

# FACTORS INFLUENCING CONSUMERS' HARD DISK DRIVE PURCHASES IN BANGKOK, THAILAND

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**Abstract:** The objective of this study was to understand and identify the factors affecting customer's purchase intention toward a new Hard Disk Drive (HDD) in Bangkok. The main factors that were studied were the demographic, marketing mix and consumer behavior factors (specifically attitudes toward technology and reference groups). This study employed quantitative research methodology by using a survey questionnaire to collect data from 385 respondents who had purchased or planned to purchase a HDD in Bangkok through either online or offline communication channels. The descriptive and inferential analyses for this study entailed frequency, percentage, mean, standard deviation, t-test, ANOVA and Linear Regression. The study found that the following four factors showed significant positive influences on customers' purchase intention toward HDDs in Bangkok: (1.) product, (2.) place, (3.) attitudes toward technology, and (4.) references group. Conversely, other marketing mix and demographic factors had no influences on the respondents' purchase intentions.

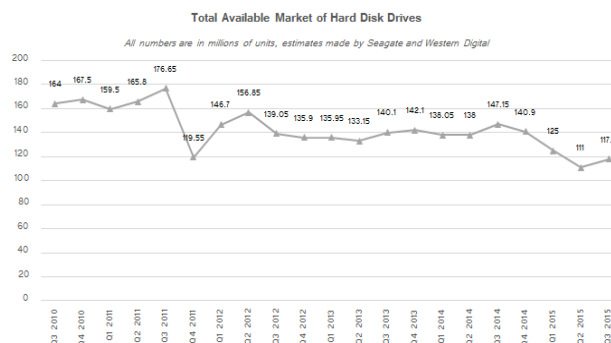
**Keywords:** Purchase intention, marketing mix, attitudes toward technology, reference groups, HDD

## 1. Introduction

A hard disk drive (HDD), hard disk or hard drive is a device used to store digital data on one or more rigid rapidly rotating disks (platters) coated with magnetic material. The platters are paired with magnetic heads arranged on a moving actuator arm, which reads and writes data on the platter surfaces (Arpaci-Dusseau, 2014).

It has frequently been discussed by many people that HDDs are no longer relevant as SSDs provide better performance. However, Seagate Technology and Anandtech.com (Shilov, 2015) estimate that HDDs will remain in the market for at least 15-20 years. Nevertheless, sales of HDDs have been decreasing for several years now (see Figure 1 for details). According to Seagate Technology and Western Digital Corp, the total available market of HDDs dropped from 164 million units in Q3 2010 to 118 million units in Q3 2015. The reasons for

this are attributed to factors such as the growing popularity of SSDs, the decline in PC sales, increasing usage of cloud storage, and so on.



Nonetheless, due to offering the lowest price in terms of per-gigabyte costs, HDDs are likely to remain a key player in bulk storage technology and the most popular digital storage option for a long time. However, HDDs will need to keep increasing their capacity in order to stay relevant in the long term.

As of 2017, HDD production (exabytes per year) is growing, although unit

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shipments and sales revenues are declining due to the competition from new technologies like SSDs (Lafferty and Cate, 2017). However, it has been forecasted that HDDs will continue to evolve for the next 20 years, as at least one of the main HDD manufacturers is continuously working on improving its capacities and performance. In order to provide useful guidelines for helping HDD manufacturers and distributors understand the demographic aspects that influence consumer intentions toward purchasing HDDs and then use this information to develop the right marketing strategies, a study of the factors affecting consumer intention toward purchasing HDDs in the Bangkok area would be extremely beneficial. The results might be used to implement, develop and leverage a marketing mix approach to HDD sales and increase the share of the HDD market in Thailand as well.

The purposes of the study are therefore defined as follows:

1. To study the influence of demographic factors on customers' purchasing intention toward HDDs in Bangkok.
2. To investigate the influence of the marketing mix factors on customers' purchase intention toward HDDs in Bangkok.
3. To identify the influence of consumer behavior factors (specifically attitudes toward technology and reference groups) on customers' purchase intention toward HDDs in Bangkok.

## 2. Literature Review

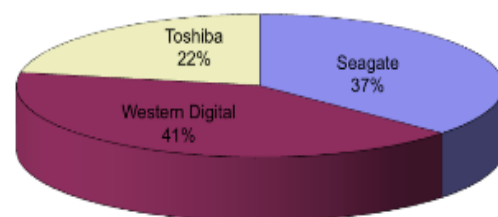
### 2.1 HDD Market

As stated by Future Market Insights (2014), the global HDD market can be segmented based on regions, with the U.S., China and Singapore being the dominant markets. Various key manufacturers were found to be from North America. The global HDD market has witnessed slight growth over the last few years due to the

shift of many business users and home users from local HDDs and onsite servers to a centralized cloud server. The reduction in demand for desktop PCs and notebooks has further restrained the growth of the global HDD market. Declining desktop PC demand is mainly attributed to increasing consumer preference toward smartphones and tablets. However, demand for consumer electronics HDDs increased rapidly, driven by game storage and some set-top box sales.

In Thailand, the external HDD market is also growing due to rising demand for portable storage backup and extra data storage at relatively low prices. New slim and ultra slim external HDDs further encourage growth of the external HDD market because of consumer demand based on the appeal and product design. Also, external HDDs provide additional security for critical information as it can be easily disconnected from computer networks to avoid unauthorized access and also can be used with several systems without any special system requirements. New external HDD products are available with wireless access. However, users who require faster data transfer speeds may select an internal HDD as it is always connected to the system (Future Market Insights, 2014).

Key players in the global HDD market are Western Digital Technologies, Seagate Technology LLC, and TOSHIBA CORPORATION. As shown in Figure 2.1 below, Western Digital shipped 41% of the total HDDs in 2016, while Seagate shipped 37% and Toshiba shipped 22% (Coughlin, 2017).



