect to conceptual framework which describing the consumer self-concept in social marketing towards socially responsible consumption of food in Sarawak.
- iii) To the researcher's knowledge, this is the first thesis which used the consumer self-concept with three dimensions (religious self, feared self, and altruistic self) in the literature review and theory of symbolic interactionism.
- iv) To the researcher's knowledge, this is the study which used the consumer awareness with five dimensions (hunger concern, environmental concern, economic concern, landfill concern, and water shortage concern) in the literature review as multi-dimensional construct towards socially responsible plate food consumption.

- v) Earlier studies developed the relationship between consumer self-concept and consumer product image (Birdwell, 1968; Dolich, 1969; Landon, 1974, Belch & Landon, 1977; Malhotra, 1988; Hong & Zinkhan, 1995; Ericksen, 1996; Sirgy et al., 1997; Quester et al., 2000; Ekinici & Riley, 2003; Back, 2005). This study is unique in the relationship between consumer self-concept and consumer awareness.
- vi) One of the main contributions of this study is developing the between consumer self-concept and consumer awareness, and establish the self-congruity construct to test the effect on consumer attitude towards socially responsible plate food consumption. However, study has established the effect of self-awareness congruence on consumer attitude.
- vii) Earlier studies examined the hunger concern awareness through web surveys which use non-validated scale. Therefore, this study is unique in order to develop a hunger concern awareness scale and validated in Sarawak context.
- viii) The role of attitude as a mediation between the relationship of consumer subjective norms and food consumption behavior is studied in Asian and Western contexts. Most of the studies discussed the consumer attitude towards fast food consumption behavior (Cabuk, Tanrikulu, & Gelibolu, 2014; Bianchi & Mortimer, 2015). For the first time, in this thesis, consumer attitude is examined as mediating construct in the relationship of consumer self-concept and socially responsible plate food consumption, also between consumer awareness and socially responsible plate food consumption in the context of the Theory of Symbolic Interactionism and Theory of Self congruence in social marketing in Malaysia.

- ix) The majority of the studies of socially responsible consumption are conducted on product consumption in brand prospective (Francois-Lecompte, 2006; Lau, 2010; Karlaite & Tamosiunaite, 2013; Adomaviciute, 2013). This study has attempted to take the concept of socially responsible consumption of plate food in social prospective. However, in an overall view, in this study with the aid of above discussed scholarly contributions the researcher tried to fill up the gaps empirically and conceptually in the literature as mentioned in the Chapter 3 of this thesis.

6.3.2 Managerial Implications and Recommendations

- i) The existence of multi-dimensional constructs of consumer self-concept would be able to guide Malaysian managers to evaluate consumer socially responsible consumption behavior for minimum food waste, not only actual self-concept, ideal self-concept, social self-concept and ideal social self-concept (Li, 2009), but also in other dimensions of consumer self-concept as religious self-concept, feared self, and altruistic self.
- ii) The existence of multi-dimensional construct of consumer awareness would be able to direct Malaysian managers to evaluate consumer socially responsible consumption behavior; not only five dimensions like bargain hunting, general consumer knowledge, price knowledge, information search and price consciousness (Rousseau & Venter, 1995; Makanyeza & De Toit, 1915), but also in other dimensions of consumer awareness such as hunger concern, environmental concern, economic concern, landfill concern and water shortage concern.

- iii) Public and private food waste management authorities' managers should expect to change the consumer attitude and behavior with respect to plate food consumption. Therefore, food wastes management authorities need to improve the consumer self-concept with religious self, feared self and altruistic self.
- iv) Managers in food waste management industry need to have knowledge of and understand the practice of consumer awareness to bring change in consumer attitude and behavior towards socially responsible consumption.
- v) Managers should be in the know and create awareness among the consumers about the actual and maximum food waste stage for household plate food waste. Thus, both managers and consumers should focus on household plate food waste that leads to socially responsible plate food consumption attitude and behavior.
- vi) Managers and consumers need to focus on consumer self-congruity of self-concept and awareness which influence the consumer attitude towards socially responsible plate food consumption to minimize food waste in Malaysia.

6.4 Limitations of the study

In this section, there are few potential limitations that needs to be considered for this study which are discussed below.

- i) From the temporal classification of research design, cross-sectional research design is one of the main limitations. The conceptual framework is established on proposed hypothesis, in short, based on related theories. Thus, without longitudinal research design, it is narrow to take a strong standpoint on the causal relationship between the variables. The results of this study cannot be considered as conclusive evidence for causal relationships (Jose, 2013).

