

**A STUDY ON MALAYSIAN HOUSEHOLDS' PURCHASE INTENTION OF WATER  
PURIFIER**

**By**

**NEDUMAARAN A/L NADARAJAN**

**Research report in partial fulfilment of the requirement for the degree of**

**Master of Business Administration (MBA)**

**UNIVERSITI SAINS MALAYSIA**

**2014**

## **ACKNOWLEDGEMENT**

I would like to express my sincere gratitude and appreciation to my supervisor Assoc. Prof. Dr. Nabsiah Abdul Wahid for her guidance and advice throughout the thesis preparation. I truly appreciate her expertise, time, efforts, constructive comments and insights that really help me to produce a quality piece of work.

My gratitude also goes to my friends and relatives for their encouragement and moral support throughout the preparation of the thesis. They have helped me to answer and distribute the questionnaire to their friends and family members. Without their help, data collection would have definitely been more challenging and time consuming. Also, a special thanks to all the respondents who participated in the survey.

To my family members, I would like to take this moment to thank you for the unconditional moral support given throughout the whole process of producing this thesis. Lastly, I would like to acknowledge the Ministry of Education Malaysia for providing LRGs Grant on Water Security entitled Economic Analysis of RBF and Treatment Technology of Public's Drinking Water (203/PKT/6720006) in which this study is a part of.

## TABLE OF CONTENTS

ACKNOWLEDGEMENT	i
TABLE OF CONTENTS	ii
LIST OF TABLES	vii
LIST OF FIGURES	ix
LIST OF APPENDICES	x
ABSTRAK	xi
ABSTRACT	xii
<b>CHAPTER 1: INTRODUCTION</b>	
1.0 Introduction	1
1.1 Background of Study	1
1.1.1 Quality of Drinking Water in Malaysia	2
1.1.2 Definition and Availability of Water Purifier	5
1.1.3 Types of Water Purifier	6
1.2 Problem Statement	11
1.3 Research Questions	14
1.4 Research Objectives	15
1.5 Significance of Study	16
1.5.1 Advancement of Knowledge	16
1.5.2 Practicality within the Water Industry	17
1.5.3 Consumers	17
1.6 Definition of Key Terms	18
1.7 Organizational of Remaining Chapters	19

## **CHAPTER 2: LITERATURE REVIEW**

2.0	Introduction	20
2.1	Cognitive Affective Behavioural (CAB) Model of Consumer Decision Making	20
2.2	Purchase Intention	24
2.3	Factors Influencing Households Purchase Intention of Water Purifier	25
2.3.1	Perception of Water Quality	26
2.3.2	Health Risk Concern	27
2.3.3	Prior Knowledge	29
2.3.4	Experience of Water Services	31
2.3.5	Demographics	32
2.3.6	Perceived Product Value	34
2.3.7	Price	36
2.4	Hypothesis Development	37
2.5	Research Framework	43
2.6	Summary	45

## **CHAPTER 3: RESEARCH METHODOLOGY**

3.0	Introduction	47
3.1	Research design	47
3.1.1	Type of study	47
3.1.2	Population	48
3.1.3	Sampling Frame	49
3.1.4	Units of Analysis	50
3.1.5	Sample Size	50
3.1.6	Sampling Method	51
3.2	Data Collection	51

3.3	Instrument Design	52
3.4	Measurement of Variables	53
3.5	Data Analysis Guideline	57
3.5.1	Descriptive Analysis	57
3.5.2	Factor Analysis	57
3.5.3	Reliability Analysis	58
3.5.4	Correlation Analysis	58
3.5.5	Regression Analysis	59
3.5.6	Hierarchical Regression Analysis for Mediator	62
3.5.7	Hierarchical Regression Analysis for Moderator	62
3.6	Summary	63

## **CHAPTER 4: RESULTS**

4.0	Introduction	64
4.1	Response Rate	64
4.2	Reverse Coding	65
4.3	Respondents Profile	65
4.4	Analysis of the additional info	67
4.5	Goodness of Measures	68
4.5.1	Factor Analysis	69
4.5.2	Factor Analysis for Independent Variables	69
4.5.3	Factor Analysis for Mediating Variable	71
4.5.4	Factor Analysis for Moderating Variable	71
4.5.5	Factor Analysis for Dependent Variable	72
4.6	Reliability Analysis	73
4.7	Descriptive Analysis	74

4.8	Correlation Analysis	75
4.9	Research Hypothesis Revisited	76
4.10	Hypothesis Testing	79
4.10.1	Regression Analysis for Independent Variables and Purchase Intention	80
4.10.2	Regression Analysis for Independent Variables and Perceived Product Value	81
4.10.3	Regression Analysis for Perceived Product Value and Purchase Intention	83
4.10.4	Hierarchical Regression Analysis with Perceived Product Value as the Mediator	85
4.10.5	Hierarchical Regression Analysis with Price as the Moderator	87
4.11	Summary	88

## **CHAPTER 5: DISCUSSIONS AND CONCLUSION**

5.0	Introduction	90
5.1	Recapitulation of Findings	90
5.2	Discussion of Major Findings	92
5.2.1	Relationship between Water Quality and Purchase Intention	92
5.2.2	Relationship between Knowledge and Purchase Intention	93
5.2.3	Relationship between Knowledge and Perceived Product Value	94
5.2.4	Relationship between Health Risk Concern and Perceived Product Value	95
5.2.5	Relationship between Perceived Product Value and Purchase Intention	95
5.2.6	General Findings	96

5.3	Implications	97
5.3.1	Theoretical Implications	98
5.3.2	Practitioners Implications	99
5.4	Limitations	101
5.5	Future Research	101
5.6	Conclusion	102
	REFERENCES	103