**Figure 2.1** 2016 Global HDD market share

**Source:** Coughlin (2017)

The long-term future of HDDs likely rests with high capacity HDDs, particularly in data centers serving cloud storage applications. In 2015, ASTC (Advanced Storage Technology Consortium)—an international organization that unites various companies that develop, manufacture or use HDDs—unveiled its vision of the HDD future. Regarding this technology roadmap, HDD capacity is forecast to reach 100TB by 2025. In the near future, HDDs will adopt many new writing technologies to boost their data storage capacities. Refer Figure 2.2 for future HDD technologies.

Emerging Technologies For Capacity Growth



**Figure 2.2** Future HDD Emerging Technologies

**Source:** Anandtech.com (Shilov, 2015)

Furthermore, according to The Nation (2017), US-based Western Digital Corp and Seagate Technology, two of the biggest firms in HDD production, are expanding their investment in Thailand to boost their export value and enhance their R&D.

## 2.2 Theories and Concepts of Marketing Mix

The marketing mix is the most fundamental concept of marketing. Referring to Kotler and Armstrong (2009), the marketing mix is the set of controllable variables that a company can use to influence the buyer's response. The marketing mix is most commonly executed through the 4Ps of marketing, which are Product, Price, Place and Promotion (McCarthy & Perrault, 2002).

Mark & Patrick (2015) stated that the simple definition of the marketing mix is about putting the right product or a combination thereof in the right place, at

the right time, and at the right price. Apple Inc. is an example of a successful marketing mix. This company has positive feedback from its consumers because they know how to deal with them. In other words, Apple Inc. knows exactly what the consumer wants (Giunta, 2011).

Each component of the market mix, which is the product, the pricing, any promotion and the place of distribution, has a direct or indirect impact on the buying process of the consumer (Chand, 2016). In supporting this, Bundit Pungnirund (2013) studied the influences of the marketing mix on customer purchasing behavior at Chatuchak Plaza Market and found that Price, Place and Product had an influence on the frequency of customer purchasing behavior. It also showed that two more 'Ps'—Physical evidence and Process—had an influence on the amount of purchases made.

The 4P model was then modified to the 7Ps of marketing. The 7P model is generally used in the service industries. Figure 2.3 illustrates the expansion of the marketing model from 4Ps to 7Ps:



**Figure 2.3** The 7Ps marketing model

**Source:** Mark & Patrick (2015)

**2.2.1 Product** refers to the item actually being sold. It is an item that is built or produced to satisfy the needs of a certain group of people. The product can be intangible or tangible as it can be in the form of services or goods (Mark & Patrick, 2015).

**2.2.2 Price** is the amount of money charged for either a product or service, or

the total value that consumers exchange for the benefits of having the product or service (Khan, 2014). Price determines the firm's profit and survival as well as affecting the consumer's decision. Adjusting the price of the product has a big impact on the entire marketing strategy as well as greatly affecting the sales of and demand for the product (Mark & Patrick, 2015).

**2.2.3 Place** refers to the point of sale. It can be the location of the market or the distribution channel including any warehouse and logistics involved in the convenient delivery of the products. Placement or distribution is very important, as the firm has to position and distribute the product in a place that is accessible to potential buyers (The Economic Times, 2017).

**2.2.4 Promotion** refers to all the activities undertaken to make the product or service known to the user and trade. This can include advertising, word of mouth, press reports, incentives, commissions and awards. It can also include consumer schemes, direct marketing, contests and prizes (The Economic Times, 2017).

**2.2.5 People** are very important in delivering services. Every firm is reliant on the people who work for it, from the front line sales staff to the managing director. Recruiting and training the right staff is required to create a competitive advantage. It is one of the elements of the service that customers can see and interact with; as a result, customers make judgments about service provision and delivery from the people representing the company (Learnmarketing, 2017).

**2.2.6 Process** is all the elements of the systems used to deliver the service. It could mean something as simple as everybody knowing what to do and how to do it. The process also includes an entire sales funnel, a distribution system, a payment system or other systematic procedures and steps to ensure the working business is running effectively (Mark & Patrick, 2015). Costs can be minimized and

profits maximized by tweaking and enhancing the business process.

**2.2.7 Physical evidence** is the place from where the service is being delivered. This element will distinguish a firm from its rivals. Physical evidence can be controlled to charge a premium price for a service and establish an impressive experience (Learnmarketing, 2017). It indeed affects the customer's satisfaction.

## ***2.3 Theories and Concepts of External Influence of Consumer Behavior***

The External Influences consist of culture, subculture, demographics, social status, family, reference groups and marketing activities. What a consumer eats, wears, and believes are all learned and influenced by the culture in which they live, their family, their childhood experiences and the social environment (Friesner, 2017). All these factors affect the consumer behavior and the purchases they make.

Culture refers to the traditions, taboos, values and basic attitudes of the whole society within which an individual lives. Culture teaches an individual the acceptable norms of behavior and defines the rights and wrongs. Culture also influences the communication (language), attitudes and values that influence consumption behavior & patterns (Chand, 2016). Each culture further comprises various subcultures, such as religion, age, geographical location, gender (male/female), status, etc.

Social class refers to the hierarchical arrangement of the society into various divisions, each of which signifies social status or standing. Social class is an important determinant of consumer behavior as it affects the consumption patterns, lifestyle, media patterns, activities and interests of consumers (Chand, 2016).

Reference groups are groups of people that influence an individual's attitude or behavior. Individuals use these groups as reference points for learning attitudes, beliefs and behavior, and adopt these in their life. Reference groups can be

family, close friends, colleagues, etc. Reference groups influence product and brand purchases (Chand, 2016). Reference groups have an influence on purchasing behavior, but the level of influence will depend on where the product will be consumed, in public or in private, and whether the product is a need or a want (Friesner, 2017).

The decision of a consumer to purchase and use certain products and services is not only influenced by psychological factors, personality and lifestyle, but also by the people around the consumer with whom he interacts and the various social groups in which he belongs (Bhasin, 2016).