- ii) This study developed the socially responsible plate food consumption model with the support of various factors such as consumer self-concept, consumer awareness, congruity of consumer self-concept and consumer awareness. Some other factors may influence in consumer socially responsible plate food consumption that have not been explored in this study such as consumer food taste and consumers' parents' involvement.
- iii) In this study, consumer self-concept and consumer awareness have been taken as composite variables. These two variables have further dimensions and their influence on attitude and socially responsible plate food consumption were not examined due to time and cost involved. Therefore, the relationship with consumer self-concept and consumer awareness as composite variables generated consistent results while compared to the results of individual variables in other studies.
- iv) A number of formulas were listed in the literature for self-congruence measurement, as presented in chapter 4 methodology. The present study measured the congruity of self-congruence and consumer awareness with one mathematical formula which was presented by Ericksen (1996), which is also one of the limitations for congruity development in this study.

In prior studies, numerous researchers used the item parceling technique to summarize multiple items into the sum or average scores in structural equation modeling (SEM) (Kishton & Widaman, 1994; Little et al., 2002; Bandalos, 2002). However, 15 new congruity constructs (i.e., religious self-hunger awareness congruity, religious self-environmental awareness congruity, religious self-economic awareness congruity, religious self- landfill awareness congruity, religious self-water shortage awareness congruity,

feared self-hunger awareness congruity, feared self-environmental awareness congruity, feared self-economic awareness congruity, feared self- landfill awareness congruity, feared self-water shortage awareness congruity, altruistic self-hunger awareness congruity, altruistic self-environmental awareness congruity, altruistic self-economic awareness congruity, altruistic self- landfill awareness congruity, altruistic self-water shortage awareness congruity) developed in this study and used them by item parceling technique that comprises of three sub-dimension of congruence, such as, Religious-Consumer Awareness, Feared-Consumer Awareness, and Altruistic-Consumer Awareness. Li (2009) verified that each relationship of consumer self-congruity on consumer behavior. In this study, the relationship of each congruence sub-dimension on consumer attitude was not explored to reduce the complexity of the model (Nasser & Takahashi, 2003), which is also the one of limitation of this study.

6.5 Directions for Future Research

This study developed a model of socially responsible plate food consumption with the help of consumer self-concept (religious self, feared self, altruistic self), consumer awareness (hunger concern, environmental concern, economic concern, landfill concern, water shortage concern), congruity of consumer self-concept and consumer awareness and attitude. It arranges the foundation for future research on consumer consumption behavior which is explained below.

- i) The factor structure of consumer self-concept varies from context to context and consumer to consumer in different culture and regions of the world (Li, 2009). Future researchers may also explore the factor structure of consumer self-concept in commercial marketing and other states of Malaysia.

- ii) Although, a number of researchers used the idea of self-concept with four common dimensions like actual self, ideal self, social self and ideal social self (Sirgy, 1982; Li, 2009). This study suggested religious self, feared self and altruistic self for the well being of the society. Same as, future researchers can trace out further self-concept of social and commercial marketing to change the attitude and behavior of consumers.
- iii) The factor structure of consumer awareness tested with five dimensions such as bargain hunting, general consumer knowledge, price knowledge, information search and price consciousness (Rousseau & Venter, 1995; Makanyeza & De Toit, 2015). Then, this study evaluated the consumer awareness too, but with five dimensions such as hunger concern, environmental concern, economic concern, landfill concern and water shortage concern. However, future researchers can utilize the consumer awareness in another context.
- iv) The research model for this study established with the support of endogenous, exogenous and mediator for socially responsible plate food consumption at household level. Therefore, present study has potential to use the moderator in this model to evaluate the moderating effect in this study.
- v) A socially responsible consumption model developed for household plate food consumption in this thesis. Thus, future researcher may test this model for restaurant's consumer of food.

The present study has been conducted in the light of quantitative research approach to test the significant factors which influence the socially responsible plate food consumption. This study may have significant potential to test the current study's model through qualitative or mix method research approach. However, future researchers may verify the

socially responsible plate food consumption model by utilizing the qualitative and mix method research approach.

