

**THE STUDY OF CONSUMERS'SATISFACTION  
TOWARD GASOHOL USAGE  
OF BANGKOK MOTORISTS**

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### **ABSTRACT**

The fuel price has been increased continuously; whereas the number of energy demands in Thailand has been increased rapidly. As a result, it affects the fuel prices around the world to be continuously increased each day. Since fuel has become a curtail part of everyone's life; hence sometimes the service provider is careless and overlook the quality of services that is provided to the consumers. Consequently, the consumers may not be totally satisfied with the services; however the consumers still need to use the fuel in order to energize the cars' engine. The study on "Consumers' Satisfaction Toward Gasohol Usage of Bangkok Motorists" has objectives that encompass; 1) To study demographic factors that affect consumers' satisfaction toward using gasohol; 2) To study marketing mix factors that affect consumers' satisfaction toward using gasohol of Bangkok motorists.

This study is a quantitative research which was conducted to study consumers' satisfaction toward using gasohol by using the closed-end questionnaires to collect data of 415 samples from Bangkok motorists. The samples were taken by Simple Random Sampling method. The Descriptive statistics consist of means, standard deviation, frequency, percentage, t-test, ANOVAs, least significant difference and Pearson correlation statistic based were used for data analyzing methodology.

The findings showed the results of this studying include: 1) Different incomes affect the consumers' satisfaction toward gasohol usage; the test result showed the

different outcome and proved that the difference of income does not affect consumers' satisfaction (Sig. 0.188); 2) Gasohol quality effects consumers' satisfaction; the test result indicated that gasohol quality was the second most factor that effects consumers' satisfaction with mean of 4.30; 3) Gasohol price influents the decision making of purchasing gasohol types; according to the result, the price influenced the decision making of purchasing gasohol as most people were satisfied with the price of the gasohol at the mean level 3.99; 4) Petro station's location affects consumers' satisfaction; overall result found that place factors affected consumers' satisfaction towards gasohol usage at the most level of mean 3.82 and standard deviation 0.68; 5) Gasohol's sale promotion correlates with consumers' satisfaction; overall result found that promotion factors correlated with consumers' satisfaction towards gasohol usage at the level of mean at 3.92 and standard deviation at 0.57; 6) Service quality effects consumers' satisfaction; overall results found that service quality affected consumers' satisfaction towards gasohol usage (mean 3.88 and standard deviation 0.50); 7) The environment in which the service is delivered affects consumers' satisfaction; overall results of physical environment factors affected consumers' satisfaction towards gasohol usage have the total mean of 3.88 and standard deviation of 0.55.

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## **CHAPTER 1**

### **INTRODUCTION**

Fuel energy is a cost of productions that has been increased continuously and economic recession has been deteriorated more and more every day; whereas the number of energy demands in Thailand has been increased rapidly. As a result, it affects the fuel prices around the world to be continuously higher and higher every day. Thailand must react to the high import of oil fuel by finding for alternative energy to reduce such high imported amount. As it is the way that we can build stability in fuel price which is very important for economic of the nation in each country.

Primary Energy Consumption in Thailand (Energy Policy and Planning Officer, 2013); the total primary energy consumption inclusive consumptions of the gasoline consists of Regular, Premium, Gasohol and gasoline octane 95, Kerosene, Diesel, High Speed Diesel Oil (HSD), Low Speed Diesel Oil (LSD), Jet Petroleum (J.P.), Fuel Oil Grade 1-5, and Liquid Petroleum Gas (LPG). In 2006 was 41,050 million litres per year and in 2007 it was slightly decreased to 41,030.1 million litres per year. In 2008, the total national primary energy consumption was 39,531.4 million litres per year; it was a fractionally decreased by -3.6%. Then in 2009, the trend of consumption was gradually increased by 1.3% with the total amount of 40,063.9 million litres per year. The energy consumption was a little bit rising, if compare the 2009 to at 40,826.2 million litres per year and it was a rapid growth in 2011 of 42,246.7 million litres per year. In 2012, it was a huge jump of consumption by 5.7% at 44,246.7 million litres per year.

The importing of crude oil from 2006 to 2012 (Energy Policy and Planning Officer, 2013); were steadily increase; in 2006 the imported value was 753,783 million baht, in 2007 was 715,789 million baht, in 2008 was 1,002,667 million baht, in 2009 was 623,024, in 2010 was 751,467 million baht, in 2011 was 977,374 million baht and in 2012 it hit the highest figure at 1,119,338 million baht.

Total Gasohol consumption in 2006 was 1,184.8 million litres per year and in 2007 the consumption figure was increased by 28.1% at 1,518.5 million litres per year. In 2008 there was a dramatic increase by 62.5% in 2008 at 2,468.2 million litres per year; this might be because of the Royal Thai Government for the cancellation of selling of gasoline octane 95 in early 2007. In 2009, it was a big growth of gasohol usage by 23.8% at 3,055.7 million litres per year. The gasohol consumption trends were dropped continuously from 2010 to 2012; the growth rate was -7.3% at 2,831 million litres per year and in 2011 the trend was further decreased by -16.8 at 2,352.7 million litres per year and finally the unpopular trend was continuously by -23% in 2012 at 2,333 million litres per year. Part of gasohol consumption dropped between 2010 and 2012 might be because it was partially replaced by the natural gas consumptions like LPG and NGV. We have not yet known if the trend dropped because the introduction of the natural gas alone or consumers were dissatisfied with using of gasohol.

Such rising of consumption values and demands as well as the over importing of the crude oil caused Thailand to start thinking and seeking for the new concept to find the substitute oil fuel on account of mitigating the problems. The Royal Thai Government promotes and supports this concept by issuing policy announced on 1<sup>st</sup> January 2007 to cancel the selling of gasoline octane 95 and further cancellation of gasoline octane 91 sales was announced on 1<sup>st</sup> October 2012 in order to encourage Thai people to use alternative energy like gasohol, and natural gas. The Royal Thai Government had no proof from any source that the gasohol fuel is suitable and safe for cars' engines that produced earlier than 2007; and there are only cars that produced after early 2007 that specifically produced for gasohol fuels and the cars which produced before that were not produced for gasohol fuel.

### ***Rationale and Problem Statement***

After the announcement of the Royal Thai Government for the cancellation of selling of both gasoline octane 91, the cars owners of which produced before 2007 had to switch to use gasohol fuel because they had no choice. In addition, since the promotion of using gasohol has been implemented; there is no organization or institute have done any survey on neither consumer's attitude nor satisfaction toward using gasohol fuels especially in Bangkok Metropolis. The oil sector spent millions of baht trying to develop products and markets tools that elicit satisfaction in the consumers in order to evaluate their satisfaction facts that may help marketers to improve qualities of products and or services to maximize consumer loyalty and word-of mouth. Many companies spent millions of baht trying to assess consumers' satisfaction with their products and services. Similarly, the oil sector also spent millions of baht trying to develop products, services, and market tools that elicit satisfaction in consumers. (Farris et al., 2000 cited in Oparah and Kikanme (2006). Furthermore, the feedbacks of the study from consumers' satisfactions can be an important source of information for marketers to enhance their competitive advantage, marketing strategy and quality of services in order to encourage consumers to continuously purchasing products and or services.

### ***Objective of Study***

This research aims to study of the consumers' satisfaction toward using gasohol by Bangkok Motorists in Bangkok Metropolis in order to understand their overall satisfactions to provide a useful framework in determining effective marketing strategies, service strategies and or adjusting to more suitable strategies to reach the target market.

1. To study demographic factors that affect consumers' satisfaction towards using of gasohol fuel
2. To study marketing mix factors that affect consumer satisfaction towards using gasohol fuel by Bangkok motorists

### ***Scope of Study***

The scope of this research was to study consumers' satisfaction toward using gasohol by Bangkok motorist in Bangkok metropolis over one period of time during 1<sup>st</sup> June 2013 until 31<sup>st</sup> July 2013, by studying the population of Bangkok metropolis and giving many factors to investigate. This research aims to find out whether or not any factors such as marketing mix and demographic factors can affect the Bangkok motorists' satisfaction derives from buying or using gasohol fuel. The whole data was collected from 415 samples within Bangkok metropolis for analysis and conduct this research during a period of two months.

### ***Research Questions***

At the end of this research studying, the results will confirm with several facts that whether or not independent variables affect gasohol consumptions and or consumers' satisfaction; and based on the background of problems for this research, the importance of research questions shall includes;

1. Is there any relationship between demographic factors and consumers' satisfaction?
2. Is there any relationship between marketing mix factors and consumers' satisfaction?

### *Significance of the Study*

This research study can help to determine why the percentage of gasohol user in Bangkok which has been dropped gradually when compared to those the previous gasohol consumptions. Furthermore, this study will also help to identify the factors which affect consumers' satisfaction from using gasohol as well as services quality of gasohol providers. By the fact that this research diagnoses any symptoms or problems related to gasohol usage in Bangkok which will help the related government body to find the way to promote or support the use of gasohol. In addition, the diagnose of this research can help private sectors to identify the way to adjust their market strategies, find new business opportunities with regard to gasohol consumption. Furthermore, findings will also help to find the way to improve the quality of products and services in order to stimulate the use of domestic gasohol consumptions and reduce the amount of gasoline importing from overseas on the account of reducing the national trade's deficit. Researcher has expected the outcomes include:

1. Different incomes affect the consumers satisfaction toward gasohol usage
2. Gasohol quality affects consumers' satisfaction
3. Gasohol price affects consumers' satisfaction
4. Petro station's location affects consumers' satisfaction
5. Gasohol's sale promotion correlates with consumers' satisfaction
6. Service quality effects consumers' satisfaction
7. The environment in which the service is delivered affects consumers' satisfaction

### *Definition of Terms*

#### ***Gasohol***

A fuel is consisting of a blend of ethanol and unleaded gasoline; especially a blend of 10 percent ethanol and 90 percent gasoline. The ethanol is obtained by the

fermentation and subsequent distillation of sugar cane, maize, or potatoes. Gasohol has a high octane rating and produces lower levels of pollutants than ordinary gasoline (The American Heritage Science Dictionary, 2005).

***Motorist***

A person who drives an automobile or travels by automobile (Webster, 2010).

***Consumer attitude***

Attitude is defined as a mental, emotional or rational predisposition with regard to a fact, state, person or an object. Attitudes are learned predispositions to respond to an object and are some of the most heavily studied concepts in consumer behaviour. More recent perspectives view an attitude as a summary construct that represents an individual's overall feelings toward or evaluation of an object. (George E. Belch & Michael A. Belch, 2012)

***Customer satisfaction***

The well-known disconfirmation of expectations model of satisfaction suggests that consumer satisfaction is a result of a comparison between company performance and customer expectations. (Oliver, 1980)

***Brand***

Brand is a name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition. It is something that has actually created a certain amount of awareness, reputation, prominence, and so on in the market place. (Keller, 2013)

### *Demographics*

Demographics are the statistical characteristics of human populations (as age or income) used especially to identify markets (Merriam-Webster, 2013).

## **CHAPTER 2**

### **LITERATURE REVIEW**

The research proposal of “A study of consumers’ satisfaction toward gasohol usage of Bangkok motorists”, researcher has reviewed literatures, theoretical concepts and related researches which concerns about consumers’ attitude, satisfaction and summarize as following topics.

#### ***2.1 Related Literature and Previous Studies***

##### ***2.1.1 Gasohol Concept and Principle***

Gasohol is one type of fuels for cars. It commonly referred to as E10. (Department of Alternative Energy Development, 2012). Gasohol 91 and 95 are with a combination of 90 per cent gasoline and 10 per cent alcohol (ethanol). In English the fuel is not called “Benzene”; however it is called “Gasoline”. Thus the origin of the word of “Gasohol” is come from “Gasoline + Alcohol”. Alcohol is derived from sugar cane, cassava and maize which are converted in to alcohol or ethanol. Gasoline has different component to gasohol as gasoline uses a Methyl Tertiary Butyl Ether (MTBE) as an octane boost; whereas gasohol uses ethanol as an octane boost. Gasohol is a mixture of gasoline and alcohol that oxygenates and octane are improved and it has been developed as an alternative fuel to replace gasoline and these blends have been used in many countries around the world. Ethanol provides less energy than MTBE by 1.6 – 1.8 per cent difference. Oxygen is a component of ethanol in gasohol, helps to allow for more complete combustion within the engine compartment. As a result it helps to reduce the amount of carbon monoxide released from the exhaust. In 2009, Thailand imported MTBE valued over 3,000 million baht. The downside of the MTBE is it can contaminate groundwater and drinking water. Mixture of ethanol has a lot of oxygen molecular results in less pollution than gasoline and it improves the performance of the engine same as

using of a normal gasoline. The different between gasoline and gasohol; gasoline = gasoline + MTBE (imported substance) and gasohol = gasoline + ethanol (substance made of agricultural crops e.g. cassava, sugar cane and maize).

At present Ministry of Energy allows any private sector to produce 3 types of gasohol include;

1. E10 gasohol; it consists of gasohol octane 91 and gasohol octane 95; it is a combination of 90 per cent gasoline and 10 per cent alcohol (ethanol)
2. E85 gasohol; it is a blend of 85 per cent of ethanol with 15 per cent of gasoline by volume. The percentage of ethanol blended must not less than 75 per cent of ethanol by volume. The ethanol mixture that is used must be in the form of ethanol conversion only.
3. E20 gasohol; it contains ethanol up to 20 per cent by volume or more than 19 per cent of ethanol by volume and it is blended with 80 per cent of gasoline by volume.

### ***2.1.2 Process of producing gasohol***

(Ministry of Energy, 2005)

1. Pour 200 liters of ethanol with a purity of 99.5 per cent into the tank.
2. Add 30 grams of anti-corrosion substance (Cassosin Inhibitor).
3. Pour 18,001 liters of gasoline octane 91 into the mixing tank then turn on the circulate pump to allows gasoline and ethanol to mixed well for around 30-60 minutes.

### ***2.1.3 Benefits of using gasohol***

1. Reduce pollution from the exhaust because it can reduce the amount of hydrocarbons and carbon monoxide by up to 30 percent.
2. Oxygen in the ethanol helps to allow for more complete combustion within the engine compartment.

3. Can be used in the car without having to the cost for customization the engine.
4. Save money because it is cheaper than gasoline octane 95

#### ***2.1.4 Advantages of using gasohol***

(Department of Alternative Energy Development, 2012)

##### ***Economy***

1. Reduce the imports of foreign gasoline. The rise of crude oil prices on the world market since early 2012 caused by both the global economic recovery and Iran sanctions of the United States. As Thailand is one of key crude oil importer within Asia (we imported crude oil at approximately 9.5 percent of GDP in 2012); hence we have been directly affected by the rising of crude oil prices. In addition, we have recently been revised up all energy prices of the whole system in order to reflect the world market price. As a result, motorists have been directly affected by the price of oil rose about 20 percent since the beginning of the year. Therefore, alternative energy is the way to consider as a possibility to replace imported oil.
2. Help to promote agriculture of Thailand by using agricultural crops to produce ethanol for gasohol mixture. Furthermore, it helps the government to reduce the amount of fund contributed to the National Oil Fund. To achieve the most attractive oil prices among motorists, currently the government set the price of gasohol octane 91 cheaper than gasoline octane 91 by 4 baht.
3. Allow the government for budget cuts in intervention prices of agricultural product up to 1,000 million baht per year.

##### ***Social***

Gasohol helps to create jobs, generate income and distribute to agriculturists; thus the agriculturists' quality of lives are enhanced. This will help the government to solve national problem at the grassroots level.

### ***Environment***

Gasohol helps reducing pollution caused by the burning of fuels e.g. minute dust, back smoke, and greenhouse substance. Research results in many countries found that ethanol helps to reduce air pollutions; such as when fill the tank with gasoline blended with ethanol at 7.5 percent, it is found that hydrocarbon is reduced by 3.5-8.5 percent and carbon monoxide is lower by 23.2-26.9 percent. In general, if we can use this clean energy, it will help reduce the greenhouse effect that causes air to be heated and in the end we will help the air quality in the major cities to be in better conditions.