According to Sirgy, Rahpz, and Portolese (2017), there are 5 types of reference group: Primary/Secondary, Formal/Informal, Membership, Aspirational and Dissociative. A primary reference group is one with which the members have frequent face-to-face contact and are close knit, such as family, neighbors, close friends, colleagues and co-workers. A secondary reference group is one in which interaction with other members is less frequent. A formal group is one in which there is some sort of structure, such as rotary, labor unions, social clubs and societies, and for which there are, in some cases, specific membership requirements. An informal group is one that has no special membership or attendance requirements other than common interests. A membership group is one to which a person currently belongs. A group that a person would like to be part of, but to which she or he does not currently or may never belong, is known as an aspirational group. A dissociative group is one that individuals avoid or deny connections with. There are several ways of viewing reference group influences, such as Part of the Socialization Process, Setters of Roles, Information Sources, Normative Influences and an Expression of Self-Value.

## **2.4 Consumer Attitudes**

Consumer behavior can be influenced by factors such as motivation, learning, emotion, attitude and perception, which are internal factors or personal factors, and which represent the consumer's ability to benefit directly from the specified product.

Attitudes were defined by the Dictionary of Marketing Terms (2017) as mental positions or emotional feelings about products, services, companies, ideas, issues, or institutions. Attitudes are shaped by demographics, social values, and personality. As the consumer attempts to evaluate a product, service, or the like, he or she will develop an attitude about the thing being evaluated. In advertising, the desire is to generate favorable perceptions toward the thing being advertised, and to promote positive consumer attitudes.

Attitudes serve four key functions for individuals, as stated by Hawkins et al. (2001):

- 1) Utilitarian function: This function is based on operant conditioning and tends to form favorable attitudes toward those objects and activities which are rewarding and negative attitudes toward those which are not. Marketers frequently promise rewards in their advertising and conduct extensive product testing to be sure the products are indeed rewarding.

- 2) Ego-defensive function: Attitudes are often formed and used to defend our egos and images against shortcomings and threats. Products promoted as very macho may be viewed favorably by people who are insecure in their masculinity. Alternately, individuals who feel threatened in social situations may form favorable attitudes toward products and brands that promise success or at least safety in such situations, such as popular styles and brands of clothes and personal care products like mouth wash, anti-dandruff shampoo and deodorants.

- 3) Value-expressive function: Other attitudes are formed and served to express an individual's central values and self-

concept. Therefore, consumers who value the environment and nature are likely to develop attitudes about activities and products which are consistent with that value, such as 'green' products.

4) Knowledge function: Brands and shopping are examples of how some attitudes serve primarily as a means of organizing beliefs about objects or activities. These attitudes may be inaccurate or accurate with respect to 'objective' reality, but the attitude will often determine subsequent behaviors rather than 'reality'. For example, a consumer's attitude toward cola drinks may be that 'they all taste the same'. This consumer would be likely to purchase the most convenient or cheapest brand. This would be true even if, in a taste test, the consumer could tell the brands apart and would prefer one over the others. Firms like Pepsi spend considerable effort on influencing consumers' beliefs about colas.

Concerning the attitudes toward technology, Ehlers and Kerschner (2016) described four types of technological attitude: skepticism, romanticism, determinism and optimism. Skepticism conforms to the view that technologies of today tend to cause environmental and ecological problems or have hidden dangers. Romanticism sees technology as questionable and associated with feelings of unease. Determinism considers technological changes as automatic whether by social force or evolution, while Optimism refers to technology as inherently good and its misuses are accidental. It could be explained from the study of Ardies, Maeyer, Gijbels, and Keulen (2014) that attitudes toward technology are influenced by personnel experiences, family and environmental background.

## **2.5 Reference Group Influences**

There have been many studies about the influences of aspirational and associative reference groups on general consumer behavior.

Previous research has identified three major types of reference group influences: informational influence, utilitarian influence, and value-expressive influence (Park & Lessig, 1977; Bearden & Etzel, 1982). These influences are briefly described below:

1) Informational Influence is based on the craving to make informed decisions and optimize the choice (Park & Lessig, 1977). In the case of an individual's quest for the right information, one would accept an influence that improves one's knowledge and ability to cope with the environment (Kelman, 1961). When consumers lack knowledge regarding a certain product or the experience of purchasing the item, they may perceive the information and recommendations they receive from their reference group as credible and thus accept them with a certain degree of confidence. Practical application of this behavior can be seen in the use of "expert power" or their internalization in advertising, for instance, featuring doctors (or actors in the role of medical doctors) as spokespersons for over-the-counter medicines.

2) Utilitarian Influence can be explained by the so-called "compliance process" in which an individual is willing to satisfy a certain group's expectations in order to obtain their praise or to avoid punishment from the group (Kelman, 1961). Rock (1990) demonstrated in the famous Asch Experiment that participants were found to imitate group answers willingly, even changing their original correct answers in the process. This explains how people strive to make themselves associated with certain groups in order to remain acceptable or to gain a position in society. The same idea has been used extensively in marketing communication that shows a consumer gaining a certain position by virtue of merely using a specific branded product.

3) Value-Expressive Influence may best be explained by the "identification process" in which people are willing to take



measures to express themselves to society in a manner that makes them appear to be similar to the group to which they want to belong (Kelman, 1961). Under this influence, one may actively follow the group's beliefs and rules, while neglecting the praises or punishments received, and decide to completely accept and internalize the value of that reference group.

The study of Mehta, Lalwani, and Ping (2001) supported the above research by revealing that informational influence is a powerful tool in the case of services as it affects the purchase decision of consumers. Marketers in the service field should focus on the informational reference group influence, one form of which is word of mouth. The study stated that most buying decisions in the case of services are taken based on someone's direct recommendation. Utilitarian influence was found to be high in the case of luxury services and those services whose results are highly visible socially. The influence of value expressive reference was high in the case of publicly consumed services.

In addition, the study of Moschis (1976) found that the purchase decision of consumers is not only impacted by new technology, the relative price, phone design, etc. but also by reference group information with regard to purchasing a specific brand or model of the product.

Moreover, the study of Turcinkova and Moisidis (2011) on the impact of reference groups on teenagers' buying process for clothing in the Czech Republic found that teenagers in the 16–19 age group were more significantly influenced by their friends and opinion leaders, while the influence on the younger group did not come from their peers, but mostly from their parents.