6.6 Conclusions

This study proposed and tested the conceptual framework which tries to investigate the influence of consumer self-concept, consumer awareness on consumer attitude and socially responsible plate food consumption. The conceptual framework of this study tests the relationship between consumer self-concept and consumer awareness. In addition, congruity between consumer self-concept and consumer awareness was measured and found significant positive influence on attitude towards socially responsible plate food consumption.

This study contributes to social marketing by establishing a socially responsible plate food consumption model. Therefore, the study contributes to several constructs' literature like, religious self, feared self, altruistic self hunger concern awareness, environmental concern awareness, economic concern awareness, landfill concern awareness, water shortage concern awareness, attitude and socially responsible plate food consumption. Additionally, the study contributes to the self-congruity concept with consumer self-concept and consumer awareness congruity.

The research objectives of proposed socially responsible plate food consumption model are comprehensively discussed in this chapter for their achievement. Therefore, all the objectives are achieved with the support of hypothesis testing through exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural model execution. Besides that, the findings of this study provide significant managerial implications for plate food consumers, managers of food waste management companies and social marketing strategists. An understanding of which factor influenced consumer socially responsible

plate food consumption behavior tested in this model, may help in structuring and implementing social marketing campaigns for establishing and improving the socially responsible plate food consumption attitude and behavior.

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APPENDICES

Appendix A: English Questionnaire



UNIVERSITI MALAYSIA SARAWAK
FACULTY OF ECONOMICS AND BUSINESS
Survey Questionnaire

TITLE

**An Investigation on Self-Concept, Consumer Awareness, Self-Awareness
Congruence and Attitude towards Consumer's Socially Responsible Plate
Food Consumption Behavior**

Dear respondents, you are invited to answer the questionnaire on a voluntary basis. This survey is conducted as part of the Doctorate of Philosophy (Marketing) at the Universiti Malaysia Sarawak (UNIMAS). The purpose of this study is to understand more about how consumers see themselves and how their views relate to attitude and behavior regarding food. The respondents being assessed as part of this survey questionnaire are among the household consumers available in major cities within Malaysia. This survey consists of three parts of information (consumer self concepts, attitude and behavior, consumer awareness, and demographic information) required from the respondents. There are neither rights nor wrong answers in this survey.

Subsequently, the findings generated from the data collected may aid in future understandings as the basis for related research with different geographical area. Please do not hesitate to contact me at shahid.rasool24@gmail.com or +60145845122 for further information pertaining to this research. Your responses will be kept confidential. Thank you for your time and cooperation.

Prepared by: Shahid Rasool
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Part I: Consumer Self Concepts, Attitude, and Behavior

Please circle the appropriate number that indicates your agreement or disagreement to the following statements that describe aspects in your life.

1 = Strongly Disagree (SD), 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree (SA)

	Descriptions	SD				SA
1	I often read books and magazines about my religion.	1	2	3	4	5
2	I make financial contributions to my religious organization.	1	2	3	4	5
3	I spend time trying to grow in understanding of my faith.	1	2	3	4	5
4	I find that my religion answers many questions.	1	2	3	4	5
5	My religious beliefs lie behind my whole approach to life.	1	2	3	4	5
6	I enjoy spending time with others of my religious affiliation.	1	2	3	4	5
7	Religious beliefs influence all my dealings in life.	1	2	3	4	5
8	It is important for me to spend periods of time in private religious thoughts.	1	2	3	4	5
9	I enjoy working in the activities of my religious organization.	1	2	3	4	5
10	I keep well informed about my local religious group.	1	2	3	4	5
11	I am afraid of natural disasters.	1	2	3	4	5
12	I eat little food because I'm afraid of becoming overweight.	1	2	3	4	5
13	I am afraid of doing anything bad when people are watching.	1	2	3	4	5
14	I am afraid of doing anything that might affect me badly in the future.	1	2	3	4	5
15	Whenever I break the social norms, I get worried of its consequences.	1	2	3	4	5
16	Whenever I see my wastage, I get restless thinking about its bad effect on society.	1	2	3	4	5
17	I give food to the poor.	1	2	3	4	5
18	I assist people who fall or get hurt.	1	2	3	4	5
19	I help strangers asking for directions.	1	2	3	4	5
20	I visit the sick at hospitals or their homes.	1	2	3	4	5
21	I help old or handicapped whenever I see them.	1	2	3	4	5
22	I provide some money to the homeless.	1	2	3	4	5
23	I donate money to organizations for charity.	1	2	3	4	5
24	I donate money in response to flood affected campaigns.	1	2	3	4	5
25	I participate in fund-collection activities for hungry people.	1	2	3	4	5
26	I look after my neighbours.	1	2	3	4	5
27	I prefer small quantity of food on the plate.	1	2	3	4	5
28	I believe putting a lot of food on the plate is a better choice for taste.	1	2	3	4	5
29	I believe minimum quantity of food on the plate helps the environment.	1	2	3	4	5