## ***2.2 Related Theories***

### ***2.2.1 Attitudes Theory***

Attitudes are normally defined as a disposition or tendency to respond positively or negatively towards a particular thing (person, idea, objective, statement, opinion, object, and situation). They include, or are closely related to opinion and beliefs and are based upon experiences. Forasmuch attitudes often relate in some way to interaction with others, they represent an important link between cognitive and social psychology. As far as instruction is concerned, a great deal of learning involves acquiring or changing attitudes. Attitude change is especially relevant to management and sales training.

Hovland, Janis, & Kelly (1953) provided one of the first major theories of attitude change, developed in the framework of Hull's learning theory, and oriented towards the effects of persuasive communication. According to the Hovland et al theory, changes in

opinions can result in attitude change depending upon the presence or absence of rewards. The learning of new attitudes is no different in nature than any other verbal or motor skill, except that opinions relate to a single proposition whereas other skills involve a series of propositions. The acceptance of a new opinion (and hence attitude formation) is dependent upon the incentives that are offered in the communication.

Heider (1958). developed a balance theory of attitude change that was influenced by Gestalt principles. In Heider's theory, when beliefs are unbalanced, stress is created and there is pressure to change attitudes. The two main factors affecting balance are the sentiment (e.g. liking, approving, admiring) and unity (e.g. similarity, proximity, membership) qualities of beliefs. Balance exists if the sentiment or unities between beliefs about events or people are equally positive or negative; imbalance occurs when they are dissimilar in nature.

Abelson (1968). and other developed theories of cognitive consistency. Cognitive consistency suggests that people will try and maintain consistency among their belief and make changes (i.e., accept or reject ideas) when this does not occur. For instance, if a college student who wants to live in a student dormitory and also wants to get good grades is presented with the fact that students who live in student dormitories get poor grades, the student will either reject this proposition or change his attitudes about student dormitories or good grades.

Festinger's theory of 'cognitive dissonance' is one of the best known and most researched frameworks pertaining to attitude change. According to this theory, attitude change is caused by conflict among beliefs. A number of factors determine the strength of the dissonance and hence how much effort is required to change attitudes. By manipulating these factors, attitude change can be facilitated or inhibited. Attitudes are one of the five major categories of learning outcomes in Gagne's theoretical framework.

(Kunthalee Vetchasan, 2002: 108-110). Measuring consumer attitudes are crucial to an understanding of the consumers' wants and customers' feelings. It was found that attitude is in the human mind. Human have opinions or beliefs towards both tangible and intangible objects. Having attitudes towards intangibles e.g. concepts, beliefs and having attitudes towards tangible e.g. objects, products.

### ***2.2.2 Structural Models of Attitudes***

Bednall, David; Cowley, Elizabeth; ; Kanuk Leslie; O'Cass, Aron; Schiffman, Leon; Watson, Judith (2001). Structural models of attitudes are motivated by a desire to understand the relationship between attitudes and behaviour; psychologists have sought to construct models that capture the underlying dimensions of an attitude. To this end, the focus has been on specifying the composition of an attitude to better explain or predict behaviour. There are several important attitude models e.g. the tri-component attitude model, the multi-attribute attitude model, the attitude-toward-behaviour model, theory-of-reasoned-action model, and the attitude-toward-the-Ad-Model. Each of these models provides a somewhat different perspective on the number of component parts of an attitude and how those parts are arranged or interrelated

#### ***2.2.2.1 Tri-component attitude model or ABC model***

There are 3 key components include;

##### ***Affect (Emotion)***

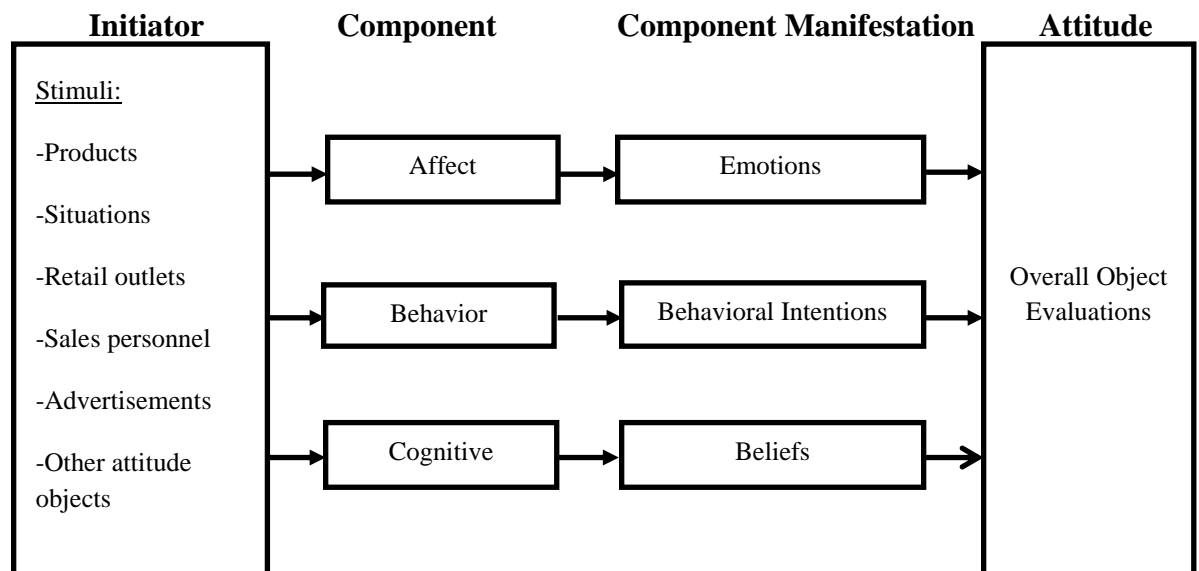
A consumer's emotions or feelings about attitude object (a particular product or brand). The way the consumer feels about attitude object.

##### ***Behaviour (Cognitive)***

The likelihood or tendency that an individual will undertake a specific action or behave in a particular way with regard to the attitude object; thus Consumer intends to do something in relation to an attitude object.

### *Cognition (Beliefs)*

The knowledge and perceptions that are acquired by a combination of direct experience with the attitude object and related information from various sources; hence thoughts that a consumer has about an attitude object.



**Figure 1:** Tri-component attitude model (ABC model)

*Source:* Bednall, David; Cowley, Elizabeth; ; Kanuk Leslie; O’Cass, Aron; Schiffman, Leon; Watson, Judith (2001)

#### *2.2.2.2 The attitude-toward-object model*

Himasu S M (2006). This model is specifically suitable for measuring attitudes towards a product, or service category and or particular brands. According to this model the consumers’ attitudes towards a product or specific

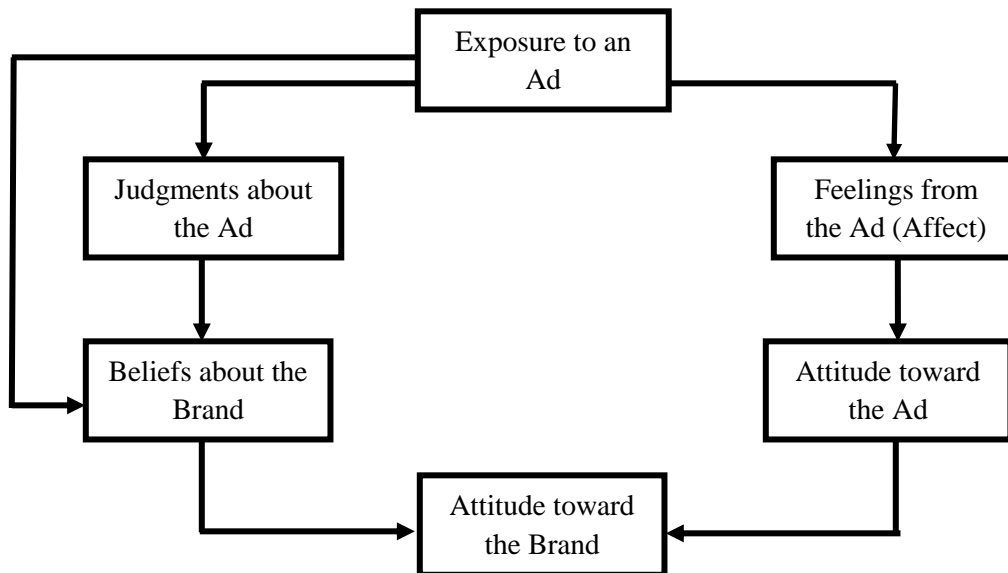
brands of a product is a function of the presence or absence and evaluation of certain product specific beliefs and or attributes. In other words, consumers generally have favourable attitudes towards those brands that they believe have an adequate level of attributes that they evaluate as positive, and they have unfavourable attitudes those brands they feel don't have an adequate level of desired attributes or have too many negatives or undesired attributes.

#### ***2.2.2.3 The Attitude-toward-behaviour model***

Himasu S M (2009). This model is individual's attitude towards 'behaviour acting' with respect to an object rather than the attitude towards the object itself. It seems to correspond somewhat more closely to actual behaviour than the attitude towards object model. For instance; it is important for the marketers to know the individual's attitude about the act of purchasing a Mercedes Benz (attitude toward behaviour) rather than to know about his attitude toward the car (attitude toward object). This seems logical for a consumer who might have a positive attitude towards an expensive Mercedes Benz but a negative attitude towards his prospects for purchasing the vehicle.

#### ***2.2.2.4 Attitude-toward-the Ad model***

Kanuk & Schiffman (2007). This model proposes that a consumer forms various feelings (affects) and judgments (cognitions) as the result of exposure to an advertisement, which in turn, affects the consumer's attitude toward the ad and attitude toward the brand.



**Figure 2:** Attitude-toward-the Ad model

*Source:* Kanuk & Schiffman (2007)

### ***2.2.3 Customer Behaviour Theory***

Blackwell, Engel and Miniard (2006). Buying Behaviour is the decision processes and acts of people involved in buying and using products. In order to understand buying behaviour; it is require to understand various factors first e.g. Why consumers make the purchases that they make, What factors influence consumer purchases, and the changing factors in our society.

#### ***Factors affecting buying behaviours of consumers***

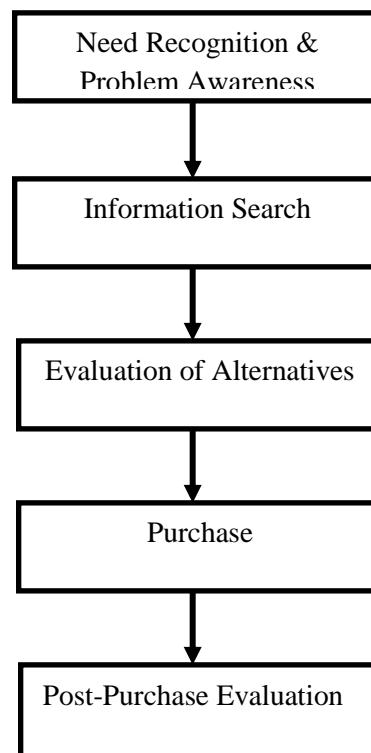
1. *Cultural factors:* The most basic factor in determining demand and behaviours of humans, and also behaviours of the most recognized in the

society, and especially the social class.

2. *Social factors*: Factor in daily life and influence purchasing behaviours, which consists of a reference group, family, character and status of the buyer.
3. *Personal factors*: The decision of the buyers is influenced by personal characteristics such as age, occupation, economic situation, education, lifestyle patterns and family life cycle.
4. *Psychological factors*: Selection of individuals is influenced by psychological factors. Factors which influence the purchase and use products of consumers e.g. psychological factors include motivation, perception, personality, attitudes, beliefs and ideas of their own.

### ***Decision-making process of the buyer***

Henderson, John C., and Paul C. Nutt (1980). Research suggests that customers go through a five-stage decision-making process in any purchase. This is summarized in the diagram below:



**Figure 3:** a five-stage decision-making process diagram

*Source:* Henderson, John C., and Paul C. Nutt (1980)

This model is important for anyone making marketing decisions. It forces the marketer to consider the whole buying process rather than just the purchase decision. The model implies that customers pass through all stages in every purchase. However, in more routine purchases, customers often skip or reverse some of the stages. For example, a student buying a favourite hamburger would recognize the need (hunger) and go right to the purchase decision, skipping information search and evaluation. This model is very useful when it comes to understanding any purchase that requires some thought and deliberation.

The buying process starts with need recognition. At this stage, the buyer recognizes a problem or need (e.g. I am hungry, we need a new sofa, I have a headache) or responds to a marketing stimulus (e.g. you pass Starbucks and are attracted by the aroma of coffee and chocolate muffins).

An “aroused” customer then needs to decide how much information (if any) is required. If the need is strong and there is a product or service that meets the need close to hand, then a purchase decision is likely to be made there and then. If not, then the process of information search begins.

***A customer can obtain information from several sources:***

1. Personal sources; family, friends, neighbours etc.
2. Commercial sources: advertising; salespeople; retailers; dealers; packaging; point-of-sale displays
3. Public sources: newspapers, radio, television, consumer organizations; specialist magazines
4. Experiential sources: handling, examining, using the product

The usefulness and influence of these sources of information will vary by product and by consumer. Research suggests that customers’ value and respect personal sources more than commercial sources (the influence of “word of mouth”). The challenge for the marketing team is to identify which information sources are most influential in their

target markets.

In the evaluation stage, the customer must choose between the alternative brands, products and services.

#### ***2.2.4 Customer Expectations Theory***

O’Cass, Aron Bednall, Schiffman, Leon; David; Cowley, Elizabeth; Watson, Judith; Kanuk Leslie (2001). Expectations are beliefs (likelihood or probability) that a product or service (containing certain attributes, features or characteristics) will produce certain outcomes (benefits-values) given certain anticipated levels of performance based on previous affective, cognitive, and behavioural experiences.

Expectations are often seen as related to satisfaction and can be measured as follows;

1. *Importance*: Value of the product or service fulfilling the expectation
2. *Overall affect-satisfaction expectations*: Like or Dislike of the product or service.
3. *Fulfilment of expectations*: The expected level of performance versus. the desired expectations. This is “Predictive Fulfilment” and is a respondent specific index of the performance level necessary to satisfy.
4. *Expected value from use*: Satisfaction is often determined by the frequency of use. If a product or service is not used as often as expected, the result may not be as satisfying as anticipated. For example a motorcycle that sits in the garage, an unused year subscription to the local fitness centre or gym, or a little used season pass to a ski resort would produce more dissatisfaction with the decision to purchase than with the actual product or service.

Oliver (1981). Expectations play an important role in the satisfaction formation. The extend to which a product or service fulfills a customer’s need and desire may play an important role in forming feelings of satisfaction because of the impact of confirmation or disconfirmation that have on satisfaction. Consumers expect to be delivered quality products and services; therefore companies try to offer quality products

and services. The term expectations really matters to companies because they want to know what customers' expectation are. The term "expectations" has different uses, in the satisfaction literature, it is viewed as a prediction made by a consumer about what is likely to happen during an exchange or transaction. According to Oliver (1981)"...expectations are consumer-defined probabilities of the occurrence of positive and negative events if the consumer engages in some behaviour" (pp.25-48). In contrast, in the service quality literature it is defined as desires and wants, what a service provider should offer rather than would offer. Customers form their expectations from their past experience, friends' advice, and marketers' and competitors information and promises (Kotler, 2000). Therefore, perceived service quality is viewed as the difference between consumers' perceptions and expectations for the service provided. Organization in order to keep expectations from rising, they have to perform services properly from the first time (Parasuraman et al. 1988). Thus, customer expectations for the service are likely to rise when the service is not performed as promised. Expectations serve as reference points in customer's assessment of performance (Cronin & Taylor, 1992). Therefore, retailers can increase customer satisfaction by decreasing customer expectations.