Therefore, it could be explained that a reference group's influence on the purchase decision of an individual depends on that individual's susceptibility to reference group influences as well as the individual's degree of involvement with the group. Reference groups mostly tend to

affect purchase decisions toward products that are visible to the group.

## ***2.6 Related Research Studies***

Previous research studies have addressed many possible factors or determinants that may influence the purchase decisions of consumers with regard to electronic devices. From those papers, the marketing mix and demographics are the factors that are frequently mentioned as the main influential factors. For instance, Afrin, Khan and Islam (2015) investigated the influential factors of customer buying decisions with regard to laptops among the students of Bangladesh. The study explained that a competitive physical feature of well-known brands had the greatest influence over the customers, while price was another big consideration for the customers. Technical features, product quality and customer service, etc. were features that were found to vary only slightly among the various brands and so the competing companies tried to be superior to others in these factors. Moreover, Watchara Yisuntes and Chantira Maunmontree (2016) studied the factors affecting customers' buying decisions toward telephone headsets. The findings pointed out that marketing mix factors including price, promotion, people, and physical presentation had a relationship with the buying decision for telephone headsets at a statistical significance level of 0.05.

Placing a higher focus on the effects of consumer demographics, Bishnoi & Mann (2015) studied the influential aspect of reference groups on mobile phone customers in rural Haryana. From their findings, age, gender, income, education, and occupation did not significantly differentiate the influence of reference groups on the purchase decisions of mobile phone customers. Reference groups had similar levels of influence on the buying decisions of consumers irrespective of the

respondents' demographics. The purchase decisions with regard to mobile phones were found to be moderately influenced by the reference groups. From this finding, marketers should focus on these reference groups as an effective means of improving their market share. In addition, Sirirat Saesieo (2015) studied the factors affecting consumer decision-making when purchasing Pearl milk tea in Bangkok. The results indicated that age and occupation influenced the purchase decision but gender and income had no influence. Customers' opinions on the marketing mix, such as the always adding topping, the sugar level, the paid cost, the purchase frequency, promotion, the supporting factors to purchase, and the media, all had influence on the purchase decision. Consumer behaviors such as the buying objective, the amount of purchase, the purchasing time, the service duration and the most influential person all had some degree of influence on the purchase decision. Also, Supawadee Khumrat (2012) examined the factors affecting behavioral intention to buy a tablet. The results of this research revealed that demographic factors had a significant effect on behavioral intention to buy a tablet. Furthermore, additional factors such as brand loyalty, familiarity with the technology, subjective norm, perceived behavioral control, perceived ease of use and perceived usefulness had positive effects on behavioral intention to buy tablet.

Lastly, there are many studies that have examined the impacts of many groups of factors. For example, Kiafar (2013) investigated the factors that influence Cypriots to purchase digital electronic devices from markets in the north Cyprus. The findings demonstrated that seven main factors, which were new technology, design, brand, service, price, advertisement and bias, influenced the selection of digital devices among the people of the Turkish Republic of Northern Cyprus. Gender, occupation, work experience, educational level and family size had significant effects

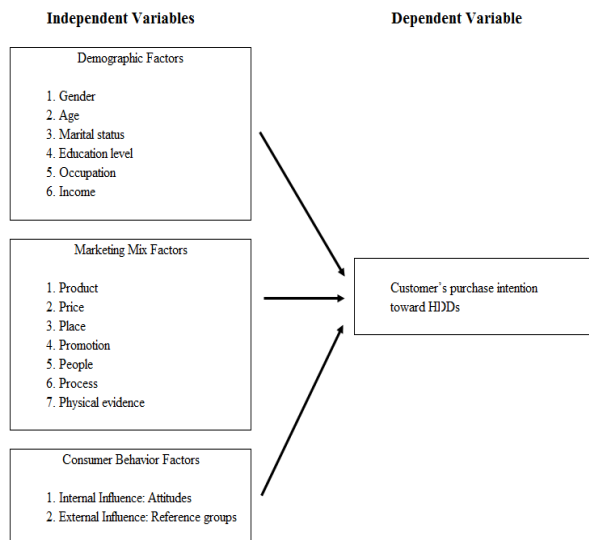
on those main factors. Furthermore, Thokchom (2012) studied the factors affecting Bangkok-based consumers' purchase intention toward smartphones. The results revealed that brand image is the main factor that consumers consider when they intend to buy a smartphone. The importance to consumers of brand image was closely followed by the price factor, while product knowledge, perceived ease of use and perceived usefulness also influenced the consumers' purchase intention. Warinda Boonpitak (2011) also studied the factors affecting consumer buying decisions with regard to the iPhone4S in the setting of Rangsit. The findings indicate that the 4Ps of the marketing mix were crucial to the consumer buying decision. Demographic factors also had a significant effect on the consumer buying decision. Finally, Patricia Arttachariya (2012) studied environmentalism and the green purchasing behavior of graduate students in Bangkok. The research showed that the concern for Thailand's environment, environmental consciousness and reference group influences were significant predictors of green purchasing behavior, but age, gender, and income had no significant relationship with the green purchasing behavior of graduate students in Bangkok.

### **3. Research Methodology**

#### **3.1 Conceptual Framework**

According to the literature review, the conceptual framework for this study can be formed by placing demographic factors (Gender, Age, Marital status, Education level, Occupation, and Income), marketing mix factors (Product, Price, Place, Promotion, People, Process and Physical evidence) and consumer behavior (Attitudes toward technology and influence of reference groups) as independent variables, whereas the dependent variable is the customer's purchase intention with regard to a HDD.