## LIST OF TABLES

Table 2.3.6.1: Reasons for purchasing water filter system	35
Table 2.4.1: Functions of water filters expected by respondents	41
Table 3.1.2: Households in Kedah, Penang and Selangor	49
Table 3.4: Summary of questionnaire items adapted in the study	54
Table 4.1: Summary of response rate	65
Table 4.3: Respondents demographic profile	66
Table 4.4.1: Price willingness to pay for water purifier vs income	67
Table 4.4.2: Number of units planning to buy vs state	68
Table 4.5.2: Rotated Factors and Item Loadings of Independent Variables.	70
Table 4.5.3: Component Matrix and Loadings of Mediating Variable	71
Table 4.5.4: Component Matrix and Loadings of Moderating Variable	72
Table 4.5.5: Component Matrix and Loadings of Dependent Variable	73
Table 4.6: Variables Reliability Coefficients	74
Table 4.7: Descriptive Analysis of Variables	75
Table 4.8: Correlation Analysis	76
Table 4.9: Lists of revised hypotheses	78
Table 4.10: Variable coding in analysis	79
Table 4.10.1: Regression Analysis for Independent Variables and Purchase Intention	80
Table 4.10.2: Regression Analysis for Independent Variables and Perceived Product Value	82



Table 4.10.3: Regression Analysis for Perceived Product Value and Purchase Intention	83
Table 4.10.4: Hierarchical Regression Analysis with Perceived Product Value as Mediator	84
Table 4.10.5: Hierarchical Regression Analysis with Price as Moderator	87
Table 4.11: Summary of Hypothesis Testing	88

## **LIST OF FIGURES**

Figure 1: Percentage of households with selected household items in Malaysia, 2000 and 2010	4
Figure 2: Reverse osmosis water filtration method	7
Figure 3: Combination treatment method	10
Figure 4: Schematic conception of CAB model	23
Figure 5: Research Framework	45
Figure 6: Modified Research Framework	77

## **LIST OF APPENDICES**

Appendix A: Questionnaire	116
Appendix B: SPSS Output – Factor Analysis	124
Appendix C: SPSS Output – Reliability Analysis	136
Appendix D: SPSS Output – Multiple Regression Analysis	142
Appendix E: SPSS Output – Hierarchical Regression Analysis	157

## ABSTRAK

Kualiti air minuman merupakan salah satu kebimbangan utama bagi isi rumah di Malaysia pada hari ini. Walaupun kerajaan terus menerus berusaha menambah baik kualiti bekalan air, isi rumah yang curiga telah mengambil inisiatif memasang alat penulen air di rumah masing-masing dengan kos sendiri bagi mendapatkan ketenangan fikiran. Bagaimanapun, mengapa isi rumah bertindak membeli alat penulen air masih belum difahami sepenuhnya. Tujuan utama penyelidikan ini adalah untuk mengenal pasti faktor-faktor yang mempengaruhi niat isi rumah Malaysia untuk membeli alat penulen air. Model kognitif, afektif dan tingkah laku atau CAB telah digunakan untuk mengkaji faktor-faktor yang mempengaruhi isi rumah Malaysia untuk membeli alat penulen air. Kajian dengan kaedah soalselidik telah dijalankan ke atas 304 isi rumah di Kedah, Pulau Pinang dan Selangor. Data pula telah dianalisa dengan pelbagai kaedah statistik termasuk regresi berganda dan hirarki. Kajian mendapati majoriti responden (51.3 %) sanggup membayar RM 301 - RM 1000 untuk membeli alat penulen air. Keputusan kajian menunjukkan bahawa faktor-faktor yang mempengaruhi niat isi rumah untuk membeli alat penulen air adalah persepsi kualiti air yang buruk dan pengetahuan sedia ada. Selain itu, tanggapan nilai alat penulen air kepada isi rumah pula dipengaruhi oleh kebimbangan risiko kesihatan dan pengetahuan sedia ada. Tanggapan nilai produk bertindak sebagai pencelah kepada hubungan pengetahuan sedia ada dengan niat pembelian sementara harga bukan moderator kepada hubungan tanggapan nilai alat penulen air dengan niat pembelian. Implikasi teori dan praktikal hasil daripada kajian ini turut dibincangkan dengan syor cadangan untuk kajian di masa akan datang.

## **ABSTRACT**

Drinking water quality has been one of the main concerns of Malaysian households today. Despite government's continuous efforts to improve water quality, concerned households are installing domestic water purifiers at their own cost for added peace of mind. However, why households acted to purchase water purifiers is still not fully understood. The main aim of this investigation is to identify factors that influence Malaysian households' purchase intention of water purifier. Cognitive, affective and behavioural or the CAB model is used to examine factors that influence Malaysian households purchase intention of water purifier. The study utilized a survey method on 304 households in Kedah, Penang and Selangor. Data were analyzed using several statistical methods, including multiple regression and hierarchical regression. The results show that majority of respondents' (51.3 %) are willing to pay RM 301 – RM 1000 to purchase a water purifier. Results suggest that the underlying factors which influence households purchase intention of water purifier are perception of poor water quality and prior knowledge. Besides that, perceived water purifier product value is influenced by households' health risk concern and prior knowledge. Perceived product value is also found to be significant mediator between knowledge and purchase intention while price did not act as moderator between perceived product value and purchase intention. Several theoretical and practical implications are discussed. Suggestions for future research are provided.

# CHAPTER 1

## INTRODUCTION

### 1.0 Introduction

This chapter introduces the general outline of the research. It begins with the background of study followed by problem statement, research questions and research objectives attempted to answer those questions. Significance of study is highlighted in this chapter. Definition of key terms of major variables is also included for ease of understanding and reference. The chapter ends with brief overview of the remaining chapters in the thesis.