### ***2.2.5 Customer Perception Theory***

Reichheld (1996). Perception is an opinion about something viewed and assessed and it varies from customers to customers, as every customer has different beliefs towards certain services and products that play an important role in determining customer satisfaction. Customer satisfaction is determined by the customers' perceptions and expectations of the quality of the products and services. In many cases, customer perception is subjective, but it provides some useful insights for organizations to develop their marketing strategies. Providing high level of quality service has become the selling point to attract customer's attention and is the most important driver that leads to satisfaction. Therefore, customer perception and customer satisfaction are very closely linked together, because if the perceived service is close to customer's expectations it leads to satisfaction. Satisfied customers provide recommendations; maintain loyalty

towards the company and customers in turn are more likely to pay price premiums.

### ***2.2.6 Customer Satisfaction Theory***

Kotler (2000). Customer Satisfaction has been a central concept in marketing literature and is an important goal of all business activities. Today, companies face their toughest completion, because they move from a product and sales philosophy to a marketing philosophy, which gives a company a better chance of outperforming competition. Overall customer satisfaction translates to more profits for companies and market share increase. The importance of customers has been highlighted by many researchers and academicians. The principle concern of marketing is to connect with customers by building a strong relationship in order to meet their expectations.

O’Cass, Aron Bednall, Schiffman, Leon; David; Cowley, Elizabeth; Watson, Judith; Kanuk Leslie (2001). Satisfaction is an overall psychological state that reflects the evaluation of a relationship between the customer or consumer and a company’s environment, product and or service. Satisfaction involves one of the following three psychological elements: Cognitive (thinking/evaluation), Affective (emotional/feeling), and Behavioural.

### ***2.2.7 Customer Satisfaction Model***

Fornell (1992). Companies try to maintain their loyalty with their customers by improving products and service quality. As a result in the last decade, many national indices have been developed in order to measure consumer satisfaction across a wide range of organizations. Thus, at the national level, the customer satisfaction index (CSI) is used to measure companies and organizations how they satisfy customers’ needs. The CSI’s model can be also used for comparing services and products within an industry. Most countries have set their own customer satisfaction indices to measure customer

satisfaction and the business performance of companies and organizations. The first truly national customer satisfaction index was the Swedish Customer Satisfaction Barometer, or SCSB, developed in 1989. The SCSB includes 31 major Swedish industries. The original Swedish Barometer used perceived value and a single measure of customer expectations. In Germany, the Deutsche Kundenbarometer, or DK, was introduced in 1992 and as of 1994 also includes 31 industries.

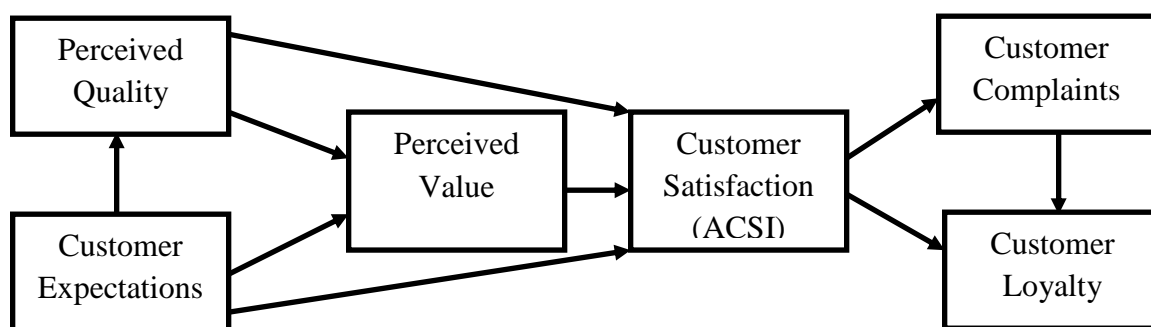
### *American Customer Satisfaction Model*

Hirschman (1970). The American Customer Satisfaction Index (ACSI) is the national indicator of customer evaluations of the quality of goods and services available to U.S. residents since 1994. It is the only uniform, cross-industry and government measure of customer satisfaction. It produces indices of satisfaction, its causes and effects for seven economic sectors, 39 industries, 200 private sector companies, two types of local government services, and the U.S. Postal Service. The Customer Satisfaction Index is a weighted average of three questions. The questions are answered on a 1-10 scale and converted to a 0-100 scale for reporting purposes. The three questions measure: Overall satisfaction, Satisfaction compared to expectations, and Satisfaction compared to an 'ideal' organization.

### *ACSI Methodology*

The ACSI model is a cause-and-effect model with indices for drivers of satisfaction on the left side (customer expectation, perceived quality, and perceived value), satisfaction (ACSI) in the centre, and outcomes of satisfaction on the right side (customer complaints and customer loyalty). The indexes (shown in the diagram below) are multivariable components measured by several questions that are weighted within the model. The questions assess customer evaluations of the determinants of each index. Indexes are reported on a 0 to 100 scale. The survey and modelling methodology quantifies the strength of the effect of the index on the left to the one to which the arrow points on the right. These arrows represent "impacts". The ACSI model explains

customer satisfaction (ACSI) on customer loyalty. Looking at the indexes and impacts, users can determine which drivers of satisfaction, if improved, would have the most effect on customer loyalty.



**Figure 4:** Overall customer satisfaction (ACSI) has three antecedents: perceived quality, perceived value, and customer expectations

*Source:* Hirschman (1970)

### *ACSI Consequences*

Hirschman (1970). **Customer complaints;** are measured as a percentage of respondents indicate they have complained to a company directly about a product or service within a specified time frame. Hirschman in his exit-voice theory argues that the immediate consequences of increased customer satisfaction are decreased customer complaints and increased customer loyalty. If customers are dissatisfied, then they may have the option of exiting e.g. going to a competitor or voicing their complaints in an attempt to receive retribution. On the other hand and increase in overall complaints in an attempt to receive retribution. On the other hand an increase in overall customer satisfaction should decrease the incidence of complaints. Increased overall customer satisfaction should also increase customer loyalty. (Reichheld & Sasser, 1990). Thus, satisfaction has a negative relationship with customer complaints, as the more satisfied

the customers, the less likely they are to complain. **Customer loyalty;** is a combination of the customer's professed likelihood to repurchase from the same supplier in the future, and the likelihood to purchase a company's products or services at various price points (price tolerance). Customer loyalty is the critical component of the mode as it stands as a proxy for profitability. ACSI represents a new means of evaluating and enhancing performance for organizations and companies and economies. Therefore, ACSI helps firms, industries, and nations seeking to maintain and strengthen their positions in the increasingly competitive economic environment of the twenty-first-century.

### ***2.2.8 Customer Loyalty***

Kotler (2000). Customer loyalty is a crucial factor in companies' growth and their performance. Loyalty is linked with the repeat business. Thus, a customer is loyal when he is frequently repurchasing a product or service from a particular provider. Oliver defines loyalty as "A deeply held commitment to re-buy or re-patronize a preferred product or service in the future despite situational influences and marketing efforts having the potential to cause switching behaviour".

Fornell (1992). The perceived value from the product and the service affects customer judgement about his or her satisfaction or loyalty with the product or the service. The significance of customer loyalty is that it is closely related to the company's continued survival and to strong future growth. Customers that are very satisfied with a company are very likely to remain with that company that leads to future revenue for the company. It is now a widely accepted business theory that customer retention optimizes profitability; the cost of acquiring new customers is higher than the cost of retaining existing customers. Therefore, the aim of a service company is to satisfy their customers in order to stimulate them to retain and to repeat their service purchase.

### ***2.2.9 Marketing Mix Theory***

Kerin, Hartley and Rudelius (2001). The sixties a business guru developed a way of addressing what marketing is all about, his marketing mix became known as the 7Ps and has been the framework and starting point for marketers ever since. The 7 Ps are;

- 1. Product;** is an item that satisfies what a consumer needs or wants. It is a tangible good or an intangible service. Intangible products are service based like the tourism industry, the hotel industry and the financial industry. Tangible products are those that have an independent physical existence.
- 2. Place;** refers to providing the product at a place which is convenient for consumers to access.
- 3. Price;** is the amount the consumer pays for the product or service.
- 4. Promotion;** is all of the methods of communication that a marketer may use to provide information to different parties about the product. Promotion comprises elements such as: advertising, public relations, personal selling and sales promotion.

Over time some more Ps have been added so that the model now stands at 7Ps and includes

- 5. People;** all human actors who play a part in service delivery and thus influence the buyers' perceptions; namely, the firm's personnel, the customer, and other customers in the service environment.
- 6. Process;** the actual procedures, mechanisms, and flow of activities by which the service is delivered.
- 7. Physical Environment;** the environment in which the service is delivered, and where the firm and customer interact and any tangible components that facilitate performance or communication of the service.

### ***2.2.10 Service Component of the Product Concept***

Vandermerwe, S. and Rada, J. (1998). Products today have a higher service component than in previous decades. In the management literature this is referred to as the servitization of products. Virtually every product today has a service component to it. The old dichotomy between product and service has been replaced by a service-product continuum. Many products are being transformed into service. For example, IBM treats its business as a service business. Although it still manufactures computers, it sees the physical goods as a small part of the business solutions industry. They have found that the price elasticity of demand for business solutions is much less than hardware. There has been a corresponding shift to a subscription pricing model. Rather than receiving a single payment for a piece of manufactured equipment, many manufacturers are now receiving a steady stream of revenue for ongoing contracts.

In 1988, Vandermerwe and Rada introduced the concept of “servitization” to describe the phenomenon whereby manufacturing firms broaden their position in the value chain by seeking to generate revenues from services as well as products as it is a suitable strategy for mature and stable industries; especially where physical assets have long-operating life spans. In such situations, the installed capital equipment requires service and support over a period of decades.

### ***2.2.11 Product Characteristics***

Kotler, P., Armstrong, G., Brown, L., and Amam, S. (2006). Product is defined as a “thing produced by labor or effort” or result of an act or a process. Product has referred to anything produced. In economics and commerce, products belong to a broader category of goods. However, in marketing a product is anything that can be offered to a market that might satisfy a want or need of consumers.

Product can be classified as tangible or intangible. A tangible product is a physical object that can be perceived by touch such as a building, vehicle, gadget,

clothing, oil and gas. An intangible product is a product that can only be perceived indirectly such as an insurance policy, software etc.

Key characteristics of products are;

- Price
- Weight
- Colour
- Size
- Designation
- Item number

#### ***2.2.12 Brand awareness***

Fan, Y. (2002). A brand is a name, term, design, symbol, or any other feature that identifies one seller's good or service as distinct from those of other sellers. Brand awareness refers to customers' ability to recall and recognize the brand under different conditions and link to the brand name, logo, jingles and so on to certain associations in memory. It encompasses both brand recognition and brand recall. It assists consumers to understand to which product or service category the particular brand belongs and what products and services are sold under the brand name. It also ensures that consumers know which of their needs are satisfied by the brand through its products.

#### ***2.2.14 Service Characteristics***

Alan Pilkington, Kah Hin Chai (2008). Services can be paraphrased in terms of their generic key characteristics

1. *Intangibility*; service is intangible and insubstantial; it cannot be touched, gripped, handled, looked at, smelled, tasted. Thus, it is neither potential nor need for transport, storage or stocking for a service. However it can be sold or owned by somebody, but it cannot be turned over from the service provider to the service consumer.

2. *Perishability*; Service is perishable in 2 regards; First: the service relevant resources, processes and systems are assigned for service delivery during a definite period of time. Second: when the service has been completely rendered to the requesting service consumer, this particular service irreversibly vanishes as it has been consumed by the service consumer.
3. *Inseparability*; the service provider is indispensable for service delivery as he must promptly generate and render the service to the requesting service consumer. In many cases the service delivery is executed automatically but the service provider must preparatory assign resources and systems and actively keep up appropriate service delivery readiness and capabilities. In addition, the service consumer is inseparable from service delivery because he is involved in it from requesting it up to consuming to rendered benefits.
4. *Simultaneity*; services are rendered and consumed during the same period of time. As soon as the service consumer has requested the service (delivery), the particular service must be generated from scratch without any delay and friction and the service consumer instantaneously consumes the rendered benefits for executing his upcoming activity or task.
5. *Variability*; each service is unique; it is one-time generated, rendered and consumed and can never be exactly repeated as the point in time, location, circumstances, conditions, current configurations and or assigned resources are different for the next delivery, even if the same service consumer requests the same service. Many services are regarded as heterogeneous or lacking homogeneity and are typically modified for each service consumer or each new situation (consumerised).

### **2.3 Previous Studies**

Ayut Nissapa and Purawich (2011) found that “consumers’ satisfaction on marketing mix of biodiesel in Southern Thailand, found that “...Energy from petroleum-based sources was considered scarce. Therefore, biodiesel is an alternative energy source

for Thailand to develop its economy in order to meet continuously increasing energy demands. This study was conducted to primarily analyse consumer's socioeconomic characteristics and their satisfaction on marketing mix of biodiesel in Southern Thailand using a case study in Songkhla, Krabi, and Trang provinces. Factors affecting their satisfaction were also determined. Data were collected using structured questionnaires from a total sample of 303 biodiesel consumers, 101 observations per province. The samples were selected by using quota technique. Descriptive statistics and seemingly unrelated regression were applied for data analysis. It was found that the sampled consumers were highly satisfied with the biodiesel products and prices. They were moderately satisfied with selling place and product promotion. The statistically significant variables determining: 1) consumers' satisfaction on the biodiesel product were their assigned importance to biodiesel product availability, their price and places of sale, and consumers' expenditure on biodiesel; 2) consumers' satisfaction on biodiesel price were their assigned importance to prices and place of sale, and consumers' places of sale and product promotion; and 4) consumers' satisfaction on biodiesel promotion were their assigned importance to prices and product promotion, and consumers' expenditure."

Sittichai Anantarangsi (2007) found that "a study of the attitude of car drivers in Bangkok to NGV and its economic impact and found that "...The cost of oil in Thailand was dramatically increased from US \$ 45 to US \$ 75 a barrel in 2006, and it might continue to increase. It has contributed to Thailand's trade deficit by about 9,720 million US dollars, and this could ruin the energy and economic security for the future development of Thailand. The Royal Thai Government has nominated natural gas for vehicles (NGV) as an alternative fuel because it was cheap, non-pollutant, safe, and available in Thailand. About 42 % of total volume of retail oil sales in Thailand occurred in and around Bangkok that contributed to 284 billion baht in 2005. If the car owners in Bangkok and adjacent areas of Bangkok were willing to use NGV, the transportation costs in Bangkok would be reduced 70% or estimated equivalent to 85.2 billion baht.

Although 8.5 baht per liter of NGV is much cheaper than the 28-30 baht for petrol, NGV was still not very popular in Bangkok. The study focused on three major areas of findings, i.e., about 57.2% of car drivers in Bangkok complained that the Royal Thai Government and PTT Public Company Limited (PTT) did not provide enough information about NGV; 65.3% of car drivers would use NGV if there was enough evident to make them feel confident about NGA such as information about safety, no damage to engines, and high efficiency. A number of car drivers (56.1%) in Bangkok thought the installation of equipment to modify the car to be able to use NGV was expensive, and 71.7% of car drivers would use NGV if the costs of installation were lower. In addition, the last major concern was the number of NGV filling stations. Some of care drivers (75.8%) in Bangkok thought there were not enough NGV filling not enough filling stations, while 79.3% of car drivers would use NGV if there were sufficient of NGV filling stations for them. It was recommended that there should be at least 880 NGV filling stations in Bangkok”.