30	I prefer a small quantity of food on the plate because it helps to save money.	1	2	3	4	5
31	I believe minimum food on the plate saves the food for hungry people in the world.	1	2	3	4	5
32	There is nothing wrong with plate food waste.	1	2	3	4	5
33	Eating in an ethical way generally benefits the society.	1	2	3	4	5
34	I believe minimum food on the plate because it helps to save the water.	1	2	3	4	5
35	People should be concerned about reducing or limiting the plate food waste in our society.	1	2	3	4	5
36	Everyone should stop extra consumption of food so that our food resources will last longer.	1	2	3	4	5
37	I limit my plate food consumption to what I really need.	1	2	3	4	5
38	I generally try to consume all the food that is available on my plate.	1	2	3	4	5
39	I hardly waste the plate food, which is attached to limited resources.	1	2	3	4	5
40	I take only the portion of food I need to consume.	1	2	3	4	5

Part II: Consumer Awareness

Please circle the appropriate number that indicates your awareness level to the following statements that describe about environment, economics, hunger, landfills and water shortage.

1 = Highly Unaware (HU), 2 = Unaware, 3 = Neutral, 4 = Aware, 5 = Highly Aware (HA)

Descriptions		HU				HA
1	Hungry people are increasing rapidly in the world.	1	2	3	4	5
2	Children are more affected by the scarcity of food.	1	2	3	4	5
3	There are many people around me who are food insecure.	1	2	3	4	5
4	Most of the people have knowledge about hungry people.	1	2	3	4	5
5	Several organizations are working to relieve world hunger.	1	2	3	4	5
6	The effects of pollution on public health are likely to be worse than I realize.	1	2	3	4	5
7	Pollution generated in one country harms people all over the world.	1	2	3	4	5
8	Households hardly know the environmental problems caused by food waste.	1	2	3	4	5
9	Avoiding food waste helps to solve environmental problems like global warming.	1	2	3	4	5
10	My food consumption level can have an impact on the environment.	1	2	3	4	5
11	My food consumption level contributes to environmental	1	2	3	4	5

	pollution.					
12	I can help to solve my area's food waste problem by avoiding plate food waste.	1	2	3	4	5
13	My purchasing choices can have an impact on the food imports of a country.	1	2	3	4	5
14	My over consumption of food contribute to high prices of food.	1	2	3	4	5
15	I can help to control the prices of food by avoiding wastage.	1	2	3	4	5
16	Increases in the prices of goods are tired to over consumption.	1	2	3	4	5
17	Avoiding food waste helps to solve economics problem like price increments of goods.	1	2	3	4	5
18	Usable land will gradually be covered with food waste.	1	2	3	4	5
19	The waste disposal companies are dumping the waste into the sea.	1	2	3	4	5
20	There are several companies responsible for properly waste disposing.	1	2	3	4	5
21	The land is continuously covered with garbage caused by household's waste.	1	2	3	4	5
22	The coverage of land with food waste is harmful to the environment.	1	2	3	4	5
23	The increasing landfill is threatening the environment's natural beauty.	1	2	3	4	5
24	Drinking water nowadays is very costly.	1	2	3	4	5
25	Price of drinking water is increasing day by day.	1	2	3	4	5
26	The world is facing a problem of water shortage.	1	2	3	4	5
27	People are dying due to water shortage in the world.	1	2	3	4	5
28	People have to travel a lot further to get drinking water.	1	2	3	4	5