### 1.1 Background of Study

Water is an extremely important element in human life. Life cannot be sustained beyond a few days without water and the lack of access to sufficient water supplies leads to the spread of disease (WHO, 2003). Malaysia is a country blessed with an abundance of rainfall and water resources (Aini et al. 2007). However, unsafe and poor quality of drinking water has been associated with many diseases. According to WHO (2007), 4 billion cases of diarrhoea occur every year, of which 88% is assignable to unsafe water and poor sanitation.

The United Nations has made safe drinking water as one of the United Nations Millennium Development Goals by year 2015 (UN, 2005). In line with that, Malaysian government has included water resources management as an important pillar in order to achieve

Vision 2020 (towards achieving developed-nation status). Malaysian government has stated that it will preserve and manage its water resources to secure sufficient and safe water for all, while conserving the environment (Ti et al., 2001).

Water has played a significant role in Malaysia's progression, providing the nation with adequate supply to cover all needs. The situation is however changing, as the country continues to develop and the population continues to increase. The pressure on the water resources increases with great impact on the quality and quantity of the water. According to Pimental et al. (2004), the increasing pollution of surface and groundwater resources is posing a serious threat to public and also environmental health. Moreover, this is also contributing to the high costs of water treatment, hence further restricting the availability of water for use.

### **1.1.1 Quality of Drinking Water in Malaysia**

Drinking water quality has been one of the main concerns of Malaysian households today. According to Aini et al. (2007), a paramount reason for this is due to the concern of health and pollution conscious public who is no longer willing to consume the salts, chlorine, insecticides and other contaminates which are present in tap water. As recent study (Aini et al., 2007) showed that the common public complaints about municipal water in Malaysia were issues regarding the colour, floating debris, odor and taste. In that study, 86% of the respondents surveyed rated that the quality of water supplied to their house as poor. Similarly, a study undertaken by Jardine et al. (1999) in Canada has concluded that problems related to municipal water supply was on health risks concern and organoleptic reasons.

In Malaysia, the quality of its drinking water conforms to and equates the National Standard for Drinking Water Quality (Second Version, January 2004) issued by Engineering Services Division, Ministry of Health, Malaysia (SPAN, 2011). This standard is in accordance to the standard set up by the World Health Organization in its guidelines for drinking water quality. A few government agencies are responsible for monitoring the quality of water supply in Malaysia. The Department of Environment (DOE) is the agency responsible to monitor the river basins to determine water quality in relation to major pollution sources. According to Department of Statistics Malaysia (2013), state level government authorities are accountable for the monitoring of raw water quality in the reservoirs at the input point of the water treatment plants.

Malaysian drinking water has been protected under the various acts such as Water Regulations 1920 (amendment 1989) and Environmental Quality Act 1974 (SPAN, 2011). Malaysian government under its tenth 'Five Year Development Plan' has allocated RM 2.1 billion for a total of 78 water related projects ([www.jba.gov.my](http://www.jba.gov.my), accessed September 30, 2014). Despite the various measures and action taken by the Malaysian government to improve the quality of water supplied to the households, Aini et. al., (2007) reported in a recent study that consumers still has the perception that drinking water in Malaysia is of poor quality (86% of respondents surveyed). Despite government's continuous efforts to improve water quality, concerned households are installing household water purifiers at their own cost for added peace of mind.

Based on Figure 1, it can be observed that the Malaysian government has included the ownership of water purifier in the census from year 2010 onwards. The inclusion of water purifier clearly indicates the importance given by households to the usage of water purifiers. In



addition, this also means that the government is considering water purifiers as a household item to measure life style. In year 2010, it was reported that 19.5% Malaysian households own water filters.