Sumonrat Sintopmahun (2008) found that “studied on car drivers’ individual characteristics affecting the use of Natural Gas for Vehicles (NGV) and marketing factors affecting drivers’ decision makings in using NGV in the area of Thonburi district, Bangkok. Purposive random sampling was used. The data collected was from 250 samples. The statistics used for data analysis were frequency, percentage, standard deviation, t-test, F-test, and Pearson Product Moment Correlation. “...The study results were: (1) The majority of car drivers who used NGV were male more than female, ages between 31–40, with bachelor-level graduation, and working in private firms with average income of 20,001 – 30,000 baht per month. The majority of vehicles used were not over 7 seated personal cars, with bi-fuel engine installation, and being used for one year period. (2) The opinions of car drivers who used NGV on marketing factors that affected car drivers’ decisions makings on using NGV in the area of Thonburi district, Bangkok revealed that marketing factors that affected car drivers’ decisions makings in high level were product (high quality and high standard products) and price (less

expensive than petrol). (3) The comparison analysis of general information affecting car drivers' decision makings on using NGV revealed that gender of car drivers caused different decision makings in terms of driving distances as well frequency on NGV filling at the statistical significance of 0.05. It was also found that car drivers' differences in age, education level, occupation, monthly income, and car types had no statistical difference at the level of significance of 0.05. (4) The results on testing correlation on marketing factor and car drivers' decision makings on using NGV revealed that the factor on product correlated with the factor on driving distance, and the factor on frequency on NGV filling per week at the statistical significance of 0.01. Also the factor on price had correlated with the factor on frequency on NGV filling at the statistical significance of 0.01. Moreover, the factor on distribution channel correlated with the factor on at the statistical significance of 0.01. Finally, the factor on marketing promotion had correlated with the factor on price at the statistical significance of 0.01.”

#### 2.4 Theoretical Framework

In order to conduct this research of “The Study of Consumers’ Satisfaction toward using Gasohol by Bangkok Motorists”, researcher created a theoretical framework for Bangkok motorist consumers’ satisfaction toward using gasohol fuel in Bangkok metropolis. To analyse this study, researcher mainly used satisfaction theories.

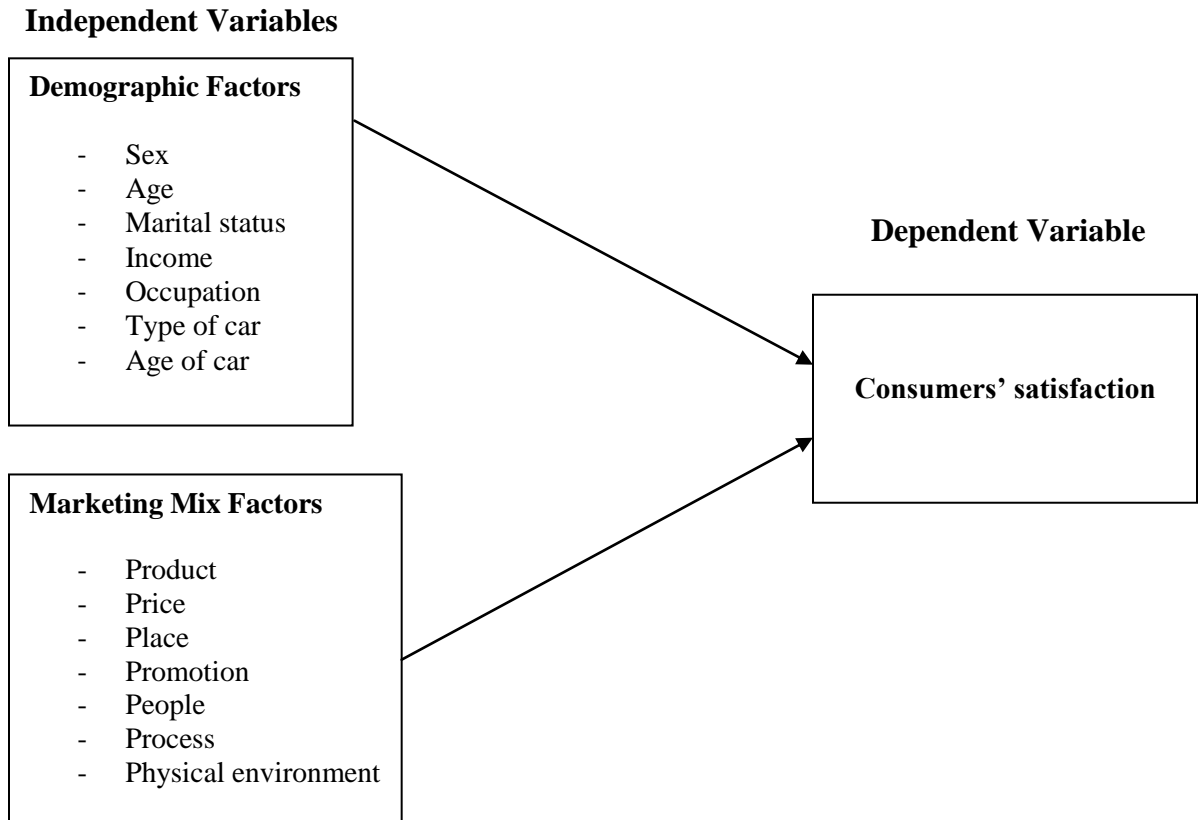


**Figure 5:** The Theoretical Framework Model

*Source:* Self-Illustration

## 2.5 Conceptual Framework

The conceptual framework of this research is modified and concluded based on the previous studies such as Ayut Nissapa and Purawich (2011), Sittichai Anantarangsi (2007), and Sumonrat Sintopmahun (2008) etc. Consumers' satisfactions are the Dependent variables of the research that can be aroused by Independent variables e.g. Demographic factors, and Marketing Mix factors.



**Figure 6:** Conceptual Framework

*Source:* Self-Illustration

## **2.6 Independent Variables**

The “Independent Variable” is the variable that is varied or manipulated by the researcher. Independent variables for this research study are;

- **Demographic Factors**

1. Sex
2. Age
3. Marital status
4. Income
5. Occupation
6. Type of car
7. Age of car

- **Marketing Mix Factors**

1. Product (Brand, Quality)
2. Price (Price per liter)
3. Place (Numbers and location of petrol stations)
4. Promotion (Discount, Giveaway, Credit card money pay back, advertisement)
5. People (Staff who provide services)
6. Process (Working procedure or service sequent)
7. Physical environment (Petrol station and facilities)

## **2.8 Dependent Variables**

The “Dependent Variable” is the response that is measured; it is as follow;

- **Customer Behaviour**

1. Satisfaction

## 2.7 Hypotheses

Research Hypotheses are developed according to the theoretical framework; there are as follows;

H<sub>10</sub>: Differences in Demographic Factors (IV1) not affect Consumer satisfaction toward using gasohol (DV1)

H<sub>11</sub>: Differences in Demographic Factors (IV1) affect Consumer satisfaction toward using gasohol (DV1)

**Hypotheses H1: Demographic causes a difference in the consumers' satisfaction towards gasohol usage.**

H<sub>0</sub> = Differences in demographic does not affect consumer satisfaction towards gasohol usage.

H<sub>1</sub> = Differences in demographic affects to consumer satisfaction towards gasohol usage.

H<sub>20</sub>: Differences in Marketing Mix Factor (IV2) has no relationship with Consumer satisfaction toward using gasohol (DV2)

H<sub>21</sub>: Differences in Marketing Mix Factor (IV2) has relationship with Consumer satisfaction toward using gasohol (DV2)

**Hypotheses H2: Marketing mix factors have relationship with consumer satisfaction towards gasohol usage.**

H<sub>0</sub> = Marketing mix factors have no relationship with consumer satisfaction towards gasohol usage.

H<sub>1</sub> = Marketing mix factors have relationship with consumer satisfaction towards gasohol usage.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Research design**

This quantitative study was conducted by using questionnaires inclusive of 39 closed-ended questions to reflect Bangkok motorist's satisfaction toward using gasohol fuel. Bangkok Motorists that encompass both male and female who owns different type and age of cars with various ages from above 18 years old to the age of up to 61 years old, with various marital statuses, diversified occupations, and with different average incomes from less than 10,000 baht to over 100,005 baht per month. This chapter also explains the reason why researcher has chosen such processes and instruments for this research; as follows.

#### **3.2 Population and Sample selection**

##### **3.2.1 Population**

The population of this study was the Bangkok population as of 3<sup>rd</sup> September 2012 approximately 5,674,843 million people (Department of Provincial Administration, 3<sup>rd</sup> September 2012), that was used for the research population.

##### **3.2.2 Sample size**

Estela g. Adanza (1995). In determining the convenience and adequacy of the sample size, researcher selected of Bangkok population with no specific district at approximately 5,674,843 million people (Department of Provincial Administration, 3<sup>rd</sup> September 2012). Research maximised the utilization of sample size, by using the non-probability sampling of convenience sampling method and applied the Slovin (1960) sample size calculating formula for the Finite Population as below:

$$n = \frac{N}{1 + N(e^2)}$$

When  $n$  is Sample size

$N$  is population size

$E$  is the incorrect level (0.05)

$$n = \frac{5,674,843}{1 + 5,674,843(0.05)^2} = 399.97 \approx 400 \text{ samples}$$

The result of calculation will be 400; therefore the sample number will be of at least 400 samples.

### 3.3 Research Instrument

A questionnaire was designed for surveying via face-to-face, and e-mail surveys with the total sample size of 415 respondents. The questionnaires inclusive of 39 closed-ended questions which were divided into 2 parts as follows;

Part I: Questions of general information; to ask general information of respondents e.g. gender, age, education, occupation, income and marital; this part was “Check List” with 9 questions.

Part II: Questions of marketing mix factors influenced consumers’ satisfaction towards gasohol usage e.g. product, price, place, promotion, people, process and physical environment information; this part of questions was “Rating Scale” with 7 factors and the total of 25 questions. Part II’s evaluation scores will be measured by the variable in the questionnaires based on the Rating Scale followed by the Likert Scaling technique, and five ordered response levels are used (University of Northern Iowa, 2013); the evaluation scheme is shown by the below formula:

The formats of a typical five-point numerical scale are:

The score among	1	mean	Least
The score among	2	mean	Low
The score among	3	mean	Moderate
The score among	4	mean	Most
The score among	5	mean	Very most

### 3.4 Instrument Test

Mark Ebell. (2011) Pre-test probability and post-test probability (alternatively spelled pretest and posttest probability) are the subjective probabilities of the presence of a condition before and after a diagnostic test, respectively. Post-test probability, in turn, can be positive or negative, depending on whether the test falls out as a positive test or a negative test. In some cases, it is used for the probability of developing the condition of interest in the future. The 30 questionnaires' pre-test and the 400 questionnaires' post-test results are validity by Cronbach's Alpha. The overall reliability pre-test comes out as 0.9158 and post-test 0.9481, which is greater than the standardized definition at 0.70. Therefore, the questionnaire for this research is valid. Result the source questions reliability test are Pre-Test and Post-Test as follows;

Question Items	CITC (Pre-Test)	CITC (Post-Test)
<b><u>Product</u></b>		
Brand Gasohol	0.9151	0.9463
Gasohol fuel's quality	0.9187	0.9483
Gasohol fuel is good for car's engine	0.9188	0.9517
Gasohol fuel is good for car's injecting fuel pump	0.9211	0.9501

Continue

Question Items	CITC (Pre-Test)	CITC (Post-Test)
Gasohol has good acceleration, no different from using normal gasoline	0.9297	0.9477
Using gasohol makes the engine runs smoothly, the engine does not stumble	0.9135	0.9491
<b><u>Price</u></b>		
Current Gasohol price per litre	0.9233	0.9491
Using gasohol helps to safe money if compare to using of normal gasoline	0.9237	0.9493
Using of gasohol is cheaper than LPG and NGV as, there is no need for installation of special equipment	0.9181	0.9500
<b><u>Place</u></b>		
Gasohol Petro station is easy to find in Bangkok	0.9140	0.9463
Numbers of Gasohol petrol stations are enough in Bangkok	0.9083	0.9436
<b><u>Promotion</u></b>		
Gasohol's advertising in the media e.g. radio / television / newspaper / internet etc.	0.9108	0.9463
The government's promoting and advertising to support the using of gasohol fuel	0.9110	0.9444
The sale promotions of gasohol fuel that the petro station provides	0.9105	0.9449
<b><u>People</u></b>		
Staff's grooming	0.9102	0.9438
Staff are well trained	0.9110	0.9479
Staff provide fast service	0.9081	0.9433
Staff are friendly and helpful	0.9089	0.9472

Continue

Question Items	CITC (Pre-Test)	CITC (Post-Test)
Staff's politeness, courtesy and beaming	0.9147	0.9467
<b><u>Process</u></b>	0.9102	
Staff provide service with right service sequent	0.9083	0.9467
Staff provide equitable Service	0.9076	0.9446
Station have service system	0.9076	0.9442
<b><u>Physical Environment</u></b>		
Facilities in petrol stations e.g. Mini-mart, Restaurant, Toilet, Coffee shop, ATM etc.	0.9073	0.9441
Petrol station is decorated with a garden shadily and beautifully	0.9083	0.9445
The cleanliness of the toilets provided in the petrol station	0.9085	0.9477
<b>Overall questionnaire</b>	<b>0.9158</b>	<b>0.9481</b>

**3.5 Data Collection Procedure**

For Data Collection, researcher collected 415 questionnaires; however there were some incomplete questionnaire and researcher only could use the 400 completed questionnaires for analysing the data. The surveys were taken by face-to-face at 10 Petro stations such as PTT, Shell, Esso, Caltex, Petronas, BP, Bang Chak on Srinakarin road, Pattanakarn Road, Petchaburi road and Sukhumvit road in Bangkok metropolis comprising over 36 respondents from each Petro station, for the total of 360 samples and the rest of 55 samples survey were conducted by email survey. In addition, samples were similar to each other; so Simple Random Sampling Technique was applied for the samples of Bangkok motorists. In the data analysis, researcher used SPSS software program version 17.0 for analysing the collected data.

### **3.6 Summary of Demographic Data**

The data survey by using questionnaires was carried out in various districts within Bangkok metropolis at the different petrol stations e.g. PTT, Shell, Esso, Caltex, Petronas, BP, Bang Chak on Srinakarin road, Pattanakarn Road, Petchaburi road and Sukhumvit road. The samples consist of male and female with various marital status and different age between 18 and over 61 years old; these samples have diverse educational background from below undergraduate until graduate level of education. Respondents work in multitudinous fields with various incomes from less than 10,000 baht to above 100,005 baht per calendar month.

### **3.7 Data analysis and presentation**

This research used the questionnaires to collect data, the data was analysed by using the following statistical principals. Firstly, the raw data from the questionnaires were coded and transcribed to an SPSS program. At that stage, researcher used statistic of analysis descriptive report in analysing data by using descriptive statistic based which are frequency, percentage, average, standard deviation, and inference statistical analysis of test differences by T-test and F-test at 95% confidence level or 0.05 statistical significant and test differences dependent between groups by LSD method (least significant difference). In addition, testing relationship by Pearson Correlation test at 95% confidence level or 0.05 statistical significant. Data were analysed by using SPSS for Windows. These are explained in chapter five in order to examine the relationship between variables, the findings and their managerial implications are also presented.

### **3.8 Measurement values**

Burns, Alvin; Burns, Ronald (2008) A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective

criteria; generally the level of agreement or disagreement is measured. It is considered symmetric or "balanced" because there are equal amounts of positive and negative positions. Allen, Elaine and Seaman, Christopher (2007) Likert scaling is a bipolar scaling method, measuring either positive or negative response to a statement. Sometimes an even-point scale is used, where the middle option of "Neither agree nor disagree" is not available. This is sometimes called a "forced choice" method, since the neutral option is removed. This research use measurement values by Likert scaling technique as follows;

$$\text{Interval (I)} = \frac{\text{Rang (R)}}{\text{Class (C)}}$$

$$\begin{aligned} R = \text{Highest score} - \text{lowest score} &= 5-1 \\ C = \text{Interval Scale} &= 5 \\ \text{Interval (I)} &= \frac{5-1}{5} = 0.8 \end{aligned}$$

The formats of a typical five-point numerical scale are:

- The score among 1 mean Least/Lowest satisfaction
- The score among 2 mean Low/Low satisfaction
- The score among 3 mean Moderate/Average satisfaction
- The score among 4 mean Most/Satisfaction
- The score among 5 mean Very most/Very satisfaction

Interpretation measurement

- The score among 1.00-1.80 mean Least/Lowest satisfaction
- The score among 1.81-2.61 mean Low/Low satisfaction
- The score among 2.62-3.41 mean Moderate/Average satisfaction
- The score among 3.42-4.21 mean Most/Satisfaction
- The score among 4.22-5.00 mean Most/Satisfaction

## CHAPTER IV

### FINDING

This research conducted to study “Consumers’ Satisfaction toward Gasohol Usage of Bangkok Motorists”. The total of 400 consumers’ questionnaire answers were coded and analyzed by using SPSS to analyze the hypotheses. The research analysis is presented in the form of 4 parts as follows:

**Part 1:** Analysis of demographic variable frequencies includes gender, age, marital status, education, income and occupation by using frequency and percentage analysis methods.