Part III: Demographic Information

Gender	☐ Female	☐ Male		
Age	☐ Less than 20 Years	☐ 21 – 25 Years	☐ 26 – 30 Years	☐ 31 – 35 Years
	☐ 36 – 40 Years	☐ 41 – 45 Years	☐ 46 – 50 Years	☐ Above 51 Years
Current marital status	☐ Single	☐ Married	☐ Widowed	☐ Separated
	☐ Divorced			
Number of family members living in home	☐ None	☐ One	☐ Two	☐ Three
	☐ Four	☐ Five	☐ Six	☐ More than Six
Highest Education completed	☐ High school or less	☐ Bachelor degree		
	☐ Master	☐ Doctorate	☐ Others :_____	
Ethnicity	☐ Malay	☐ Indian	☐ Chinese	☐ Iban
	☐ Melenau	☐ Orang Ulu	☐ Bidayuh	☐ Others: _____
Religion	☐ Muslim	☐ Hindu	☐ Christian	☐ Buddhist
	☐ Others:_____			
Income Level (RM)	☐ Less than RM1500	☐ RM3501 - RM4500		
	☐ RM1501 - RM2500	☐ RM 4501- RM 5000		
	☐ RM2501 - RM3500	☐ More than RM5000		

***THANK YOU VERY MUCH!!
I REALLY APPRECIATE YOUR TIME AND EFFORT IN FILLING OUT THIS
QUESTIONNAIRE***

Appendix B: Malay Questionnaire



UNIVERSITI MALAYSIA SARAWAK
FAKULTI EKONOMI DAN PERNIAGAAN
Kajian Soalselidik

TAJUK

***Kajian ke atas Konsep Kendiri, Kesedaran Pengguna Serta Persamaan Kesedaran Diri
Bekaitan dengan Sikap Tanggungjawab Sosial Pengguna Terhadap Tabiat
Pengambilan Makanan***

Responden yang dihargai, anda adalah dipelawa untuk menjawab soalselidik ini secara sukarela. Kajian ini dilaksanakan sebagai sebahagian daripada keperluan bagi penganugerahan Ijazah Doktor Falsafah (Pemasaran) di Universiti Malaysia Sarawak (UNIMAS). Tujuan kajian ini adalah untuk memahami dengan lebih terperinci bagaimana pengguna menilai diri mereka sendiri dan bagaimana pandangan mereka berhubungkait dengan sikap serta kelakuan mereka terhadap aspek makanan. Sebahagian daripada responden yang dinilai dalam soalselidik ini terdiri daripada pengguna-pengguna isirumah yang tinggal di bandar-bandar utama di seluruh Malaysia. Kajian ini memerlukan tiga maklumat daripada responden (konsep penggunaan sendiri, sikap dan kelakuan, kesedaran pengguna, serta maklumat demografi). Jawapan yang diberikan dalam soalselidik ini tidak merangkumi betul atau salah.

Penemuan yang dihasilkan daripada data yang dikumpul diyakini dapat membantu dalam memberikan panduan-panduan asas kepada kajian-kajian yang berkaitan dan berbeza geografi di masa hadapan. Sebarang pertanyaan lanjut berhubung soalselidik ini boleh diajukan terus kepada saya menerusi shahid.rasool24@gmail.com atau +60145845122. Maklumat yang anda berikan dalam soalselidik ini adalah rahsia. Setinggi-tinggi penghargaan diucapkan atas kesudian anda untuk meluangkan masa dan kerjasama anda.

Disediakan oleh: Shahid Rasool

Penyelia: Dr. Mahani BMA Shakur

Fakulti Ekonomi dan Perniagaan

082-581000 ext 4399

Bahagian I:Konsep Kendiri Pengguna, Sikap dan Kelakuan

Sila bulatkan nombor berkenaan yang menunjukkan tahap persetujuan anda di dalam pernyataan yang menerangkan aspek-aspek kehidupan anda.