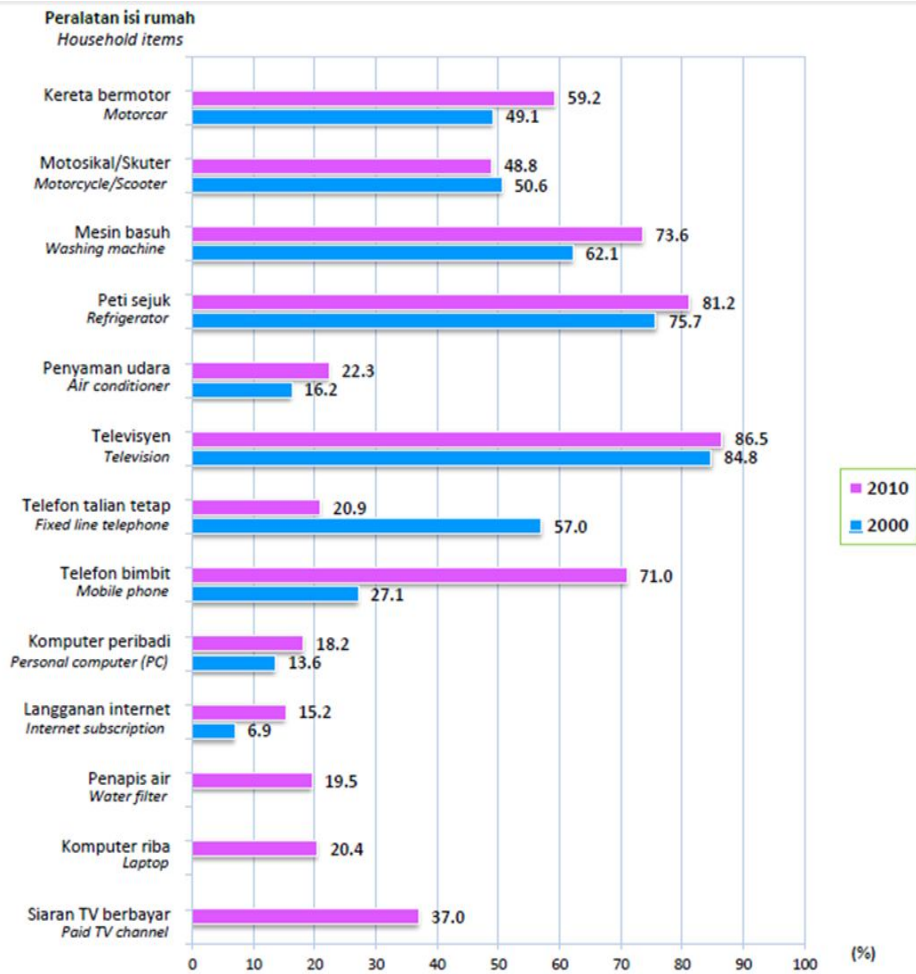


Figure 1: Percentage of households with selected household items in Malaysia, 2000 and 2010

(source: Department of Statistics Malaysia, 2010)

Aini et al., (2007) reported in a study conducted in Malaysia that 85% of respondents purchased domestic water filters due to the perception of poor water quality supplied to their house. Doria (2010) propounded that perception may become more important than reality

particularly when it comes to the quality of drinking water. In general, consumers tend to believe that any water purifier they choose will improve their tap water quality.

### **1.1.2 Definition and Availability of Water Purifier**

According to Sobsey (2002), water purifier can be defined as a device used for the purpose of treating water in the home or at point of use in other settings. These devices are also called as point-of-use (POU) or point-of-entry (POE) water treatment technologies (Sobsey, 2006). Point-of-use systems can be installed in various places in the home, including the counter top, the faucet itself, or under the sink. Most current point-of-use technologies are intended to reduce microbial pathogens, chemical and radiological contaminants.

Point of entry systems are installed where the water line enters the house and used to treat water used throughout the house ([www.epa.gov/safewater](http://www.epa.gov/safewater), accessed May 21, 2014). Filtration, ion exchange, reverse osmosis, and distillation are some of the treatment methods used. This will be discussed in detail in the following section. Both POU and POE treatment units requires routine maintenance. If they are not serviced on a consistent basis, contaminants may accumulate in the units and worsen the water quality. Household water treatment systems are among the most simple, affordable and effective methods of water purification.

In Malaysia, water purifiers are sold directly by the major electronics and household product retailers such as Courts, SEC, Cosway and Bestbuy. They carry a variety of brands such as Panasonic, Philips, Sharp, Diamond, etc. However, major retailers such as Aeon, Tesco, Parkson and Giant do not carry an extensive series of water purifiers due to the requirement for

installation and service. These stores only carry the basic line of water treatment products. Most electronic product retailers provide installation and maintenance services. All types of water purifiers are generally available from online order and electronic product retailers' physical store. The prices of each unit can reach into the hundreds and sometimes thousands of ringgits, depending on the type, method, location of installation, and requirement for plumbing, if any. Prices range from RM 20 for a basic pitcher filter to a few thousand ringgits for an advanced reverse osmosis unit.

Apart from the traditional channel, water purifiers are also sold by direct marketers/multilevel marketers such as Elken, Coway and Amway. The products carried by multilevel marketing (MLM) channels are normally more expensive than the one carried by physical retailers. The price ranges from RM 800 – RM 8500 depending on the type and functionalities. Based on data gathered from the marketers' websites, each claimed that their technology is superior and more effective than the others. For example, based on marketing information from Elken's website, their water purifier can cost up to RM 8500 ([www.elken.com.my](http://www.elken.com.my), accessed May 25, 2014). MLM companies allow for flexible payment methods such interest free credit card purchase.

### **1.1.3 Types of Water Purifiers**

There are many types of water purifiers available in the Malaysian market. Each type of water purification system has been designed to treat specific water quality problems. Different units remove different contaminants or classes of contaminants from the water. Advanced units may use a combination of technologies to remove several types of contaminants. In addition to

that, advanced units are able to provide backup protection in case if one treatment method fails. Cassassuce et al. (2008) claimed that there is no single water treatment system that is able to treat all the water problems. Each system has its own limitations. Even though there are scores of brands of home water purifiers, they all depend on a limited number of technologies to remove contaminants. Some of the popular type of water purification systems available in the market is discussed here.

Reverse osmosis is a well-known process for removal of dissolved materials from water (Macevicz et al. 1986). Macevicz et al. (1986) explains that this process pushes water through a semi-permeable membrane that blocks particles larger than water molecules. A reverse osmosis water purification device typically includes a housing containing a semipermeable membrane which permits water to pass through but is substantially impermeable to certain impurities such as nitrates, heavy metals and salts, chemical fertilizers, and bacteria and viruses as in Figure 2.