**Part 2:** Analysis of consumers’ behavioral factors encompasses the car using and gasohol using to explain frequencies and percentage analysis methods. The information analyzed includes car type, car age, gasohol type and gas stations.

**Part 3:** Analysis of factors influenced consumers’ satisfaction towards gasohol usage by using the mean and standard deviation analysis method.

**Part 4:** Hypotheses testing of the demographic aspects that relate to consumers’ satisfaction towards gasohol usage.

**Part 1: Analysis of demographic variable inclusive of gender, age, marital status, education, income and occupation by using frequency and percentage analysis methods.**

**Table 4.1 :** Frequency and percentage of respondents classified by gender

Gender	Frequency	Percent
Male	228	57.0
Female	172	43.0
Total	400	100.0

The results of table 4.1 shows that the majority of the respondents are male with the numbers of 228 people or 57.0% and 43.0% or 172 people are female.

**Table 4.2:** Frequency and percentage of respondents classified by age

Age	Frequency	Percent
18-28 years old	22	5.4
29-39 years old	167	41.8
40-50 years old	96	24.0
51-61 years old	64	16.0
Above 61 years old	51	12.8
Total	400	100.0

The results of table 4.2 illustrate that the respondents are mostly in the age group 29 - 39 years old (41.8% or 167 people). The second largest age group is 45 - 50 years old (24.0% or 96 people); and the third largest age group is 51 - 61 years old (16.0% or 64 people). The minority age groups are above 61 years old (12.8% or 51 people), and respondents 18-28 years old (5.4% or 22 people).

**Table 4.3:** Frequency and percentage of respondents classified by marital status

Marital Status	Frequency	Percent
Single	122	30.5
Married	180	45.0
Divorced	45	11.2
Widow/Widower	53	13.3
Total	400	100.0

The results of table 4.3 demonstrate that the respondents are mostly married (45.0% or 180 people); whereas 30.5% or 122 people are single. A small minority is widow or widower (13.3% or 53 people) and the smallest marital status is divorced (13.2% or 45 people).

**Table 4.4 :** Frequency and percentage of respondents classified by education

Education	Frequency	Percent
Below undergraduate	84	21.0
Undergraduate	83	20.7

Graduate	180	45.0
Above graduate	53	13.3
Total	400	100.0

The results of table 4.4 indicate that the largest group of respondents is whom hold graduate educational background (45.0% or 180 people). The second largest group is the group of people with below undergraduate educational background (21.0% or 84 people); and the third largest group is undergraduate (20.7% or 83 people). A smallest group of respondents' educational background is above graduate (13.3% or 53 people).

**Table 4.5:** Frequency and percentage of respondents classified by income

Income (Thai Baht per month)	Frequency	Percent
Less than 10,000 baht	41	10.3
10,000-25,000 baht	130	32.4
25,001-40,001 baht	132	33.0
40,002-55,002 baht	36	9.0
55,003-70,003 baht	19	4.8
70,004-85,004 baht	12	3.0
85,005-100,005 baht	21	5.3
Total	400	100.0

The results of table 4.5 show that the monthly income of the largest group of respondents is in the range of 25,001-40,001 baht (33.0% or 132 people). The respondents in the second largest income bracket have income of 10,000-25,000 baht per month (32.4% or 130 people). The third largest income group has income from less than 10,000 baht per month (10.3% or 41 people). The fourth largest group is the respondents who earn income 40,002-50,002 baht per month (9% or 36 people) and the fifth largest group is 50,003-70,003 baht per month (4.8% or 19 people). The smallest income groups are those who make 70,004-85,004 baht per calendar month (3.0% or 12 people). Another way to look at this is that 303 respondents or 75.7% earn over 10,000 baht - 40,001 baht per month.

**Table 4.6:** Frequency and percentage of respondents classified by occupation

Occupation	Frequency	Percent
Government/State enterprise employee	99	24.7
Corporate employee	131	32.7
Trader/Private business	69	17.3
House wife/house husband	57	14.3
Student	34	8.5
Retired	10	2.5
Total	400	100.0

The results of table 4.6 display the largest group of respondents are corporate employee (32.7% or 131 people). The second largest group are government or state enterprise employee (24.7% or 99 people); and the third largest group are trader or private business (17.3% or 69 people). 14.3% of the respondents or 57 people are house wife or house husband. The minorities of the respondents are student 8.5% or 34 people and retired group of 2.5% or 10 people.

**Part 2: Analysis of consumers' behavioral factors encompasses the car using and gasohol using to explain frequencies and percentage analysis methods. The information analyzed includes car type, car age, gasohol type and gas stations.**

**Table 4.7:** Frequency and percentage of respondents classified by car type

Car type	Frequency	Percent
Private car	274	68.5
Hired pickup truck/truck	76	19.0
Taxicab	36	9.0
Van	14	3.5
Total	400	100.0

The results of table 4.7 manifest the majority of cars' types usage among the respondents is private car (68.5% or 274 people). The second largest group is hired pickup truck/truck (19.0% or 76 people). The minority of respondents are Taxicab 9.0% or 36 people and van 3.5% or 14 people.

**Table 4.8:** Frequency and percentage of respondents classified by car age

Car age	Frequency	Percent
Older than 1990	18	4.5
1990-1995	34	8.5
1996-2001	68	17.0
2002-2007	65	16.3
2008-2013	215	53.7
Total	400	100.0

The results of table 4.8 demonstrate that the car age in the largest group of respondents is year 2008-2013 (53.7% or 215 people). The second largest group is year 1996-2001 (17.0% or 68 people); and the third largest group are year 2002-2007 (16.3% or 65 people). The smallest groups of respondents are year 1990-1995 8.5% or 34 people and year older than 1990 4.5% or 18 people.

**Table 4.9:** Frequency and percentage of respondents classified by gasohol type

Gasohol type	Frequency	Percent
Gasohol 91	94	23.5
Gasohol 95	246	61.5
E20	60	15.0
Total	400	100.0

The results of table 4.9 show that the largest group of respondents uses Gasohol 95 (61.5% or 246 people). The second largest groups use Gasohol 91 (23.5% or 94 people); and the third use E20 (15.0% or 60 people).

**Table 4.10:** Frequency and percentage of respondents classified by gas station

Gas station	Frequency	Percent
PTT	146	36.5
Shell	94	23.5
Esso	81	20.3
Caltex	66	16.4
Bangchak	13	3.3
Total	400	100.0

The results of table 4.10 illustrate that the largest group of respondents use PTT gas stations (36.5% or 146 people). The second largest group often visits Shell gas stations (23.5% or 94 people) and the third largest group use Esso gas stations (20.3% or 81 people). The fourth largest group use Caltex gas stations (16.4% or 66 people) and the smallest group of respondents use Bangchak gas station (3.3% or 13 people).

**Part 3: Analysis of factors influenced consumers' satisfaction towards gasohol usage by using the mean and standard deviation analysis method.**

**Table 4.11:** Represents the mean and standard deviation of overall factors that influenced consumers' satisfactions toward gasohol usage

Factors	$\bar{x}$	SD.	Interpretation	Rank
Product	4.06	0.43	Most	1
Price	3.96	0.67	Most	2
Place	3.82	0.68	Most	7
Promotion	3.92	0.59	Most	3
People	3.91	0.52	Most	4
Process	3.87	0.53	Most	6
Physical Environment	3.88	0.55	Most	5
<b>Overall</b>	<b>3.92</b>	<b>0.45</b>	<b>Most</b>	

In Table 4.11, all standard deviations are less than 1.0; therefore, the data is not widely dispersed from the mean. Overall result found that factors influenced consumers' satisfaction toward gasohol usage has the overall mean level at 3.92 and Standard Deviation of 0.45. For the specific factors influenced consumers' satisfaction toward gasohol usage, the results show that the highest degree of the factor of which influenced consumers' satisfaction toward gasohol usage the most are product marketing mix (mean of 4.06). In addition, the second most factors influenced consumers' satisfaction toward gasohol usage is the price marketing mix (mean of 3.96). The third most factors that influenced consumers' satisfaction toward gasohol usage is the promotion (mean of 3.92). The fourth is people marketing mix (mean of 3.91) and the fifth factor is physical (mean of 3.88). The sixth most factors that

influenced consumers' satisfaction toward gasohol usage is process marketing mix (mean of 3.87). Lastly, the least factors that influenced consumers' satisfaction toward gasohol usage is the place marketing mix (mean of 3.82). The following results in table 4.12 – 4.18

**Table 4.12:** represents the mean and standard deviation of product factors influenced consumers' satisfactions toward gasohol usage.

Product	$\bar{x}$	SD.	Interpretation
Brand Gasohol	3.94	0.66	Most
Gasohol fuel's quality	4.30	0.69	Very most
Gasohol fuel is good for car's engine	3.92	0.61	Most
Gasohol fuel is good for car's injecting fuel pump	4.49	0.79	Very most
Gasohol has good acceleration, no different from using normal gasoline	3.60	0.90	Most
Using gasohol makes the engine runs smoothly, the engine does not stumble	4.10	0.84	Most
<b>Overall</b>	<b>4.06</b>	<b>0.43</b>	<b>Most</b>

In Table 4.12, all standard deviations are less than 1.0; therefore, the data is not widely dispersed from the mean. Overall results of the product marketing mix indicate that product factors which influenced consumers' satisfaction towards gasohol usage at the total Mean of 4.06 and Standard Deviation of 0.43. The 2 items results show the highest degree level of which influenced consumers' satisfaction towards gasohol usage are gasohol fuel is good for car's injecting fuel pump (mean of 4.49) and gasohol fuel's quality (mean of 4.30). The third most level factor that influenced consumers' satisfaction towards gasohol usage is using gasohol makes the engine runs smoothly, the engine does not stumble (mean of 4.10). The Brand of Gasohol factor influenced consumers' satisfaction towards gasohol usage with the mean of 3.94; whereas Gasohol fuel is good for car's engine influenced consumers' satisfaction towards gasohol usage with the mean of 3.92. The least factor in which influenced consumers' satisfaction towards gasohol usage is gasohol has good acceleration, no different from using normal gasoline (mean of 3.60).

**Table 4.13:** shows the mean and standard deviation of price factors of which influenced consumers' satisfactions toward gasohol usage.

Price	$\bar{x}$	SD.	Interpretation
Current Gasohol price per litre	3.99	0.62	Most
Using gasohol helps to safe money if compare to using of normal gasoline	3.98	0.79	Most
Using of gasohol is cheaper than LPG and NGV as, there is no need for installation of special equipment	3.92	0.87	Most
<b>Overall</b>	<b>3.96</b>	<b>0.67</b>	<b>Most</b>

In Table 4.13, the overall result of standard deviations is less than 1.0; thus, the data is not widely dispersed from the mean. Overall result illustrates that price factors influenced consumers' satisfactions toward gasohol usage at the most level of mean 3.96 and standard deviation 0.67. According to the results, the highest degree level that influenced consumers' satisfaction towards gasohol usage is current Gasohol price per litre with the Mean of 3.99. The second highest factor of which influenced consumers' satisfaction towards gasohol usage is using gasohol helps to safe money if compare to using of normal gasoline with the mean of 3.98. Moreover, the third highest factor in which influenced consumers' satisfaction towards gasohol usage is using of gasohol is cheaper than LPG and NGV as, there is no need for installation of special equipment (mean of 3.92).

**Table 4.14:** indicates the mean and standard deviation of place factors which influenced consumers' satisfaction towards gasohol usage.

Place	$\bar{x}$	SD.	Interpretation
Gasohol Petro station is easy to find in Bangkok	3.91	0.77	Most
Numbers of Gasohol petrol stations are enough in Bangkok	3.73	0.70	Most
<b>Overall</b>	<b>3.82</b>	<b>0.68</b>	<b>Most</b>

In Table 4.14, the overall standard deviation is less than 1.0; hence, the data is not widely dispersed from the mean. Overall result found that place factors influenced consumers' satisfaction towards gasohol usage at the most level of mean 3.82 and standard deviation 0.68. The factor that influenced consumers' satisfaction

towards gasohol usage the most is Gasohol Petro station is easy to find in Bangkok (mean of 3.91), and the second most factor that influenced consumers' satisfaction towards gasohol usage is Gasohol Petrol stations are enough in Bangkok (mean of 3.73).

**Table 4.15:** demonstrates the mean and standard deviation of promotion factors influenced consumers' satisfaction towards gasohol usage.

Promotion	$\bar{x}$	SD.	Interpretation
Gasohol's advertising in the media e.g. radio / television / newspaper / internet etc.	3.96	0.56	Most
The government's promoting and advertising to support the using of gasohol fuel	3.85	0.72	Most
The sale promotions of gasohol fuel that the petro station provides e.g. Discount, Giveaway, Credit card money pay back etc.	3.97	0.79	Most
<b>Overall</b>	<b>3.92</b>	<b>0.57</b>	<b>Most</b>

In Table 4.15, the overall standard deviation is less than 1.0; thereby, the data is not widely dispersed from the mean. Overall result found that promotion factors with the most influenced consumers' satisfaction towards gasohol usage at the level of mean at 3.92 and standard deviation at 0.57. Result item with the most level of factor that influenced consumers' satisfaction towards gasohol usage is the sale promotions of gasohol fuel that the petro station provides e.g. Discount, Giveaway, Credit card money pay back etc. (mean of 3.97). The second most factors that influenced consumers' satisfaction towards gasohol usage is gasohol's advertising in the media e.g. radio / television / newspaper / internet etc. (mean of 3.96). Finally, the third most factors that influenced consumers' satisfaction toward gasohol usage are government's promoting and advertising to support the using of gasohol fuel with the mean of 3.85.

**Table 4.16:** represents the mean and standard deviation of people factors in which influenced consumers' satisfaction towards gasohol usage.

People	$\bar{x}$	SD.	Interpretation
Staff's grooming	3.72	0.79	Most

Staff are well trained	4.03	0.57	Most
Staff provide fast service	3.92	0.86	Most
Staff are friendly and helpful	4.03	0.59	Most
Staff's politeness, courtesy and beaming	3.86	0.70	Most
<b>Overall</b>	<b>3.91</b>	<b>0.50</b>	<b>Most</b>

In Table 4.16, the overall standard deviation is less than 1.0; therefore, the data is not widely dispersed from the mean. Overall result found people factors have influenced consumers' satisfaction towards gasohol usage in total level of mean 3.91 and standard deviation of 0.50. Results show that the highest degree level of which influenced consumers' satisfaction towards gasohol usage the most is staff are well trained and staff are friendly and helpful (mean of 4.03), and the second factor level is staff provide fast service (mean of 3.92). The third most factor influenced consumers' satisfaction towards gasohol usage, is staff's politeness, courtesy and beaming (mean of 3.86), and the least is staff's grooming (mean of 3.72).

**Table 4.17:** indicates the mean and standard deviation of process factors that influenced consumers' satisfaction towards gasohol usage.

Process	$\bar{X}$	SD.	Interpretation
Staffs provide service with right service sequent	3.85	0.51	Most
Staffs provide equitable Service	3.87	0.54	Most
Station have service system	3.90	0.56	Most
<b>Overall</b>	<b>3.87</b>	<b>0.50</b>	<b>Most</b>

In Table 4.17, the overall standard deviation is less than 1.0; so, the data is not widely dispersed from the mean. Overall factors influenced consumers' satisfaction towards gasohol usage with the most level at mean 3.87 and standard deviation at 0.50. The factor with the highest degree level that influenced consumers' satisfaction towards gasohol usage is the gas station that have service system (mean of 3.90); and the second is staffs provide equitable Service with the mean of 3.87. Lastly, the least level influenced consumers' satisfaction towards gasohol usage is staffs provide service with right service sequent (mean of 3.85).