1=Sangat tidak setuju, 2=Tidak setuju, 3=Neutral, 4=Setuju, 5=Sangat setuju

1	Saya selalu membaca buku dan majalah tentang agama saya.	1	2	3	4	5
2	Saya memberi sumbangan kewangan kepada persatuan keagamaan saya.	1	2	3	4	5
3	Saya meluangkan masa untuk memahami kepercayaan saya.	1	2	3	4	5
4	Saya mendapati agama saya menjawab banyak persoalan.	1	2	3	4	5
5	Kehidupan saya berpandukan kepercayaan dan agama saya.	1	2	3	4	5
6	Saya suka meluangkan masa dengan rakan seagama saya.	1	2	3	4	5
7	Agama mempengaruhi segala urusan dalam hidup saya.	1	2	3	4	5
8	Penting untuk saya meluangkan masa bertafakur.	1	2	3	4	5
9	Saya suka melaksanakan aktiviti-aktiviti keagamaan.	1	2	3	4	5
10	Saya mempunyai maklumat lengkap tentang kumpulan agama di daerah saya.	1	2	3	4	5
11	Saya takut bencana alam.	1	2	3	4	5
12	Saya makan sedikit kerana takut berat berlebihan.	1	2	3	4	5
13	Saya takut berbuat jahat bila orang lain memerhati.	1	2	3	4	5
14	Saya takut membuat sesuatu yang akan memberi kesan buruk di masa hadapan.	1	2	3	4	5
15	Setiap kali saya melanggar norma masyarakat, saya menjadi risau akan akibatnya.	1	2	3	4	5
16	Setiap kali saya melihat pembaziran, saya menjadi gelisah memikirkan kesan buruknya kepada masyarakat.	1	2	3	4	5
17	Saya memberi makanan kepada orang miskin.	1	2	3	4	5
18	Saya membantu orang yang jatuh atau tercedera.	1	2	3	4	5
19	Saya membantu orang asing yang bertanyakan arah.	1	2	3	4	5
20	Saya melawat pesakit di hospital atau di kediaman mereka.	1	2	3	4	5
21	Saya membantu golongan tua atau kurang upaya setiap kali saya melihat mereka.	1	2	3	4	5
22	Saya menyumbangkan wang kepada mereka yang tidak punya tempat tinggal.	1	2	3	4	5
23	Saya menderma wang kepada badan-badan kebajikan.	1	2	3	4	5
24	Saya menderma wang kepada kempen-kempen bantuan mangsa banjir.	1	2	3	4	5
25	Saya mengambil bahagian dalam aktiviti kutipan dana untuk mangsa kebuluran.	1	2	3	4	5
26	Saya menjaga kebajikan jiran tetangga saya.	1	2	3	4	5

27	Saya hanya memerlukan sedikit makanan.	1	2	3	4	5
28	Saya percaya bahawa meletakkan makanan di atas pinggan dengan banyak adalah lebih melazatkan.	1	2	3	4	5
29	Saya percaya bahawa kuantiti makanan yang sedikit di atas pinggan dapat menambahbaik persekitaran.	1	2	3	4	5
30	Saya cuma memerlukan makanan yang sedikit di atas pinggan kerana ia menjimatkan wang.	1	2	3	4	5
31	Saya percaya pengambilan makanan yang sedikit dapat menjimatkan makanan untuk orang-orang yang kebuluran di dunia.	1	2	3	4	5
32	Pembaziran makanan bukanlah satu kesalahan.	1	2	3	4	5
33	Pemakanan secara beretika selalunya memberi faedah kepada masyarakat.	1	2	3	4	5
34	Saya percaya jumlah makanan yang minima di atas pinggan adalah baik kerana ia membantu penjimatan air.	1	2	3	4	5
35	Orang ramai patut ambil peduli akan kepentingan mengurangkan atau menghadkan pembuangan makanan di kalangan masyarakat.	1	2	3	4	5
36	Semua orang patut menghentikan pemakanan berlebihan supaya sumber makanan kita tahan lebih lama.	1	2	3	4	5
37	Saya menghadkan pemakanan saya kepada apa yang saya perlukan sahaja.	1	2	3	4	5
38	Saya selalunya akan cuba menghabiskan makanan di atas pinggan saya.	1	2	3	4	5
39	Saya jarang membazir makanan yang berkaitan dengan sumber-sumber terhad.	1	2	3	4	5
40	Saya hanya makan bahagian makanan yang saya perlukan.	1	2	3	4	5

Bahagian II: Kesedaran Pengguna

Sila bulatkan nombor berkenaan yang menunjukkan tahap kesedaran anda di dalam pernyataan yang menjelaskan tentang persekitaran, ekonomi, kebuluran, timbus guna tanah dan kekurangan air.