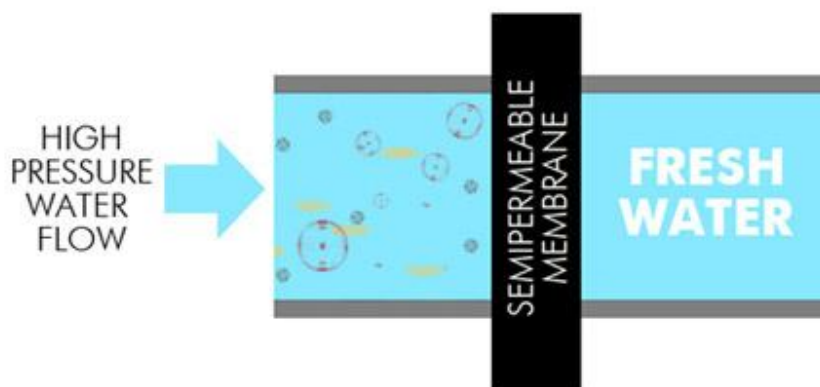


Figure 2: Reverse osmosis water filtration method

(source: [www.freedrinkingwater.com](http://www.freedrinkingwater.com), accessed July 27, 2014)

Most mineral constituents of water are physically larger than water molecules and they are trapped by the semi-permeable membrane and removed from drinking water when filtered through a reverse osmosis treatment units ([www.allaboutwater.org](http://www.allaboutwater.org), accessed July 27, 2014). Reverse osmosis treatment units is well known to remove a more diverse list of contaminants compared to other systems. Reverse osmosis system removes more than 90-99.99% of all the contaminants including minerals, dissolved inorganics, and organic compounds from the drinking water supply ([www.epa.gov/safewater](http://www.epa.gov/safewater), accessed July 27, 2014). However, the downside for reverse osmosis system is that it consumes nearly three times as much water as it treats. Due to the higher water wastage, reverse osmosis units are best used for cooking and drinking water only.

Next, the use of activated carbon in water purification systems to remove organic contaminants and chlorine contained in the water is conventional. Activated carbon chemically bonds with and removes some contaminants in water filtered through it (Kirkpatrick et al., 2005). Carbon filters vary greatly in effectiveness. Depending on their design, some units can remove chlorine and improve taste and odor, while others remove a wide range of contaminants including asbestos, lead, mercury and volatile organic compounds ([www.epa.gov/safewater](http://www.epa.gov/safewater), accessed July 27, 2014). However, it should be noted that activated carbon cannot effectively remove common inorganic pollutants such as arsenic, fluoride, hexavalent chromium, nitrate and perchlorate.

Distillation is probably the oldest method of water purification. According to Mansur (2004), the water distillation process is regarded as the most effective way to separate bacteria, toxins, chemicals, and solids from tap water to produce pure drinking water. According to the

author, the main function of water distillation units is to heat water and condense the resultant vapors in order to separate and remove contaminants from the tap water supply prior to use, particularly, in drinking water systems.

The distillation process involves heating the water to produce steam, followed by a cooling or condensing of the steam to yield pure water and a by-product that contains all of the contaminants that were separated and removed from the water during the heating and boiling process (Mansur, 2004). This separation of contaminants takes place as a result of various chemicals and other contaminants boiling at different temperatures than pure water. Some contaminants are carried over in the vapor at lower temperatures, while all solids remain in the distillation chamber as the liquid vaporizes (Mansur, 2004). The downside to the usage of distillers is that it uses a lot of electricity, resulting in excess heat, and requires regular cleaning. Distiller units can remove heavy metals, particles, fluoride, total dissolved solids, microbes, mercury and lead ([www.freedrinkingwater.com](http://www.freedrinkingwater.com), accessed May 25, 2014).

Ultraviolet water purification system basically uses ultraviolet (UV) radiation to treat tap water. Based on Cassassuce et al. (2008), ultraviolet (UV) radiation sources have been found effective to sterilize water because of the wavelength of light emitted, typically centered around 254 nm, which is referred to as ultraviolet light or ultraviolet radiation.

The UV water purifier is normally connected to an electrical power source. It is well known to be effective in removing viruses, bacteria and mold spores from untreated water within a short period of time upon exposure to UV radiation (Cassassuce et al. 2008). However, it should be noted that UV water purifier cannot remove chemical contaminants. Due to that, ([www.environment.nationalgeographic.com](http://www.environment.nationalgeographic.com), accessed June 14, 2014) has recommended that UV

water purifier units to be used together with carbon filters in order to remove other contaminants. Countertop UV water purifier units can be purchased within a price range of RM 300 to RM 2000.

Besides that, combination treatment approaches is widely promoted by commercial product vendors such as Elken, Amway and Coway as displayed in Figure 3.