**Table 4.18:** represents the mean and standard deviation of physical environment factors that influenced consumers' satisfaction towards gasohol usage.

Physical Environment	$\bar{x}$	SD.	Interpretation
Facilities in petrol stations e.g. Mini-mart, Restaurant, Toilet, Coffee shop, ATM etc.	3.92	0.60	Most
Petrol station is decorated with a garden shadily and beautifully	3.86	0.51	Most
The cleanliness of the toilets provided in the petrol station	3.87	0.83	Most
<b>Overall</b>	<b>3.88</b>	<b>0.55</b>	<b>Most</b>

In Table 4.18, the overall standard deviation is less than 1.0; hence, the data is not widely dispersed from the mean. Overall results of physical environment factors in which influenced consumers' satisfaction towards gasohol usage have the total mean of 3.88 and standard deviation of 0.55. The facilities in petrol stations e.g. Mini-mart, Restaurant, Toilet, Coffee shop, ATM etc. factors influenced consumers' satisfaction towards gasohol usage the most with the mean of 3.92. The second most factor that influenced consumers' satisfaction towards gasohol usage is the cleanliness of the toilets provided in the petrol station (mean of 3.87). In addition, the third most factor influenced consumers' satisfaction towards gasohol usage is petrol station is decorated with a garden shadily and beautifully (mean of 3.86).

**Part 4: Hypotheses testing of the demographic aspects that relate to consumer satisfaction towards gasohol usage.**

This test was designed for the hypotheses testing of the demographic data related to consumer satisfaction towards gasohol usage. The results are divided by the demographic factors of gender, age, education, occupation, income and marital status. Researcher has chosen to express the data in term of Independent Variables by using T-test One-Way ANOVA and Least Significant analysis methods as follows:

**Hypotheses H1: Demographic causes a difference in the consumers' satisfaction towards gasohol usage.**

$H_0$  = Differences in demographic not affect consumer satisfaction towards gasohol usage.

$H_1$  = Differences in demographic affect to consumer satisfaction towards gasohol usage.

**Hypotheses 1.1: Test differences between gender and consumers' satisfaction towards gasohol usage.**

**Table 4.19:** Hypothesis test between gender and consumer satisfaction towards gasohol usage.

	Gender	N	$\bar{X}$	SD.	t.	Sig.
Consumer satisfaction towards gasohol usage.	Male	228	4.02	0.43	6.539	0.000*
	Female	172	3.69	0.53		
	Total	400	3.88	0.50		

\*Significant at or below the 0.05 level

The results of table 4.19 show the test differences between gender and consumer satisfaction towards gasohol usage by T-test. The results found Sig. = 0.000 < 0.05.

Hypothesis decision: Accept  $H_1$  : the difference of gender affects consumer satisfaction towards gasohol usage, because the male gender has a more favorable satisfaction towards gasohol usage than the female gender. This was significant at or below the 0.05 level.

**Hypotheses 1.2: Test differences between age and consumer satisfaction towards gasohol usage.**

**Table 4.20:** Hypothesis test of difference between age and consumer satisfaction towards gasohol usage.

Consumer satisfaction towards gasohol usage.	Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	4.507	4	1.127	4.643	0.001*

Within Groups	95.868	395	0.243
Total	100.375	399	

\* Significant at or below the 0.05 level

The results of table 4.20 show the test differences between age and consumer satisfaction towards gasohol usage by F-test. The results found Sig. 0.001 < 0.05.

Hypothesis decision: Accept  $H_1$  : the difference of age affects consumer satisfaction towards gasohol usage, This was significant at or below the 0.05 level. The test for least significant difference between age and satisfaction towards gasohol usage is presented in table 4.21.

**Table 4.21:** To test for Least significant differences between age and satisfaction towards gasohol usage.

Satisfaction towards gasohol usage	$\bar{x}$	18-28 years old	29-39 years old	40-50 years old	51-61 years old	Above 61 years old
		4.09	3.84	4.02	3.81	3.73
18-28 years old	4.09		-0.25*	-0.07	-0.28*	-0.37*
29-39 years old	3.84			0.17*	-0.03	-0.12
40-50 years old	4.02				-0.20*	-0.29*
51-61 years old	3.81					-0.09
Above 61 years old	3.73					

\* Significant at or below the 0.05 level

As presented in table 4.21, the test for least significant differences between age and satisfaction towards gasohol usage was significant at or below the 0.05 level. The result was that there are 3 pair differences as follows;

1) Consumers with age 18 - 28 years old have more favorable satisfaction towards gasohol usage than consumers with age 29 - 39 years old, consumers with age 51 - 61 years old and age above 61 years old.

2) Consumers with 29 - 39 years of age have less favorable satisfaction towards gasohol usage than consumers with 40 - 50 years of age.

3) Consumers with age 40 - 50 years old have more favorable satisfaction towards gasohol usage than consumers with age 51 - 61 years old and above 61 years old.

**Hypotheses 1.3: Test differences between educational background and consumer satisfaction towards gasohol usage.**

**Table 4.22:** Hypothesis test of difference between educational background and consumer satisfaction towards gasohol usage.

	Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
Consumer satisfaction towards gasohol usage.	Between Groups	4.045	3	1.348	5.543	0.001*
	Within Groups	96.330	396	0.243		
	Total	100.375	399			

\*Significant at or below the 0.05 level

The results of table 4.22 indicate the test differences between educational background and consumer satisfaction towards gasohol usage by F-test. The results found Sig.  $0.001 < 0.05$ .

Hypothesis decision: Accept  $H_1$  : the difference of educational background affects consumer satisfaction towards gasohol usage, This was significant at or below the 0.05 level. The test for least significant difference between educational background and satisfaction towards gasohol usage is presented in table 4.23.

**Table 4.23:** To test for Least significant differences between educational background and satisfaction towards gasohol usage.

Satisfaction towards gasohol usage	$\bar{X}$	Below undergraduate	Undergraduate	Graduate	Above graduate
		3.70	4.00	3.91	3.86
Below undergraduate	3.70		0.30*	0.21*	0.16*
Undergraduate	4.00			-0.09	-0.14
Graduate	3.91				-0.04
Above graduate	3.86				

\* Significant at or below the 0.05 level

As presented in table 4.23, the test for least significant differences between educational background and satisfaction towards gasohol usage was significant at or below the 0.05 level. The result was that 1 pair differences as follows;

1) Consumers with educational background level below undergraduate have less favorable satisfaction towards gasohol usage than consumers with educational levels of undergraduate, graduate and above graduate.

**Hypotheses 1.4: Test differences between occupation and consumer satisfaction towards gasohol usage.**

**Table 4.24:** shows hypothesis test of the difference between occupation and consumers' satisfaction towards gasohol usage.

	Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
Consumer satisfaction towards gasohol usage.	Between Groups	2.325	5	0.465	1.869	0.099
	Within Groups	98.050	394	0.249		
	Total	100.375	399			

The results of table 4.24 demonstrate the test of the differences between occupation and consumers' satisfaction toward gasohol usage by F-test. The results found Sig. 0.098 > 0.05.

Hypothesis decision: Accept  $H_0$ : the difference of occupation does not affect consumers' satisfaction toward gasohol usage, because the results were significant at or more than the 0.05 level.

**Hypotheses 1.5: Test differences between income and consumer satisfaction towards gasohol usage.**

**Table 4.25:** presents the hypothesis test of the difference between income and consumers' satisfaction toward gasohol usage.

	Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
Consumer satisfaction towards gasohol usage.	Between					
	Groups	2.513	7	0.359	1.438	0.188
	Within Groups	97.862	392	0.250		
	Total	100.375	399			

The results of table 4.25 illustrate the test differences between income and consumer satisfaction towards gasohol usage by F-test. The results found Sig. 0.188 > 0.05.

Hypothesis decision: Accept  $H_0$ ; the difference of income does not affect consumers' satisfaction towards gasohol usage, because the result was significant at or more than the 0.05 level.

**Hypotheses 1.6: Test differences between marital status and consumer satisfaction towards gasohol usage.**

**Table 4.26:** indicates the hypothesis test of the difference between marital status and consumers' satisfaction towards gasohol usage.

	Sources of variance	Sum of Squares	df	Mean Square	F	Sig.
Consumer satisfaction towards gasohol usage.	Between					
	Groups	0.184	3	0.061	0.242	0.867
	Within Groups	100.191	396	0.253		
	Total	100.375	399			

The results of table 4.26 shows test differences between marital status and consumer satisfaction towards gasohol usage by F-test. The result found Sig. 0.188 > 0.05.

Hypothesis decision: Accept  $H_0$ : the difference of marital status does not affect consumers' satisfaction towards gasohol usage, because the result was significant at or more than the 0.05 level.

**Hypotheses 2: To test the relationship between marketing mix factors and consumers' satisfaction towards gasohol usage.**

**Hypotheses H2: Marketing mix factors have relationship with consumer satisfaction towards gasohol usage.**

$H_0$  = Marketing mix factors have no relationship with consumer satisfaction towards gasohol usage.

$H_1$  = Marketing mix factors have relationship with consumer satisfaction towards gasohol usage.

**Hypotheses 2.1: Product marketing mix has relationship with consumers' satisfaction towards gasohol usage.**

**Table 4.27:** To test the hypothesis of the relationship of the product marketing mix and consumers' satisfaction towards gasohol usage.

Product	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.774	0.000*	400

\*Significant at or below the 0.05 level

Table 4.27: shows the results of testing the relationship between product marketing mix and consumer satisfaction towards gasohol usage by using a Pearson Correlation. The results found Sig. 0.000 < 0.05,  $r = 0.774$

Hypothesis decision: Accept  $H_1$ : product marketing mix has a positive relationship with consumers' satisfaction towards gasohol usage; the result was significant at or below the 0.05 level.

**Hypotheses 2.2: Price marketing mix has relationship with consumers' satisfaction towards gasohol usage.**

**Table 4.28:** To test the hypothesis for the relationship of price marketing mix and consumers' satisfaction towards gasohol usage.

Price	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.324	0.000*	400

\*Significant at or below the 0.05 level

Table 4.28: presents the results of testing the relationship between price marketing mix and consumer satisfaction towards gasohol usage by using a Pearson Correlation. The results found Sig.  $0.000 < 0.05$ ,  $r = 0.324$

Hypothesis decision: Accept  $H_1$ : price marketing mix has a positive relationship with consumers' satisfaction towards gasohol usage; the result was significant at or below the 0.05 level.

**Hypotheses 2.3: Place marketing mix has relationship with consumers' satisfaction towards gasohol usage.**

**Table 4.29:** To test the hypothesis of the relationship between place marketing mix and consumer satisfaction towards gasohol usage.

Place	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N

0.850	0.000*	400
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\*Significant at or below the 0.05 level

Table 4.29 demonstrates the results of testing the relationship between the place marketing mix and consumer satisfaction towards gasohol usage by using a Pearson Correlation. The result found Sig. 0.000 < 0.05,  $r = 0.850$

Hypothesis decision: Accept  $H_1$ : place marketing mix has a positive relationship with consumers' satisfaction toward gasohol usage; the result indicated significant at or below the 0.05 level.

**Hypotheses 2.4: Promotion marketing mix has relationship with consumers' satisfaction towards gasohol usage.**

**Table 4.30:** To test the hypothesis of the relationship between the promotion marketing mix has relationship with consumers' satisfaction towards gasohol usage.

Promotion	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.865	0.000*	400

\*Significant at or below the 0.05 level

Table 4.30 shows the results of testing the relationship between the promotion marketing mix has relationship with consumers' satisfaction towards gasohol usage by using a Pearson Correlation. The result found Sig. 0.000 < 0.05,  $r = 0.865$

Hypothesis decision: Accept  $H_1$ : the promotion marketing mix has a positive relationship with consumers' satisfaction toward gasohol usage; the outcome found significant at or below the 0.05 level.

**Hypotheses 2.5: People marketing mix has relationship with consumers' satisfaction toward gasohol usage.**

**Table 4.31:** To test the hypothesis for the relationship of people marketing mix and consumer satisfaction towards gasohol usage.

People	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.925	0.000*	400

\*Significant at or below the 0.05 level

Table 4.31 presents the results of testing the relationship between people marketing mix and consumer satisfaction towards gasohol usage by using a Pearson Correlation. The output found Sig.  $0.000 < 0.05$ ,  $r = 0.925$ .

Hypothesis decision: Accept  $H_1$ : people marketing mix has a positive relationship with consumers' satisfaction toward gasohol usage; significant at or below the 0.05 level.

**Hypotheses 2.6: Process marketing mix has relationship with consumer satisfaction towards gasohol usage.**

**Table 4.32:** To test the hypothesis for the relationship between the process marketing mix and consumer satisfaction towards gasohol usage.

Process	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.923	0.000*	400

\*Significant at or below the 0.05 level

Table 4.32 shows the results of testing the relationship between the process marketing mix and consumer satisfaction towards gasohol usage by using a Pearson Correlation; Sig.  $0.000 < 0.05$ ,  $r = 0.923$ .

Hypothesis decision: Accept  $H_1$ : the process marketing mix has a positive relationship with consumer satisfaction towards gasohol usage with the significant at or below the 0.05 level.

**Hypotheses 2.7: Physical environment marketing mix has relationship with consumers' satisfaction toward gasohol usage.**

**Table 4.33:** To test the hypothesis for the relationship of the physical environment marketing mix and consumer satisfaction towards gasohol usage.

Physical Environment	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
	0.852	0.000*	400

\*Significant at or below the 0.05 level

Table 4.33 indicates the results of testing the relationship between the physical Environment marketing mix and consumers' satisfaction toward gasohol usage by using a Pearson Correlation. The result found Sig.  $0.000 < 0.05$ ,  $r = 0.852$ .

Hypothesis decision: Accept  $H_1$ : the physical Environment marketing mix has a positive relationship with consumers' satisfaction toward gasohol usage; the significant was at or below the 0.05 level.

**Table 4.34:** illustrates the summary of hypotheses 2 among the relationships of overall marketing mix and consumers' satisfaction toward gasohol usage

Table 4.34: To test summary the hypothesis of the relationships of overall marketing mix factors and consumer satisfaction towards gasohol usage.

Factors towards gasohol usage	Consumer satisfaction towards gasohol usage		
	Pearson Correlation	Sig.	N
Product	0.774	0.000*	400
Price	0.324	0.000*	400
Place	0.850	0.000*	400
Promotion	0.865	0.000*	400
People	0.925	0.000*	400
Process	0.923	0.000*	400
Physical Environment	0.852	0.000*	400
<b>Overall</b>	<b>0.964</b>	<b>0.000</b>	<b>400</b>

\*Significant at or below the 0.05 level

Table 4.34 shows the summary results of the hypothesis of the relationships among the overall marketing mix factors and consumers' satisfaction toward gasohol usage by using a Pearson Correlation. The outcome found all items Sig. < 0.05; Significant at or below the 0.05 level. Furthermore, results show that people marketing mix has relationship with consumers' satisfaction toward gasohol usage the most. The process marketing mix has the second most relationship with consumers' satisfaction toward gasohol usage; the promotion marketing mix has the third most positive relationship follows by the promotion marketing mix and the physical environment marketing mix respectively.

## **CHAPTER V**

### **DISCUSSION AND RECOMMENDATIONS**

This chapter contains the summary results of the study of “Consumers’ Satisfaction toward gasohol usage of Bangkok Motorists” that researcher has gathered, analyzed and organized in previous chapters. This chapter will enable readers to find resulting conclusions and recommendations for further applications and study. The study has two (2) major objectives.

1) To identify demographic factors that affect consumers’ satisfaction toward using gasohol by Bangkok motorists

2) To identify marketing mix factors that affect consumer satisfaction toward using gasohol by Bangkok motorists

#### **5.1 Hypotheses Summary**

***Hypotheses H1: Demographic causes a difference in the consumer satisfaction towards gasohol usage.***

Hypotheses 1.1 The Result is to Accept H1 or the difference in gender affects consumers’ satisfaction toward gasohol usage, because the male gender has more favorable satisfaction towards gasohol usage than the female gender. The significant was at or below the 0.05 level.