**Figure 3** Conceptual Framework

### 3.2 Research Hypotheses

**H1:** Demographic factors have significant influences on the customers' purchase intention toward HDDs in Bangkok

**H1a:** There is significant mean difference between gender on customer's purchasing intention of HDD in Bangkok

**H1b:** There is significant mean difference among age on customer's purchasing intention of HDD in Bangkok

**H1c:** There is significant mean difference among marital status on customer's purchasing intention of HDD in Bangkok

**H1d:** There is significant mean difference among education level on customer's purchasing intention of HDD in Bangkok

**H1e:** There is significant mean difference among occupation on customer's purchasing intention of HDD in Bangkok

**H1f:** There is significant mean difference among income on customer's purchasing intention of HDD in Bangkok

**H2:** Marketing mix factors have significant influences on customers' purchase intention toward HDDs in Bangkok

**H2a:** The product has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H2b:** The price has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H2c:** The place has a significant influence on customer's purchase intention toward HDDs in Bangkok

**H2d:** The promotion has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H2e:** The people have a significant influence on customers' purchase intention toward HDDs in Bangkok

**H2f:** The process has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H2g:** The physical evidence has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H3:** The attitudes toward technology factor of consumer behavior has a significant influence on customers' purchase intention toward HDDs in Bangkok

**H4:** The reference group factor of consumer behavior has a significant influence on customers' purchase intention toward HDDs in Bangkok

### 3.3 Research Population and Sampling Design

The population of this study was people who lived in Bangkok, aged at least 18 years old, and with either experience of buying or a plan to buy a new HDD. The minimum age of 18 years old for the population is defined following the regulation of the Thai Ministry of Labor which allows people to work with full authority from this age. The sanctioned decision-making ability is achieved legally in most countries at the age of 18 years old, which represents the statistical consensus of educational, physical, emotional and cognitive maturity for most of people (Szumala, 2015). The researcher selects people in the Bangkok area as the sample

because it is the capital and most populous city of Thailand. It is the economic center of Thailand, and the heart of the country's investment and development. Therefore, people in Bangkok purchase storage devices for private and business purpose more often than people in other areas of the country.

The targeted population of this study is not certain; therefore the researcher referred to Taro Yamane equation (1973) at a 95% confidence level ( $\alpha = 0.05$ ) to determine the sample size. The calculation yields the result of the sample size at 384.16. The researcher decided to use a sample size of 420 and collect data from people who live in Bangkok and have experiences of buying or a plan to buy a new HDD, including both male and female participants who are 18 years old and above.

The sampling methods used in this research are non-probability and quota sampling to ensure an appropriated proportion of different respondents who are familiar and unfamiliar with IT products, which can increase the result's reliability. Meanwhile, both offline and online versions of the survey would be conducted at the ratio of 50:50.

### 3.4 Determine the reliability of the questionnaire

To verify the reliability of the scale statistical technique, Cronbach's Alpha (Schmitt, 1996) was used in the present study. The researcher uses the questionnaire with a sample of 35 respondents as the pilot study to test the reliability and calculate the Cronbach's Alpha Coefficient. It measures the construct to determine whether it can be used in a real-life research situation. The questionnaires which have a reliability score of more than 0.70 can be used to collect data from the sample population (Thanin Sinjaru, 2006). The result for this study revealed a total average Cronbach's alpha of 0.891, which is greater than the standard definition of 0.70. Therefore, this

questionnaire has sufficient reliability to be used in the real survey.

## 4. Data Analysis and Research Findings

### 4.1 Descriptive Data Analysis

**Table 4.1** Demographic profile

<b>Gender</b>	Male (59%) / Female (41%)
<b>Age</b>	18-30 (32%) / 31-45 (63%) / Over 45 (5%)
<b>Marital status</b>	Single (68%) / Married (30%) / Divorced (1%) / Widowed (1%)
<b>Education level</b>	High school (1%) / College (2%) / Bachelor's (58%) / Master's (37%) / Doctoral (2%)
<b>Occupation</b>	Corporate employee (65%) / Business owner (21%) / Government officer (3%) / State Enterprise employee (3%) / Student (6%) / Others (2%)
<b>Income (THB / month)</b>	$\leq 10,000$ (4%) / 10,001-20,000 (14%) / 20,001-30,000 (22%) / 30,001-40,000 (15%) / $> 40,000$ (45%)

From the data of 385 respondents, the profile in the above Table 4.1 showed that the majority were males aged between 31-45 years old, single, graduated with a Bachelor's degree and working as corporate employees with a monthly income of more than 40,000 THB.

**Table 4.2** Summary of descriptive data analysis

Factor	Variable	Mean	S.D.	Meaning
Marketing Mix	Product	4.89	.897	Very
	Price	4.85	.944	
	Place	4.51	.984	
	Promotion	4.17	1.104	Moderate
	People	4.78	1.061	Very
	Process	5.05	.949	
	Physical evidence	4.33	1.073	
	<i>Total</i>	<i>4.65</i>	<i>.805</i>	<i>Very</i>
Consumer Behavior	Attitudes toward technology	4.29	.679	Somewhat Agree
	Reference groups	4.08	1.079	
Purchase Intention	Purchase Intention	2.71	1.246	Likely

As shown in Table 4.2, the marketing mix was considered to be a significant factor with a mean score of 4.65 and standard deviation of 0.805. From the marketing mix, the Process was given the highest average level of importance by the respondents, followed by product, price, people, place, and physical evidence with promotion in the lowest position.

Furthermore, the respondents' perceptions of attitudes toward technology were somewhat in agreement with a mean score of 4.29 and standard deviation of 0.679. In more detail, the respondents expressed the highest levels of agreement with 'HDD technology has brought more good things than bad', 'HDD technology makes everything work better' and 'When new HDD technology is discovered, I want to know more about it immediately', in descending order. At the same time, 'Using a HDD can improve the user's image' and 'Using a HDD has little to do with my daily life' were given more moderate levels of agreement.

Moreover, the respondents' perceptions toward reference group factors were also in the 'somewhat agree' level, with a mean score of 4.08 and standard deviation of 1.079. The respondents only expressed a stronger level of agreement on 'My choice of HDD is influenced by evaluation reports from an independent testing agency. (e.g., online HDD reviews)' while they somewhat agreed that their decisions were influenced by word of

mouth, classmates or fellow work associates, and salespersons, in descending order. Meanwhile, the respondents' perceptions toward the purchase intention factor was 'likely', with a mean score of 2.71 and standard deviation of 1.246.