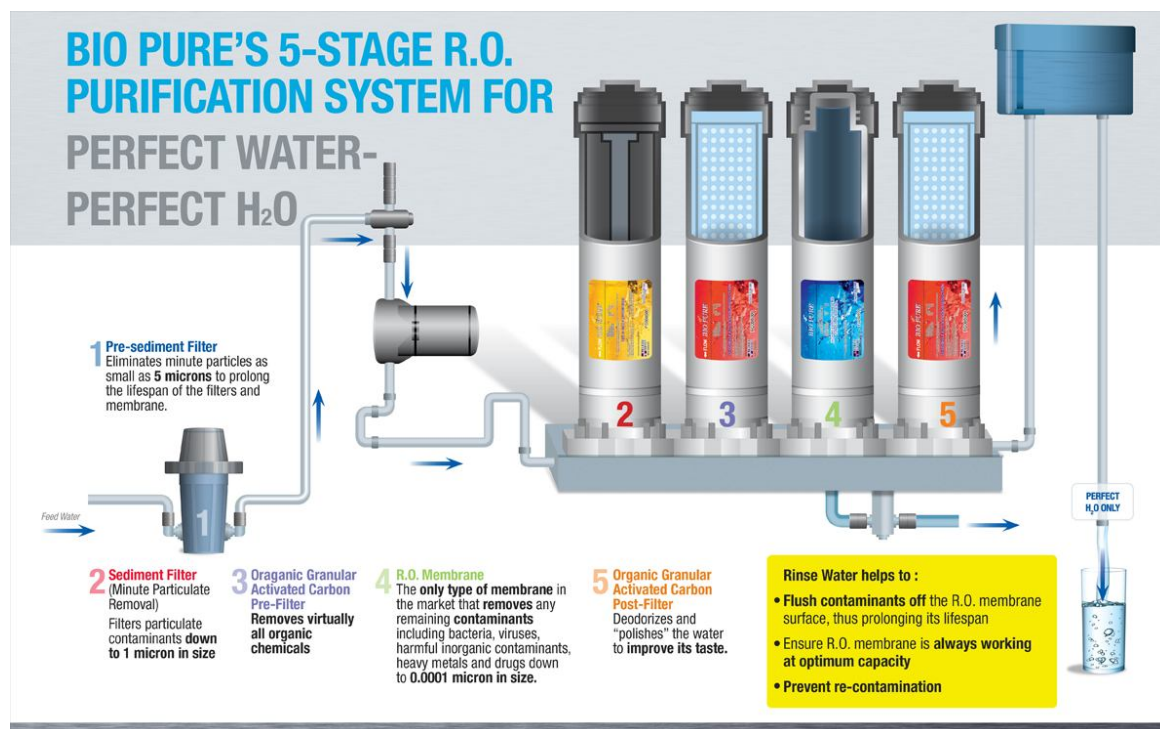


Figure 3: Combination treatment method

(source: [www.elken.com.my](http://www.elken.com.my), accessed on July 29, 2014)

According to Sobsey (2002), combination treatment approaches are any combination of the above technologies used together, either simultaneously or sequentially, for water treatment. The author added that these could be combinations or multiple barriers such as coagulation/disinfection, media filtration/disinfection or media filtration/membrane filtration.

Combination treatment method is regarded as the most effective way as it removes the most number of contaminants using various multiple technologies. The price of water purifier units that use combination treatment system are usually high compared to the other systems.

## **1.2 Problem Statement**

Malaysia has already begun feeling the pressures on its water resources, the outcome of rapid population growth, increased economic activity, improved standards of living, rapid urbanization, and lack of effective pollution control measures (Shahrizaila, A. 2012). Tan, S. (2012, January 26, The Star) reported that water pollution is an alarming issue to the public in Malaysia. Concern over tap water quality has led to the expansion of household water treatment industry in Malaysia and also worldwide. It has been reported that American households spent more than US\$1 billion on home water purification equipment in the year 2002 (Consumer Reports 2003, c.f. Aini et al., 2007).

This trend is catching up with Malaysian consumers as well. A census by Department of Statistics Malaysia (2010) reported that 19.5% of Malaysian households own water purifier in year 2010. The information pertaining to water purifier was first collected during census 2010. The inclusion of water purifier in the census strongly indicates the importance given by households to the use of water purifiers. Moreover, this also indicates that the government is considering water purifiers as a household item to measure lifestyle.

There is a huge demand for water purifiers, as can be seen by the numerous advertisements, promotions and shelves of water purifiers in local hypermarkets and



supermarkets. Tan, S. (2012, January 26, The Star) reported on a nutritionist's view (note: Associate Professor Dr Azrina Azlan, a nutritionist from Universiti Putra Malaysia's Faculty of Medicine and Health Sciences) that households behavior of installing water purifiers could be triggered due to public's perception that water from particular taps emits a certain odour or tastes a peculiar way that is not palatable.

A recent study (Azlan et. al., 2012) found that consumer's negative complaints about the tap water's taste or smell is based on consumer's individual perception. While there were a couple of tap water samples that had certain elements above the permitted standard, the author reported that that this was likely due to the older pipes in the area, rather than the tap water itself. Tan, S. (2012, January 26) reported that based on previous studies undertaken on Malaysian tap water by various researchers, the quality of tap water is at acceptable level. The author claimed that Malaysian tap water is safe for domestic consumption.

Although they are various reports claiming that Malaysia's tap water is safe for human consumption, Aini et al., (2007) observes that various measures by the government to address water issues still could not calm Malaysian consumers on the issue of quality of drinking water today. The author reported that the majority of respondents (86%) rated the quality of water supplied to their house as poor and 85% of respondents have purchased domestic water filters as a result. Moreover, households have also taken a variety of measures to ensure a supply of pure drinking water, ranging from buying bottled water to installing various types of water purification systems in their homes.

Water purification products have become a timely topic in consumer products. Concern over tap water quality has led to the expansion of water purification industry in the country

today. The use of these products is high across all ethnic groups as reported by Aini et al. (2007). Manufacturers and distributors of domestic water purification systems have mushroomed in the market. The vendors are marketing their products through multiple channels in order to attract more consumers into buying it. Most of the vendors claimed that their water purifiers are the most effective to remove contaminants from the tap water.

Reports by Aini et al., (2007), Azlan et al., 2012 and Tan, S. (2012, January 26) suggested that in most cases, water purifier demand is being driven by consumers who have expressed strong concern for health risk from consuming water of poor quality. Despite the great impact that this group of consumers have had on the market, there has been very little research in this aspect. There is a dire need to know the reasons why households need to purchase water purifiers. What are the factors that influence their purchase intention?

It is important to note that previous studies on water consumption topic mostly covered issues on water pollution, water wastages and Malaysian households' drinking practices. There is a vacuum of empirical studies investigating Malaysian households' purchase intention of water purifier. The main aim of this research is to identify factors that influence Malaysia households' purchase intention of water purifier.

### **1.3 Research Questions**

Based on the problem statement, this study attempts to provide answers to the following research questions:

1. Do Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services and demographic characteristics lead to purchase intention of water purifier?
2. Do Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services and demographic characteristics lead to perceived water purifier product value?
3. Do Malaysian households' perceived product value influence purchase intention of water purifier?
4. Does perceived product value mediates the relationships between Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services, demographic characteristics and purchase intention of water purifier?
5. Does water purifiers' price moderates the relationship between perceived product value and households' purchase intention of water purifier?