Hypotheses 1.2 The outcome is to Accept H1 or the difference in age affects consumer satisfaction towards gasohol usage; significant was at or below the 0.05 level. By having differences in age affect satisfaction towards gasohol usage and these can be divided into 3 pairs are; 1) Consumers with age 18 - 28 years old have more favorable satisfaction towards gasohol usage than consumers in the group of age 29 -

39 years old, consumers that are 51 - 61 years of age and the consumers that are above 61 years old; 2) Consumers with age 29 - 39 years old are satisfied with gasohol usage than consumers with the age group of 40 - 50 years old; 3) Consumers who are 40 - 50 years old have more favorable satisfaction towards gasohol usage than consumers with age 51 - 61 years old and above 61 years old.

Hypotheses 1.3 The result found to Accept  $H_1$  or the difference of educational background affects consumers' satisfaction towards gasohol usage. The significant was at or below the 0.05 level. Consumers with differences educational level have different degree of satisfaction toward gasohol usage such as; consumers with educational level below undergraduate have less favorable satisfaction towards gasohol usage than consumers with educational level of undergraduate, graduate and above graduate.

Hypotheses 1.4 The result's concluded to Accept  $H_0$ : the difference of occupational background does not affect consumers' satisfaction towards gasohol usage, because the result was significant at or more than the 0.05 level.

Hypotheses 1.5 The output's convinced to Accept  $H_0$ : the difference of income level does not affect consumers' satisfaction towards gasohol usage, because the result was significant at or more than the 0.05 level.

Hypotheses 1.6 It is proven by the result to Accept  $H_0$ : the difference of marital status does not affect consumer satisfaction towards gasohol usage, as the significant was at or more than the 0.05 level.

***Hypotheses 2: To test the relationship between marketing mix factors and consumers' satisfaction towards gasohol usage.***

Hypotheses 2.1 The result found to Accept  $H_1$ : the product marketing mix has positive relationship with consumers' satisfaction toward gasohol usage; significant was at or below the 0.05 level.

Hypotheses 2.2 The output is appeared to Accept H<sub>1</sub>: the price marketing mix has positive relationship with consumers' satisfaction toward gasohol usage, the significant was at or below the 0.05 level.

Hypotheses 2.3 The outcome is shown to Accept H<sub>1</sub>: the place factors of the marketing mix has positive relationship with consumers' satisfaction toward gasohol usage with significant at or below the 0.05 level.

Hypotheses 2.4 The result's proven that to Accept H<sub>1</sub>: the promotion marketing mix has positive relationship with consumers' satisfaction toward gasohol usage, as the significant was at or below the 0.05 level.

Hypotheses 2.5 The surveyed result is found to Accept H<sub>1</sub>: the people marketing mix has positive relationship with consumer satisfaction towards gasohol usage, due to the significant was at or below the 0.05 level.

Hypotheses 2.6 The result's convinced to Accept H<sub>1</sub>: the process marketing mix has positive relationship with consumers' satisfaction toward gasohol usage, because the significant was at or below the 0.05 level.

Hypotheses 2.7 According to the result, it is to Accept H<sub>1</sub>: the physical environment marketing mix has positive relationship with consumers' satisfaction toward gasohol usage, as the significant was at or below the 0.05 level.

In summary, in the hypotheses 2; the marketing mix factors consist of product, price, place, promotion, people, process, and physical environment have relationships with consumers' satisfaction toward gasohol usage. It is found that the people marketing mix affects consumers' satisfaction toward gasohol usage the most; then the second is the process marketing mix, the rest are promotion, the physical environment, the place, product and the price marketing mixes respectively.

## **5.2 Conclusions**

The researcher conducted detailing analysis and conclusions are as follows:

### **5.2.1 General Information**

Analysis of demographic variable, researcher found that the majority of respondents are male (57.0%), follows by female (43.0%). Most respondents are in the age group of 29 - 39 years old (41.8%) and the second largest age group is 45 - 50 years old (24%) and 51 - 61 years of age (16%). The smallest age groups are the respondents with age above 61 years old (12.8%) and the group of age 18-28 years old (5.4%). Most respondents are married (45.0%), 30.5% are single, and the rest are divorced (13.2%).

The largest group of respondents hold educational level of graduate (45.0%) and the second largest group hold educational level below undergraduate (21.0%), and the minority of the samples hold educational level above graduate (13.3%). The majority of respondents have monthly income in the range of 25,001-40,001 baht (33.0%) and the second largest group earn income bracket of 10,000-25,000 baht per month (32.4%), and 70,004-85,004 baht (3.0%) respectively. The rest of the surveyed samples with 75.7% earn over 10,000 baht - 40,001 baht per calendar month. The results indicate that the biggest groups of the respondents are corporate employees (32.7%) and the second largest groups are government or state enterprise employees (24.7). Lastly, the smallest numbers of respondents are student (8.5%) and the rest are retired (2.5%).

### **5.2.3 Analysis of consumers' car usage and gasohol usage behavior**

This part analysis of consumers' behavioral factors that encompass the car using and gasohol using; the result found that car type that is used in the largest group of respondents are private car (68.5%) then the second type is hired pickup truck/truck (19.0%). The minorities of the respondents use Taxicab (9.0%) and the rest use van

(3.5%). Most respondents use cars with years range of 2008-2013 (53.7%), and the second largest groups use cars with year's age of 1996-2001 (17.0%). The smallest numbers of respondents use cars with year 1990-1995 (8.5%) and the rest use cars that older than year 1990 (4.5%). The majorities of the samples use gasohol type Gasohol 95 (61.5%) and the second largest group use Gasohol 91 (23.5%); then the rest use E20 (15.0%). The largest group of respondents often visits PTT gas stations (36.5%) and the second largest group frequently purchases gasohol fuel from Shell gas stations (23.5%), the third largest group sometimes buys gasohol from Esso gas stations (20.3%), and the rest of respondents seldom visit Bangchak gas stations to purchase gasohol (3.3%).

#### **5.2.4 Analysis of factors influenced consumers' satisfaction toward gasohol usage.**

According to the overall results, factors influenced consumers' satisfactions toward gasohol usage are sorted by the degree levels of influence. The highest degree level of factors which influenced consumers' satisfaction toward gasohol usage is the product marketing mix. The second most factor that influenced consumers' satisfactions toward gasohol usage is the price marketing mix; the third factor is the promotion marketing mix; the fourth is the people marketing mix; the fifth is the physical environment marketing mix. Moreover, the sixth most factors that influenced consumers' satisfactions toward gasohol usage is the process marketing mix and the seventh is the place marketing mix.

Referring the product marketing mix, most respondents agree that gasohol fuel is good for car's injecting and fuel pump. For the price marketing mix, the majority of respondents are satisfied with the current Gasohol price per litre the most. Whereas the place marketing mix appears that the highest degree of satisfaction is Gasohol station is easy to find in Bangkok. The respondents are the most satisfied with the sale promotions of gasohol fuel that the petrol station provides under the promotion factors marketing mix. Furthermore, most people that are surveyed under the people marketing mix prefer that staffs are well trained and staffs are friendly and

helpful. In addition, the results of the process marketing mix indicate that the most important to the respondents is that the gas stations have proper service system in place. Finally, the factor that the respondents are satisfied with the most under the physical environment marketing mix is the facilities in petrol stations.

### 5.3 Discussion

According to the result of the study, researcher found that consumers use private car the most and the second largest group of people use hired pickup truck/truck. Most of respondents use the cars that made in years 2008-2013 and the majority of the surveyed consumers use gasohol type Gasohol 95; while the second largest group of the samples use Gasohol 91. PTT gas station is the most popular petrol station among the respondents, so that they often purchase gasohol fuel from this station and the second largest group of respondents prefers to use gasohol fuel from Shell gas station.

The research's result is proven that the product marketing mix influenced consumers' satisfaction towards gasohol usage the most, **Vandermerwe, S. and Rada, J. (1998)**, products today have a higher service component than in previous decades. The second most important marketing mix factor which influenced consumers' satisfaction toward gasohol usage is the price, the third is promotion, the fourth is people, and the fifth is physical environment. Finally, the sixth most factor of which influenced consumers' satisfaction toward gasohol usage is the process and the seventh is the place. As per ascertained by **Kerin, Hartley and Rudelius (2001)**, factor that marketing inputs: product itself, pricing policy, promotion, and distribution channels are a direct attempt to reach, inform, and persuade consumers to buy and use product; People; all human actors who play a part in service delivery and thus influence the buyers' perceptions; namely, the firm's personnel, the customer, and other customers in the service environment; Process; the actual procedures, mechanisms, and flow of activities by which the service is delivered; Physical environment in which the service is delivered, and where the firm and customer

interact and any tangible components that facilitate performance or communication of the service.

Furthermore, this research found consumers have different satisfaction level towards gasohol usage, the results show that most respondents are satisfied with the reliability of staff while providing services the most, follows by the assurance of standards quality of service. Many surveyed samples are satisfied with the tangible aspects while being serviced at the third most satisfied level, however some people are satisfied with the empathy while staff's providing services at the fourth satisfaction level and the fifth most satisfied is the responsiveness of customers' needs. According to **Kotler (2000)**, Customer Satisfaction has been a central concept in marketing literature and is an important goal of all business activities. The testing of hypotheses demonstrated that the difference in demographic factors e.g. gender, age, income and educational level affect consumers' satisfaction toward gasohol usage. **Kotler (1991: 164)**, indicates that a buyer's purchase decisions are influenced by buyer's personal factors is the most fundamental determinant of a person's wants and behaviors. The test of relationships between marketing mix factors and consumers' satisfaction toward gasohol usage is resulting that marketing mix factors have relationship with consumers' satisfaction toward gasohol usage; the higher degree in marketing mix factors, the higher level of satisfaction it will be. According to the tests, the people marketing mix has the most relationship with consumers' satisfaction toward gasohol usage. The second most related is the process marketing mix, follows by the third is the promotion and the fourth is the physical environment marketing mix respectively.

Unsurprisingly, researcher found the results of which very close to the researcher's outcomes expectations in the introduction stage of this study include:

1. Different incomes affect the consumers' satisfaction toward gasohol usage; the test result showed the different outcome and proved that the difference of income does not affect consumers' satisfaction (Sig. 0.188).

2. Gasohol quality effects consumers' satisfaction; the test result indicated that gasohol quality was the second most factor that effects consumers' satisfaction with mean of 4.30.
3. Gasohol price influents the decision making of purchasing gasohol types; according to the result, the price influenced the decision making of purchasing gasohol as most people were satisfied with the price of the gasohol at the mean level 3.99.
4. Petrol station's location affects consumers' satisfaction; overall result found that place marketing mix affected consumers' satisfaction towards gasohol usage at the most level of mean 3.82 and standard deviation 0.68.
5. Gasohol's sale promotion correlates with consumers' satisfaction; overall result found that promotion marketing mix correlated with consumers' satisfaction towards gasohol usage at the level of mean at 3.92 and standard deviation at 0.57.
6. Service quality effects consumers' satisfaction; overall results found that service quality affected consumers' satisfaction towards gasohol usage (mean 3.88 and standard deviation 0.50).
7. The environment in which the service is delivered affects consumers' satisfaction; overall results of physical environment factors affected consumers' satisfaction towards gasohol usage have the total mean of 3.88 and standard deviation of 0.55.

#### **5.4 Conclusion**

This research also found that the product marketing mix influenced consumers' satisfaction toward gasohol the most as consumers were satisfied with it the most, and most respondents feel that gasohol fuel makes the engine runs smoothly, the engine does not stumble and has good acceleration, as well as it is no different from using the normal gasoline. Furthermore, the reliability of the product quality plays very important roles in affecting consumers' purchasing decision making. Therefore, to employ effective strategies to promote this alternative fuel, the

authority should consider these product marking mix factors as the major influential aspects.

### **5.5 Recommendation for Future Application**

This research study helps to identify the marketing mix factors which affect consumers' satisfaction toward using gasohol, and it also helps to identify that the different in demographic factors affect the consumers' satisfaction. In addition, this study also discloses the overall consumers' satisfaction towards using gasohol fuel by Bangkok motorists. By the fact that this research diagnoses any symptoms or problems related to gasohol usage in Bangkok which will help the related government body to find the way to promote or support the use of gasohol. In addition, the diagnose of this research can also help private sectors or gasohol providers to identify the way to adjust their market strategies and services strategies in order to find new business opportunities with regard to gasohol consumption as well as finding the way to improve their quality of products and services to stimulate the use of domestic gasohol consumptions and reduce the amount of gasoline importing from overseas on the account of reducing the national trade's deficit.

### **5.6 Recommendation for Future Research**

Researcher would suggest other researchers who wish to conduct a research on gasohol in the future to study on how the gasohol impact or affect the cars' engines such as the lifetime of the engine, acceleration, consumption, safety and economy. Researchers shall compare the results with other type of alternative fuels e.g. natural gas NGV, LPG and Biodiesel. In addition, researchers should conducts research in other areas with comparative research to find out the demand of gasohol in each area and the impact of other aspects that may occur when the demand of gasohol increased. Researcher would like to recommend that other researchers shall use the trends of consumers' satisfaction toward using gasohol in this study to compare with

the consumers' satisfaction of other type of alternative fuels such as biodiesel, NGV, and LPG. Furthermore, researches should be studying on the factors affecting motorists' purchasing decision making and or on the factors affecting the motorists' declining decision making to use different alternatives fuels. In addition, the results of this study reflect the information at the time of this study only; the attitudes and opinions of the consumers might change according to the time changes. Hence, continuous research on the certain topic shall be conducted for the certain period of time to yield the most current results.

Lastly, researcher sincerely hopes that readers will be benefit from this research study. Researcher hopes that the Government body will do more to support and promote the alternative fuel in order to increase the use of alternative energy within Thailand and to reduce the amount of imported crude oil from overseas as it will be the way that Thailand can build stability in the fuel price which is very important for economic of the nation. In addition, researcher also wishes that the gasohol providers will use the findings of this research to improve the quality of the products and services which provided to consumers on the account of making them satisfied and thus consumers will continually be using gasohol fuel happily and willingly.

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## **APPENDIX A**

**“A Study of Consumer Attitude and Satisfaction toward Using Gasohol  
by Bangkok Motorists”**

## APPENDIX A

### QUESTIONNAIRE

#### “The Study of Consumers’ Satisfaction toward Using Gasohol by Bangkok Motorists”

This questionnaire has been developed by Stamford International University’s MBA International Student to be used for Independent Study. All of the information given by respondents will be treated with high confidentiality and the given information will be used for education purpose only. Please complete all questions truthfully by marking “√” in  or filling in the space given below. The following questions are separated into 2 parts:

Part I: Questions of general information.