There were some interesting findings from this study that gave insights into the consumers' behavior and their opinions on purchasing HDDs. Most respondents in this study had experience of purchasing HDDs. In most cases within the past 3 years. The most familiar brands from highest to lowest level of familiarity were Western Digital (WD), Seagate and Toshiba, which is similar to the current market share situation, while respondents mostly purchased the same brand that they had previously used. When purchasing a HDD, the main objective of the respondents was to back up important data. Most respondents considered by themselves whether to make a purchase and decided to switch over to another brand, especially if their preferred brand of HDD was not available for purchase. Regarding the specifications of the product, most respondents purchased a HDD with an external size of 2.5" and a capacity of 1.5-2 TB in the price range of 1,001-2,000 THB. Most respondents preferred to purchase a HDD from a well-known IT shop and their purchases were sometimes influenced by attractive signage and ads inside the shops. In addition, the most influential media type

when respondents were considering purchasing a HDD was online media.

#### 4.2 Hypothesis Testing

As shown in the hypotheses testing results in Table 4.4, it was found by using the statistical analysis listed in Table 4.3 that only 4 out of the 15 hypotheses were accepted. The 4 factors which have significant positive influences on

customers' purchase intention toward HDDs in Bangkok include marketing mix factors of product and place, attitudes toward technology and references group influence, while other marketing mix and demographic factors had no significant influence on the respondents' purchase intention.

**Table 4.3** Statistics used for Hypothesis testing

Hypotheses	Indepen-dent Variables	Depen-dent Variable	Statistic Testing
H1a	Gender	Customer's purchasing intention of HDD in Bangkok	T-test
H1b	Age		ANOVA
H1c	Marital status		
H1d	Education level		
H1e	Occupation		
H1f	Income		
H2a	Product		Linear Regression
H2b	Price		
H2c	Place		
H2d	Promotion		
H2e	People		
H2f	Process		
H2g	Physical evidence		Linear Regression
H3	Attitudes toward technology		
H4	Reference groups		Linear Regression

**Table 4.4** Summary of Hypotheses testing

Hypothesis	Sig.	Interpretation
H1a: There is significant mean difference between gender on customer's purchasing intention of HDD in Bangkok	.924	Rejected
H1b: There is significant mean difference among age on customer's purchasing	.417	Rejected

Hypothesis	Sig.	Interpretation
intention of HDD in Bangkok		
H1c: There is significant mean difference among marital status on customer's purchasing intention of HDD in Bangkok	.153	Rejected
H1d: There is significant mean difference among	.232	Rejected

Hypothesis	Sig.	Interpretation
education level on customer's purchasing intention of HDD in Bangkok		
H1e: There is significant mean difference among occupation on customer's purchasing intention of HDD in Bangkok	.449	Rejected
H1f: There is significant mean difference among income on customer's purchasing intention of HDD in Bangkok	.162	Rejected
H2a: The product has a significant influence on customers' purchase intention toward HDDs in Bangkok	.020	Accepted*
H2b: The price has a significant influence on customers' purchase intention toward HDDs in Bangkok	.069	Rejected
H2c: The place has a significant influence on customer's purchase intention toward	.007	Accepted*

Hypothesis	Sig.	Interpretation
HDDs in Bangkok		
H2d: The promotion has a significant influence on customers' purchase intention toward HDDs in Bangkok	.095	Rejected
H2e: The people have a significant influence on customers' purchase intention toward HDDs in Bangkok	.184	Rejected
H2f: The process has a significant influence on customers' purchase intention toward HDDs in Bangkok	.074	Rejected
H2g: The physical evidence has a significant influence on customers' purchase intention toward HDDs in Bangkok	.106	Rejected
H3: The attitudes toward technology factor of consumer behavior has a significant influence on customers' purchase	.000	Accepted*

Hypothesis	Sig.	Interpretation
intention toward HDDs in Bangkok		
H4: The reference group factor of consumer behavior has a significant influence on customers' purchase intention toward HDDs in Bangkok	.000	Accepted*

\*  $p < 0.05$

## 5. Conclusion and Discussion

Nowadays, significant awareness of the importance of data storage devices has been created due to the sheer number of software applications, and the internet & social networking, including the cloud system. HDDs have become a common IT product which is affordable and can be purchased from any local IT shop. Furthermore, compared to the cloud system, HDDs provide consumers with the benefits of offline data access, ample storage, data security, and a quick and easy data backup process (Saltzman, 2015). Therefore, it can be concluded that most consumers are likely to own a HDD in the near future for storing their vital data, which corresponds to the findings of this study. Measuring purchase intention is a critical factor for developing marketing strategies. Nonetheless, as the world of technology moves fast, the researcher would like to point out the rapid growth of SSDs. Although SSDs are much higher in price than HDDs at present, they deliver higher performance and are already impacting the growth of HDD sales. Thus, this serves as a warning sign for future HDD market demand if the price of SSDs drops to a comparatively affordable level. Alternately, another type of data storage device that utilizes new technology could

conceivably be introduced in the future to replace HDDs altogether. It will be interesting to follow the progress and see whether new HDD writing technologies aimed at boosting HDD capacities can compete with other new architectures of data storage in the future.

### 5.1 Demographic Influences on HDD Purchase Intention

The results demonstrated that the demographic factors of gender, age, marital status, education level, occupation and income had no influence on customers' HDD purchase intention. This was inconsistent with the finding of Supawadee Khumrat (2012) whose study on the factors affecting behavioral intention to buy a tablet found that the demographic factors had an effect on behavioral intention to buy a tablet. In contrast, Patricia Arttachariya's (2012) study on environmentalism and green purchasing behavior also found that there was no significant relationship between age, gender, income and green purchasing behavior among graduate students in Bangkok. The explanation for this result could be that HDDs are a common IT product which is widely used as a storage device whether to back up important data or to provide extra storage space; thus it is not specifically related to any demographic factor, which means anyone can use and purchase a HDD.