#### **1.4 Research Objectives**

The objectives of this study are:

1. To determine whether Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services and demographic characteristics lead to purchase intention of water purifier.
2. To determine whether Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services and demographic characteristics lead to perceived water purifier product value.
3. To determine whether perceived product value influence Malaysian households' purchase intention of water purifier.
4. To find out whether perceived product value mediates the relationships between Malaysian households' perception of poor water quality, health risk concern, prior knowledge, negative experience of water services, demographic characteristics and purchase intention of water purifier.
5. To find out whether water purifiers' price moderates the relationship between perceived product value and consumer purchase intention of water purifier.

## **1.5 Significance of Study**

The study is significant as it contribute towards the (a) advancement of knowledge (b) practicality within the water industry and (c) consumers at large.

### **1.5.1 Advancement of knowledge**

This study aims to hold a better understanding of factors that affect Malaysian households' purchase intention of water purifiers. The present study adds to the existing literature in several ways. First, this is the first empirical study undertaken to identify Malaysian households purchase intention of water purifier. Second, the findings of this study would provide a foundation for understanding water purifier purchase intentions of Malaysian consumers. This study attempts to use cognitive affective behavioral (CAB) theory from consumer behavior literature as the basic theory to investigate factors influencing households purchase intention of water purifier. The study will reveal if CAB theory is useful for predicting consumer behavior.

Most importantly, the study will also contribute to the advancement of knowledge by examining all possible determinants from literature and effect of various constructs on household purchase intention in Malaysian perspective. The proposed study will also benefits and help the future researcher as their guide.

### **1.5.2 Practicality within the Water Industry**

The study of consumer behavior for any product is of vital importance to marketers in shaping the fortunes of their organizations'. From the marketing perspective, the findings of this study are important to provide in depth information on water purifier purchase intention. With a better understanding of the customers, it helps marketers to serve their customers better and to assists them to satisfy their real needs (Kotler and Armstrong, 2006). The outcome of this study will enable marketers to know why Malaysian households are purchasing water purifiers. Therefore, the findings could provide significance managerial implication and may become practical guidelines for water purification products marketers who want to stay ahead of their competitors.

### **1.5.3 Consumers**

The study may be able to provide households with an understanding of how they think, feel, reason and behave in regards to the purchase of water purifier. It is also suggested that studying consumer behavior should make them better consumers.

## 1.6 Definition of Key Terms

For ease of reference and understanding, this section provides definition of key terms of variables used in this research.

**Water quality** - Water quality refers to the chemical, physical, biological, and radiological characteristics of water (Diersing, N., 2009)

**Health risk concern** - Chemical contaminant in water and water borne diseases which creates potential harm to consumers' health (Doria et al., 2009).

**Water services** - Water services are the scope of supply by water service providers. Water services includes uninterrupted water supply, the quality of customer service and complaints resolution by service provider. (Hensher et al., 2005; Dietrich et al., 2006).

**Knowledge** – Facts, information, meanings and beliefs acquired through experience and/or education that are stored in consumer memories (Peter and Olson, 2008).

**Perceived product value** - Consumer's overall assessment of the utility of a product based on perception of what is received and what is given (Zeithaml, 1988).

**Price** - Price is what is given up or sacrificed to obtain a product (Zeithaml, 1988).

**Purchase Intention** - Purchase intentions are defined as the probability that the consumer will purchase the product given certain conditions (Gupta et. al., 2007).

**Household** - An individual or group of people, who may or may not be related by blood or marriage, staying temporarily or living at the same houses, with common housekeeping and common living accommodation. (Jenkinson, 1999)

## **1.7 Organization of Thesis**

This thesis is organized into 5 chapters in total. As mentioned, chapter one presents the introduction and overview of the study. Chapter two highlights the literature review of previous studies related to the field of water purifier and consumer purchase intention conducted by other researchers. This chapter also displays the conceptual framework and hypothesis associated to the independent variables, mediating variable, moderating variable and independent variable. Chapter three covers the research methodology used in this study, which focuses on the research design, data collection method and quantitative data analysis using SPSS software. Chapter four furnishes the statistical data analysis results while chapter five concludes the study by presenting the research findings, results discussion, implications, limitations and recommendations for future research.



## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter reviews the literature of previous studies done by various researchers on the subject of water purifier and consumer purchase intention in Malaysia and also in different parts of the world. Research on this topic suggests that households' intention to purchase water purifier result from a complex interaction of diverse factors. The role and relevance of these factors are discussed in detail. The underlying consumer behavior theories related to this study are also identified and discussed. The development of hypothesis and conceptual framework wrap up this chapter.

#### **2.1 Cognitive, Affective and Behavioral (CAB) Model of Consumer Behavior**

Many theories, models and concepts have been developed by marketing researchers in attempts to understand consumer behavior. In many cases, these ideas overlap and even compete with one another as useful predictors of consumer behaviors'. According to Peter and Olson (2008), although many competing theories and ideas about consumer affect and cognition have been proposed, no single theory completely describes the workings of the consumer's mind.

Several perspectives on consumer decision making have been considered in the literature. A preponderance of the literature suggests that cognitive, affective and behavioral (CAB) model

of consumer behavior is deemed suitable to be used in this study to understand household purchase intention of water purifier. The model integrates components from various consumer behavior models and assumes that consumer choice is a function of multiple dimensions.