1=Sangat tidak sedar, 2=Tidak sedar, 3=Neutral, 4=Sedar, 5=Sangat sedar

1	Bilangan orang yang kelaparan dalam dunia ini sedang meningkat dengan pantas.	1	2	3	4	5
2	Kanak-kanak lebih terdedah dengan kekurangan makanan.	1	2	3	4	5
3	Ada ramai orang di sekeliling saya yang tidak cukup makanan.	1	2	3	4	5
4	Kebanyakan orang mengetahui tentang orang-orang yang kelaparan.	1	2	3	4	5
5	Ada beberapa organisasi yang berusaha untuk menangani masalah kelaparan di dunia.	1	2	3	4	5
6	Kesan pencemaran terhadap kesihatan umum mungkin lebih teruk dari kesedaran saya.	1	2	3	4	5
7	Pencemaran yang terhasil di sesebuah negara menjejaskan masyarakat seluruh dunia.	1	2	3	4	5

8	Ahli seisi rumah jarang sekali tahu tentang masalah persekitaran yang dihasilkan oleh pembuangan makanan.	1	2	3	4	5
9	Mencegah pembaziran makanan membantu menyelesaikan masalah persekitaran seperti pemanasan global.	1	2	3	4	5
10	Tahap pemakanan saya boleh memberi kesan ke atas alam sekitar.	1	2	3	4	5
11	Tahap pemakanan saya menyumbang kepada pencemaran alam.	1	2	3	4	5
12	Saya boleh membantu menyelesaikan masalah pembuangan sisa makanan di persekitaran saya dengan mengelakkan pembaziran makanan.	1	2	3	4	5
13	Pilihan pembelian saya mempunyai kesan ke atas import makanan sesebuah negara.	1	2	3	4	5
14	Pemakanan saya yang berlebihan menyumbang kepada peningkatan harga makanan.	1	2	3	4	5
15	Saya boleh membantu mengawal harga makanan dengan mengelakkan pembaziran.	1	2	3	4	5
16	Peningkatan harga barangan adalah berkaitan dengan penggunaan yang berlebihan.	1	2	3	4	5
17	Menghindari pembaziran makanan dapat membantu menyelesaikan masalah ekonomi seperti kenaikan harga barangan.	1	2	3	4	5
18	Tanah boleh guna akan semakin dipenuhi dengan sisa makanan.	1	2	3	4	5
19	Syarikat-syarikat pelupusan sampah membuang sampah ke dalam laut.	1	2	3	4	5
20	Ada beberapa syarikat yang bertanggungjawab mengendalikan pelupusan sampah secara sempurna.	1	2	3	4	5
21	Tanah akan berterusan ditimbuni sampah akibat pembuangan sampah oleh isi rumah.	1	2	3	4	5
22	Penimbunan tanah dengan sisa makanan adalah mengancam persekitaran.	1	2	3	4	5
23	Timbus guna tanah mengancam keindahan alam semulajadi.	1	2	3	4	5
24	Air minuman pada masa kini sangat mahal.	1	2	3	4	5
25	Harga air minuman semakin meningkat setiap hari.	1	2	3	4	5
26	Dunia sedang mengalami masalah kekurangan air.	1	2	3	4	5
27	Manusia akan sengsara akibat kekurangan air di dunia.	1	2	3	4	5
28	Manusia terpaksa bergerak jauh untuk mendapatkan air minuman.	1	2	3	4	5

Bahagian III: Maklumat peribadi

Jantina	☐ Perempuan	☐ Lelaki		
Umur	☐ Kurang daripada 20	☐ 21 – 25 Tahun	☐ 25 – 30 Tahun	☐ 31 – 35 Tahun
	☐ 36 – 40 Tahun	☐ 41 – 45 Tahun	☐ 46 – 50 Tahun	☐ 51 tahun keatas
Status semasa	☐ Bujang	☐ Berkahwin	☐ Janda	☐ Berpisah
	☐ Cerai			
Bilangan ahli keluarga	☐ Tiada	☐ Satu	☐ Dua	☐ Tiga
	☐ Empat	☐ Lima	☐ Enam	☐ Lebih daripada enam
Pendidikan tertinggi	☐ Sekolah menengah	☐ Sarjana muda		
	☐ sarjana	☐ PhD	☐ Lain-lain: _____	
Bangsa	☐ Melayu	☐ India	☐ Cina	☐ Iban
	☐ Melanau	☐ Orang Ulu	☐ Bidayuh	☐ Lain-lain: _____
Agama	☐ Islam	☐ Hindu	☐ Kristian	☐ Buddha
	☐ Lain-lain: _____			
Pendapatan (RM)	☐ Kurang daripada RM1500	☐ RM3501 - RM4500		
	☐ RM1501 - RM2500	☐ RM 4501- RM 5000		
	☐ RM2501 - RM3500	☐ Lebih RM5000		

***Terima kasih atas kerjasama anda!!
Saya sangat menghargai masa dan usaha yang anda berikan untuk mengisi borang soal selidik ini.***