Part II: Questions of marketing mix factors influenced consumers’ satisfaction towards gasohol usage

**\*Please note that only people who are living in Bangkok metropolis are required to respond to this survey.**

#### **Part I : Questions of general information.**

1. Do you live in Bangkok?

1. Yes

2. No

2. Gender:

1. Male

2. Female

3. Age:

1. 18-28 years old

2. 29-39 years old

3. 40-50 years old

4. 51-61 years old

5. Above 61 years old

4. Educational qualification:
- 1. Below undergraduate
  - 2. Undergraduate
  - 3. Graduate
  - 4. Above graduate
5. Please mention your occupation:
- 1. Government/State enterprise employee
  - 2. Corporate employee
  - 3. Trader/Private business
  - 4. House wife/House husband
  - 5. Student
  - 6. Retired
6. Please mention your consolidated monthly income:
- 1. Less than 10,000 baht
  - 2. 10,000 - 25,000 baht
  - 3. 25,001 - 40,001 baht
  - 4. 40,002 - 55,002 baht
  - 5. 55,003 - 70,003 baht
  - 6. 70,004 - 85,004 baht
  - 7. 85,005 - 100,005 baht
  - 8. Above 100,005 baht
7. Please mention your marital status.
- 1. Single
  - 2. Married
  - 3. Divorced
  - 4. Widow/Widower
8. Please specify the type of your car
- 1. Private car
  - 2. Hired Pickup / truck
  - 3. Taxicab
  - 4. Van
9. Please specify the year which your car was registered.
- 1. Older than 1990
  - 2. 1990 – 1995
  - 3. 1996 – 2001
  - 4. 2002 - 2007
  - 5. 2008 - 2013

**Part II: Questions of marketing mix factors influenced consumers' satisfaction towards gasohol usage**

1. Please indicate the type of gasohol fuel that you normally use.

1. Gasohol 91                       2. Gasohol 95                       3. E20

2. Please indicate Gasohol's brand name that you usually use.

1. PTT                                       2. Shell                                       3. Esso  
 4. Caltex                                       5. Petronas                                       6. BP  
 7. Bang Chak

Please rate your opinion toward marketing mix factors influenced consumers' satisfaction towards gasohol usage. Mark your answer by marking circle "√" in or filling in the space given below:

1 = Least 2 = Low 3 = Moderate 4 = Most 5 = Very most

Opinion toward marketing mix factors influenced consumers' satisfaction towards gasohol usage.	Degree of Important				
	(1) Least	(2) Low	(3) Moderate	(4) Most	(5) Very Most
<b>1) Product</b>					
3. Level of satisfaction with the Petro Station or Brand that I normally buy gasohol fuel e.g. PTT, Shell, Esso etc.					
4. Gasohol fuel's quality					
5. Gasohol fuel is good for car's engine					
6. Gasohol fuel is good for car's injecting fuel pump					
7. Using gasohol has good acceleration, no different from using normal gasoline					

Opinion toward marketing mix factors influenced consumers' satisfaction towards gasohol usage.	Degree of Important				
	(1) Least	(2) Low	(3) Moderate	(4) Most	(5) Very Most
<b>1) Product (Continue)</b>					
8. Using gasohol makes the engine runs smoothly, the engine does not stumble					
<b>2) Price</b>					
9. Current Gasohol price per litre					
10. Using gasohol helps to safe money if compare to using of normal gasoline					
11. Using of gasohol is cheaper than LPG and NGV as, there is no need for installation of special equipment					
<b>3) Place</b>					
12. Gasohol Petro station is easy to find in Bangkok					
13. Numbers of Gasohol petrol stations are enough in Bangkok					
<b>4) Promotion</b>					
14. Gasohol's advertising in the media e.g. radio / television / newspaper / internet etc.					
15. The government's promoting and advertising to support the using of gasohol fuel					
16. The sale promotions of gasohol fuel that the petro station provides e.g. Discount, Giveaway, Credit card money pay back etc.					
<b>5) People</b>					
17. Staff's grooming					
18. Staff are well trained					

Opinion toward marketing mix factors influenced consumers' satisfaction towards gasohol usage.	Degree of Important				
	(1) Least	(2) Low	(3) Moderate	(4) Most	(5) Very Most
<b>5) People (continue)</b>					
19. Staff provide fast service					
20. Staff are friendly and helpful					
21. Staff's politeness, courtesy and beaming					
<b>6) Process</b>					
22. Staff provide service with right service sequent e.g. greeting, asking customers for the required amount of fuel, announcing number of litre filled and price, returning change/credit card and saying thank you					
<b>7) Physical Environment</b>					
23. Facilities in petrol stations e.g. Mini-mart, Restaurant, Toilet, Coffee shop, ATM etc.					
24. Petrol station is decorated with a garden shadily and beautifully					
25. The cleanliness of the toilets provided in the petrol station					

Please fill your name and contact details (Optional).

Name – Surname \_\_\_\_\_ Tel. \_\_\_\_\_

**\*\*Thank you very much for spending your valuable time filling this survey\*\***

## **APPENDIX B**

**“A Study of Consumer Attitude and Satisfaction toward Using of Gasohol  
by Bangkok Motorists” (Thai Version)**

## APPENDIX B

### แบบสอบถาม

เรื่อง การศึกษาความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์ของผู้ขับขีรถยนต์ในกรุงเทพมหานคร

#### คำชี้แจง

เนื่องด้วยผู้ทำวิจัย กำลังศึกษาหลักสูตรบริหารธุรกิจมหาบัณฑิต มหาวิทยาลัยนานาชาติแอสแตมฟอร์ด วิทยาเขตกรุงเทพฯ จึงได้จัดทำแบบสอบถามชุดนี้ขึ้นเพื่อศึกษาวิจัยเรื่องการศึกษาความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์ของผู้ขับขีรถยนต์ในกรุงเทพมหานคร ดังนั้นผู้ทำวิจัยจึงใคร่ขอความอนุเคราะห์จากท่าน ในการตอบแบบสอบถาม เพื่อนำผลไปใช้ในการศึกษาวิจัยครั้งนี้ ข้อมูลของท่านจะเก็บเป็นความลับ และผลการวิเคราะห์ข้อมูลจะนำเสนอในภาพรวม และใช้ประโยชน์ในการศึกษาวิจัยเท่านั้น

แบบสอบถามฉบับนี้ แบ่งออกเป็น 2 ส่วน ดังนี้

ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

ส่วนที่ 2 ปัจจัยทางการตลาดที่มีผลต่อความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์

กรุณาใส่เครื่องหมาย “✓” ลงในช่อง  หรือช่องว่างที่ท่านเลือก

ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

8. ท่านอาศัยอยู่ในเขตกรุงเทพมหานครใช่หรือไม่

1. ใช่

2. ไม่ใช่

9. เพศ

1. ชาย

2. หญิง

10. อายุ

2. 18-28 ปี

2. 29-39 ปี

3. 40-50 ปี

4. 51-61 ปี

5. 61 ปี ขึ้นไป

11. ระดับการศึกษา

4. ต่ำกว่าปริญญาตรี

5. ปริญญาตรี

6. ปริญญาโท

7. ปริญญาเอก

12. อาชีพ

7. ข้าราชการ/รัฐวิสาหกิจ

2. พนักงานบริษัทเอกชน

3. นักธุรกิจ/ทำธุรกิจส่วนตัว

4. แม่บ้าน/พ่อบ้าน

5. นักศึกษา

6. เกษียณ

## 13. รายได้ต่อเดือน

- |  |   |
|--|---|
| <input type="checkbox"/> 2. ต่ำกว่า 10,000 บาท   | <input type="checkbox"/> 2. 10,000 - 25,000 บาท |
| <input type="checkbox"/> 3. 25,001 - 40,001 บาท  | <input type="checkbox"/> 4. 40,002 - 50,002 บาท |
| <input type="checkbox"/> 5. 50,003 - 70,003 บาท  | <input type="checkbox"/> 6. 70,004 - 85,004 บาท |
| <input type="checkbox"/> 7. 85,005 - 100,005 บาท | <input type="checkbox"/> 8. 100,005 บาท ขึ้นไป  |

## 14. สถานในการสมรส

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| <input type="checkbox"/> 2. โสด  | <input type="checkbox"/> 2. แต่งงาน |
| <input type="checkbox"/> 3. หย่า | <input type="checkbox"/> 4. หม้าย   |

## 8. ประเภทรถยนต์

- |   |
|---|
| <input type="checkbox"/> 2. รถยนต์ส่วนบุคคล             |
| <input type="checkbox"/> 2. รถรับจ้าง (กระบะ / บิ๊กอ๊พ) |
| <input type="checkbox"/> 3. รถแท็กซี่                   |
| <input type="checkbox"/> 4. รถตู้                       |

## 9. อายุของรถยนต์ หรือปีที่จดทะเบียน

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 1. เก่ากว่าปี 1990 | <input type="checkbox"/> 2. 1990 – 1995 | <input type="checkbox"/> 3. 1996 – 2001 |
| <input type="checkbox"/> 4. 2002 - 2007     | <input type="checkbox"/> 5. 2008 – 2013 |   |

อายุของรถยนต์ ..... ปี

## ส่วนที่ 2 ปัจจัยทางการตลาดที่มีผลต่อความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์

## 1. โพรดระบุประเภทน้ำมันแก๊สโซฮอล์ที่ท่านใช้

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> 1. แก๊สโซฮอล์ 91 | <input type="checkbox"/> 2. แก๊สโซฮอล์ 95 | <input type="checkbox"/> 3. แก๊สโซฮอล์ E20 |
|---|---|--|

## 2. โพรดระบุชื่อยี่ห้อหรือชื่อปั้มน้ำมันที่ท่านใช้บริการเป็นประจำ

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> 1. ปตท (PTT)          | <input type="checkbox"/> 2. เชลล์ (Shell)       | <input type="checkbox"/> 3. เอสโซ่ (Esso) |
| <input type="checkbox"/> 4. คาลเท็กซ์ (Caltex) | <input type="checkbox"/> 5. ปีโตรนาส (Petronas) | <input type="checkbox"/> 6. บีพี (BP)     |
| <input type="checkbox"/> 7. บางจาก (Bang Chak) |   |   |

กรุณากรอกระดับความพึงพอใจของท่าน โดยการใส่เครื่องหมาย “○” ล้อมรอบตัวเลขในช่องด้านล่าง

1 = ไม่พึงพอใจมาก

2 = ไม่พึงพอใจ

3 = พึงพอใจปานกลาง

4 = พึงพอใจ

5 = พึงพอใจมาก

ความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์	ระดับความพึงพอใจ				
	ไม่พึงพอใจมาก	ไม่พึงพอใจ	พึงพอใจปานกลาง	พึงพอใจ	พึงพอใจมาก
<b>2) ด้านผลิตภัณฑ์ (Product)</b>					
3. ระดับความพึงพอใจในตราชื่อหรือปั้มน้ำมันที่ท่านใช้บริการเป็นประจำ เช่น PTT, Shell, Esso และอื่นๆ	1	2	3	4	5
4. คุณภาพของน้ำมันแก๊สโซฮอล์	1	2	3	4	5
5. น้ำมันแก๊สโซฮอล์ดีต่อเครื่องยนต์	1	2	3	4	5
6. น้ำมันแก๊สโซฮอล์ดีต่อระบบหัวฉีดของเครื่องยนต์	1	2	3	4	5
7. การใช้น้ำมันแก๊สโซฮอล์มีอัตราเร่งเร็ว โดยไม่แตกต่างจากการใช้น้ำมันเบนซิน	1	2	3	4	5
8. การใช้น้ำมันแก๊สโซฮอล์ทำให้เครื่องวิ่งเรียบ ไม่สะดุด	1	2	3	4	5
<b>3) ด้านราคา (Price)</b>					
9. ราคาน้ำมันแก๊สโซฮอล์ต่อลิตรในปัจจุบัน	1	2	3	4	5
10. การใช้น้ำมันแก๊สโซฮอล์ทำให้ประหยัดเงินกว่าการใช้น้ำมันเบนซินธรรมดา	1	2	3	4	5
11. การใช้น้ำมันแก๊สโซฮอล์ถูกกว่าแก๊ส LPG และ NGV เนื่องจากไม่จำเป็นต้องติดตั้งแก๊ส หรือดัดแปลงเครื่องยนต์	1	2	3	4	5
<b>4) ด้านช่องทางการจัดจำหน่าย (Place)</b>					
12. ปั้มน้ำมันแก๊สโซฮอล์หาได้ง่ายในเขตกรุงเทพมหานคร	1	2	3	4	5

ความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์	ระดับความพึงพอใจ				
	ไม่พึงพอใจมาก	ไม่พึงพอใจ	พึงพอใจปานกลาง	พึงพอใจ	พึงพอใจมาก
<b>3) ด้านช่องทางการจัดจำหน่าย (Place)</b>					
13. จำนวนปั้มน้ำมันแก๊สโซฮอล์ เพียงพอ และครอบคลุมทั่วกรุงเทพมหานคร	1	2	3	4	5
<b>5) ด้านการส่งเสริมการตลาด (Promotion)</b>					
14. การโฆษณาปั้มน้ำมันแก๊สโซฮอล์ผ่านสื่อต่างๆ เช่น วิทยุ โทรทัศน์ หนังสือพิมพ์ อินเทอร์เน็ต และอื่นๆ	1	2	3	4	5
15. การโฆษณาประชาสัมพันธ์ของรัฐบาลเพื่อส่งเสริมการใช้น้ำมันแก๊สโซฮอล์	1	2	3	4	5
16. การส่งเสริมการตลาดของปั้มน้ำมันที่ท่านใช้บริการประจำ เช่น ส่วนลด ของแจก ของแถม หรือการจ่ายเงินคืนในการใช้บัตรเครดิต	1	2	3	4	5
<b>6) ด้านบุคลากร ( People)</b>					
17. การแต่งกายของพนักงาน (เล็กปั้ม)	1	2	3	4	5
18. พนักงานได้รับการฝึกฝนในการให้บริการ	1	2	3	4	5
19. ความรวดเร็วในการให้บริการของพนักงาน	1	2	3	4	5
20. พนักงานให้บริการด้วยมิตรไมตรีจิต และให้การช่วยเหลือดี	1	2	3	4	5
21. พนักงานให้บริการด้วยความสุภาพ และยิ้มแย้มแจ่มใส	1	2	3	4	5
<b>6) ด้านกระบวนการ (Process)</b>					
22. พนักงานให้บริการตามขั้นตอนและกระบวนการในการให้บริการ เช่น กล่าวคำทักทาย สอบถามจำนวนน้ำมันที่ลูกค้าต้องการเดิม แจ้งจำนวนลิตรที่เติมและราคาน้ำมันที่เติม คืนเงินทอนหรือคืนบัตรเครดิต กล่าวขอบคุณที่ลูกค้าใช้บริการ	1	2	3	4	5

ความพึงพอใจของผู้บริโภคต่อการใช้น้ำมันแก๊สโซฮอล์	ระดับความพึงพอใจ				
	ไม่พึงพอใจมาก	ไม่พึงพอใจ	พึงพอใจปานกลาง	พึงพอใจ	พึงพอใจมาก
<b>7) ด้านสภาพแวดล้อมทางกายภาพ (Physical Environment)</b>					
23. สิ่งอำนวยความสะดวกในปั้มน้ำมัน เช่น มินิมาร์ท ร้านกาแฟ ร้านอาหาร ห้องน้ำ เครื่องกดเงินสด ATM หรืออื่นๆ	1	2	3	4	5
24. การตกแต่งสวนหย่อมที่ร่มรื่นและสวยงาม	1	2	3	4	5
25. ความสะอาดของห้องน้ำที่จัดไว้ให้ลูกค้า	1	2	3	4	5

กรุณาระบุชื่อและเบอร์โทรศัพท์ (ไม่บังคับ)

ชื่อ – สกุล \_\_\_\_\_ เบอร์โทรศัพท์ \_\_\_\_\_

**\*\*ขอขอบพระคุณทุกท่านที่ให้ความอนุเคราะห์ในการกรอกแบบสอบถามฉบับนี้\*\***

## AUTOBIOGRAPHICAL DATA

**Name:** Ms. Waraporn Pimdeed  
**Birth Date:** July 12<sup>th</sup>, 1979  
**Birth Place:** Chaiyaphum Province, Thailand

**Education:**

Year	Institution	Degree/Diploma
2012-2013	Stamford International University, Thailand	Master's Degree of Business Administration
2006-2007	William Angliss Institute of TAFE, Australia	Diploma of Hospitality Management
2000-2002	Sripatum University, Thailand	Bachelor's Degree of Business Administration
1999-2000	Pranakonsiyuthaya Vocational College, Thailand	Advanced Diploma of Commerce
1995-1998	Khonkaen Vocational College, Thailand	Diploma of Commerce

**Work Experience:**

Year	Company	Position
2009-Present	MB Century (Thailand) Ltd.	HR Coordinator
2008-2009	Brunel Energy (Thailand) Ltd.	Recruitment & HR
2007-2008	MMSVS Group Holding Ltd.	Executive Secretary
2007-2007	Sofitel Centara Grand Bangkok	Club Lounge Supervisor
2004-2004	Davines (Thailand) Ltd.	Customer Service Representative
2003-2003	ERA Property Network Ltd.	Marketing Associate

**Current Address:** 2/14 Krungthep Kreetha Road, Soi 7, Huamark Sub-District,  
Bang Kapi District, Bangkok 10240 Thailand