A framework for researching, analyzing and understanding households purchase intention of water purifier is presented in this chapter. The framework also provides the organizational structure for the thesis. In this chapter, the three elements of CAB model: (i) consumer cognitive component, (ii) consumer affective component and (iii) consumer behavioral component are researched and analyzed in order to answer the research questions. Then, the relationships between these elements are discussed in order to understand households purchase intention of water purifier.

Based on definition by Peter and Olson (2008), cognition refers to the mental structures and processes involved in thinking, understanding and interpreting stimuli and events. It includes the knowledge, meanings, and beliefs that consumers have developed from their experiences and store in their memories. Sanchez (2006) added that the cognition level corresponds to information processing activities and is the rational component of consumption decisions. It is important to note that although many aspects of cognition are conscious thinking processes, others are essentially automatic. Cognitive components that are examined in this study are perception of poor water quality, health risk concern, negative experiences of water services and prior knowledge. The role and relevance of the stated components are discussed in the following sections.

According to Schiffman and Kanuk (2000), a consumer's emotions or feelings about a particular product or brand constitute the affective component of an attitude. Similarly, Peter and

Olson (2008) defined affect as consumers' feelings about stimuli and events, such as whether they like or dislike a product. The authors have also stated that affective responses can be favorable or unfavorable and vary in intensity. For instance, affect includes emotions such as love or anger, satisfaction or frustration and milder attitudes such as liking Elken water filter or disliking Coway water filter. Affective component of this study is measured from perceived product value construct. Consumer may eventually develop a liking or disliking for water purifier based on cognitive interpretation.

Although affective and cognitive systems are distinct, they are richly interconnected, and each system influences the other (Peter and Olson, 2008). According to Shiv, B. and Fedorikhin, A. (1999), many studies indeed indicate that purchase decisions are based on considerations of both cognitive and affective product features. The authors have noted that in many cases, consumers could be involved both cognitively and affectively with the same functional feature.

The final component of the model is consumer behavior. Peter and Olson (2008) have defined consumer behavior as the physical actions of consumers that can be directly observed and measured by others. The authors also called it as overt behavior to distinguish it from mental activities, such as thinking, that cannot be observed directly. Examples of behaviors include shopping at supermarkets or on the internet, buying products and using credit cards. Typically, marketers are most concerned about purchase behavior because only through behavior can sales be made and profits earned. This is the main concern of this study as well. Household purchase intention is used as a measure of consumer decision making behavior. Thus, purchase intention is the dependent variable used in this study.

The three components mentioned above continuously influences each other. Figure 4 illustrates how the three systems are related.

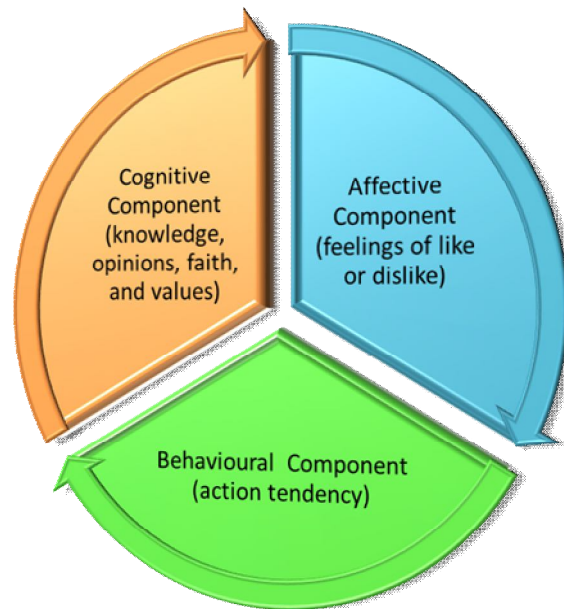


Figure 4: Schematic conception of CAB model (source: Schiffman and Kanuk, 2000)

In Figure 4, each of the three elements is connected by two-headed arrow signifying that any of them can be either the cause or an effect of a change in one or more of the other element. Affect and cognition can change consumer behavior. Behaviors' can change consumers affect and cognition (Peter and Olson, 2008). Any of the three elements may be starting point for consumer analysis. Peter and Olson (2008) suggested that a logical sequence is to first research and analyzes what consumers think, feel and do relative to a company's offerings and those of competitors.

Based on the CAB model presented by Peter and Olson (2008), the study's framework has been developed. As per the authors' suggestion, consumers' cognition is analyzed as the first component, followed by affective component and finally the behavioral component. The study's

dependent variable (purchase intention) is hypothesized to be influenced by these dimensions: perception of poor water quality, health risk concern, negative experience of water services, product knowledge, demographics, perceived product value and price. As such, perception of poor water quality, health risk concern, negative experience of water services, product knowledge, demographics, perceived product value and price are predictors for purchase intention. For example, a household with a poor perception of tap water quality may develop a liking for water purifiers and will most likely make a purchase decision if the product is on sale.

## **2.2 Purchase intention**

Purchase intention is selected as the dependent variable of this study. The behavioral component, the final component of the CAB model is concerned with the likelihood or tendency that an individual will undertake a specific action or behave in a particular way with regard to the attitude object. According to Schiffman and Kanuk (2000), in marketing and consumer research, the behavioral component is frequently treated as an expression of the consumer's intention to purchase. The authors have sufficient evidence to claim that consumers who are asked to respond to an intention to buy question appear to be more likely to actually make a brand purchase for positively evaluated brands, as contrasted to consumers who are not asked to respond to an intention question.

According to Gupta et al., (2007), purchase intentions are defined as the probability that the consumer will purchase the product given certain conditions. Purchase intentions vary in strength. It is measured in this study by having consumers rate the probability that they will purchase water purifier within the next 6 months. Although consumer purchase intentions are