### 5.2 Marketing Mix Influences on HDD Purchase Intention

This study revealed that marketing mix factors had a considerable influence on HDD purchase intentions. This finding was consistent with the study of Warinda Boonpitak (2011), whose research on the factors affecting the consumer buying decision toward iPhone4s in Rangsit found that the marketing mix was crucial to the consumer buying decision. Nevertheless, the hypothesis testing in this current study revealed that only the product and place factors of the marketing mix impacted the purchase intention toward HDDs. This aligns with the findings of Watchara Yisuntes and Chantra Maunmontree (2016)



who studied the factors affecting customers' buying decision for telephone headsets and found that only the price, promotion, people and physical evidence factors of the marketing mix had a relationship with the buying decision. HDD consumers may place a greater focus on the product's performance, quality, warranty and features, as well as putting priority on the place of purchase, which should be a well-known shop in a convenient location, while placing less importance on other marketing mix factors. Concurring with this finding, the research of Thokchom (2012) on the factors affecting Bangkok-based consumers' purchase intention toward smartphones revealed that the main factors influencing the purchase intention were the brand image aspect of the product category and the price factor.

### ***5.3 Influences of Attitudes toward Technology on HDD Purchase Intention***

From the study, it was found that attitudes toward technology had a significant positive influence on customers' purchasing intention towards HDDs in Bangkok. This was compatible with the finding of Kumar et al. (2017) whose study on consumer perception and purchase intention toward smart watches found that the people's attitudes toward the technology of smart watches, including product awareness, created a positive purchase intention. Similarly, the convenience that consumers experience from technology-related products, no matter whether they are HDDs or smart watches, leads to a positive purchase intention.

### ***5.4 Influences of Reference Groups on HDD Purchase Intention***

The test result showed that the reference group factor of consumer behavior has significant positive influences on customers' purchase intention toward HDDs in Bangkok. This was compatible with the finding of Bishnoi & Mann (2015) whose study on the influential aspect of reference groups on mobile phone customers in rural Haryana found that

purchasing decisions with regard to mobile phones were moderately affected by the reference group influence. To some extent, reference groups influence product and brand purchases in various situations (Chand, 2016). Therefore, marketers should focus on the references group factors, especially the evaluation reports from an independent trustable testing agency, in order to improve their market share.

## **6. Recommendations**

### ***6.1 Implications for Practitioners***

From the quantitative results, it was found that 4 factors which had significant positive influences on customers' purchase intention toward HDDs in Bangkok were the product and place components of the marketing mix, attitudes toward technology and references groups. These findings could lead to the following suggestions.

Firstly, as the product plays an important role in the customers' purchase intention, HDD manufacturers should focus on product quality in terms of durability, speed of performance, warranty and features. This means that manufacturers have to maintain or even improve the quality (less defects) and performance of their HDD products, as well as providing an appropriate warranty period and developing new features which can meet customers' needs or make their life more convenient. This would increase customer satisfaction, build brand loyalty, and lead to repurchase intention.

Secondly, the place component of the marketing mix was another crucial factor that impacted customers' purchase intention toward HDDs. Thus, distributors should pay attention to how easily customers could find their stores and how conveniently located they are, as well as focusing on ensuring they have a good reputation. Marketers can cooperate with distributors by creating appropriate campaigns or events, as most customers tend to purchase from well-known IT shops and Computer & IT Expos. Online purchases may be considered if the shops

are able to provide both convenience and trust.

Thirdly, people who had positive attitudes toward technology were found to have interest in and intention to purchase HDDs. Marketers should work together with publishers to deliver frequent updates, news and information on new HDD technology in order to induce optimism attitudes (Ehlers & Kerschner, 2016) among consumers. This measure could also be effective in increasing the size of the target population as well.

Lastly, the findings concur with those of previous researches which also found that reference groups impact purchase intention, specifically influencing product and brand purchases (Chand, 2016). Marketers could utilize the product review channels of IT product experts or gurus to reach and influence consumers as an effective means of increasing HDD sales and market share. Moreover, the elements that should be considered are the power of familial communication, peer communication, Internet product search, social networking sites and especially word of mouth, which also influence the purchase intention of consumers (Johnson, 2015).

In addition, this researcher would advise marketers to 1) work closely with manufacturers in order to improve existing products, as well as developing and introducing new innovative products; 2) apply a cost-based pricing strategy to make common HDD models affordable for most consumers while introducing attractive new HDD models with a value-based pricing strategy; 3) manage value chains effectively, including taking steps to ensure that distribution channels for both physical and online stores are the most convenient for consumers while also ensuring goods are always in stock; 4) strengthen brand communication channels by organizing continuous marketing events and campaigns (implement AIDA model), specifically at Computer & IT expos and through social media, creating word of mouth communities to build product

awareness and brand loyalty; 5) review the service process, as well as the skills and performance of technical staff in order to provide a premium quality service with quick and correct solutions for consumers; and 6) utilize big data by integrating it into the marketing strategy, as it has become the valuable information on today.

## **6.2 Academic Contributions**

The marketing mix is the set of controllable variables that a company can use to influence the buyer's response (Kotler & Armstrong, 2009). The original 4Ps concept of the marketing mix developed by Kotler applied to product-based businesses, while the concept was extended to the 7Ps version to apply to service-oriented businesses. The 7Ps marketing mix is important today, as verified by the results of this study. Many companies review and define which aspects of the 7Ps model influence the marketing of their products and services, and then apply the key findings to their marketing strategies to create a competitive advantage.

Consumer behavior is an important element that can affect the consumer purchase decision. It can be shaped and influenced by a variety of factors and determinants, which can be organized into two groups: individual influences (internal) and environmental influences (external) factors (Blackwell et al., 2001). The results of this study revealed that attitudes toward technology, which is one of the internal influences factors, and reference groups, which is one of the external influences factors, both had an impact on customers' purchase intention. Consumers with an attitude of optimism with regard to technology were more likely to purchase technology-related products than those who had attitudes of skepticism, romanticism, or determinism (Ehlers & Kerschner, 2016). At the same time, however, the final purchase decision is also determined by how consumers formed their attitudes, whether from personal experience with products, social interaction, or exposure to

mass-media (Hanna & Wozniak, 2001). Aside from self-attitudes, the purchase intention of the consumers was also influenced by socialization and reference groups. From this study, primary and secondary reference groups were found to have less influence than socialization agents such as trustable independent product testing agencies and other consumers' word-of-mouth recommendations and referrals. Moreover, the consumer socialization theory (CST) could be used to explain how the socialization agents of family members, peers, colleagues, online social networks, etc. and reference groups affect purchase behavior through the consumers' socialization process (Moschis & Churchill, 1978). In conclusion, effective understanding of the consumer behavior theory can help businesses to improve their marketing strategies by analyzing the psychology of consumer thinking and feelings, and by understanding how consumers are influenced by the environment.

## 7. Limitations and Future Research

1) For future study, the researcher may conduct surveys in other geographical settings to gain a deeper understanding of the factors affecting purchase intention toward HDDs and / or other technology-related products in Thailand.

2) The researcher may conduct further study by adding a qualitative method together with performing data comparison over time on a yearly basis in order to improve the accuracy of the data.

3) The researcher may consider studying the same topic but developing it to include a wider scope of storage devices such as SSDs with a focus on the consumer point of view, demand, expectation and satisfaction.

4) The researcher may conduct further research of different enterprises and corporations in order to expand the scope of

research in terms of consumer diversity as well.

5) Future study may focus on how to create a business or marketing plan in order to develop a greater share of the HDD market in Thailand.

## References

- Afrin, F., Khan, F., & Islam, M. R. (2015). Impact of the Influential Factors on Laptop Buying Decision: A Study on the Students of Bangladesh. *Asian Journal of Research in Social Sciences and Humanities* Vol. 5, No. 7, July 2015, pp. 116-124
- Ardies, J., Maeyer, S., Gijbels, D., & Keulen, H. (2015). Students attitudes towards technology. *International Journal of Technology and Design Education*, 2015, Volume 25, Number 1, Page 43
- Arpaci-Dusseau, R. H., & Arpaci-Dusseau, A. C. (2014). *Operating Systems: Three Easy Pieces, Chapter: Hard Disk Drives*, Arpaci-Dusseau Books.
- Bearden, W. O., & Etzel, M. J. (1982). Reference Group Influence on Product and Brand Purchase Decisions. *Journal of Consumer Research*, 9, 2, Sept. 183-194.
- Bishnoi, V. K., & Mann, S. (2015). Influential Aspect of Reference Group on Mobile Phone Customers in Rural Haryana. *IJAPRR International Peer Reviewed Refereed Journal*, Vol. II, Issue II, p.n. -86-99, 2015
- Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2001). *Customer Behavior* (9<sup>th</sup> ed.). United States of America: Mike Roche.
- Bundit Pungnirund. (2013). The Influences of Marketing Mix on Customer Purchasing Behavior at Chatuchak Plaza Market. World Academy of Science, Engineering and Technology. *International Journal of Social, Behavioral, Educational, Economic, Business*

- and Industrial Engineering Vol:7, No:8, 2013
- Bhasin, H. (2016, December 1). *Reference Groups in consumer buying*. Marketing91. Retrieved July 3, 2017, from <http://www.marketing91.com/reference-groups-in-consumer-buying/>
- Chand, S. (2016). *3 External Factors that Influences Consumer Behavior*. Your Article Library. Retrieved June 19, 2017, from <http://www.yourarticlelibrary.com/consumers/3-external-factors-that-influences-consumer-behavior/12908/>
- Chand, S. (2016). *Top 5 Important Factors Influencing Consumer Behaviour*. Your Article Library. Retrieved July 3, 2017, from <http://www.yourarticlelibrary.com/marketing/consumer-behavior/top-5-important-factors-influencing-consumer-behaviour/32302/>
- Chand, S. (2016). *Understanding Purchase Decision Process with Purchase Decision Model*. Your Article Library. Retrieved September 10, 2017, from <http://www.yourarticlelibrary.com/decision-making/understanding-purchase-decision-process-with-purchase-decision-model/22167/>
- Coughlin, T. (2017, Jan 28). *20 TB Hard Disk Drives, The Future Of HDDS*. Forbes. Retrieved June 19, 2017, from <https://www.forbes.com/sites/tomcoughlin/2017/01/28/20-tb-hard-disk-drives-the-future-of-hdds/#8efd7ad1f887>
- Dictionary of Marketing Terms. (2017). *Attitudes*. Retrieved July 4, 2017, from [https://www.allbusiness.com/barrons\\_dictionary/dictionary-attitudes-4948639-1.html](https://www.allbusiness.com/barrons_dictionary/dictionary-attitudes-4948639-1.html)
- Ehlers, M. H., & Kerschner, C. (2016). A framework of attitudes towards technology in theory and practice. *Ecological Economics*, 2016, vol. 126, issue C, 139-151
- Friesner, T. (2017). *External Influences – Social Environment and Social Class*. Marketing Teacher Ltd. Retrieved June 19, 2017, from <http://www.marketingteacher.com/external-influences-social-environment-and-social-class/>
- Future Market Insights. (2014). *Hard Disk Drive (HDD) Market: Global Industry Analysis and Opportunity Assessment 2015 – 2025*. Retrieved June 19, 2017, from <http://www.futuremarketinsights.com/reports/hard-disk-drive-market>
- Giunta, F. (2011, Mar 19). *Marketing - Marketing Mix and Consumer Behaviour: The key is the research*. Marketing & Advertising. Retrieved July 3, 2017, from <http://fgteam-marketing-advertising.blogspot.com/2011/03/marketing-marketing-mix-and-consumer.html>
- Hanna, N., & Wozniak, R. (2001). *Consumer Behavior: An Applied Approach*. Upper Saddle River, NJ: Prentice Hall
- Hawkins, D. I., Best, R. J., & Coney, K. A. (2001). *Consumer behavior : Building marketing strategy* (8<sup>th</sup> ed.). Boston : McGraw-Hill
- Johnson, J. E. (2015). Influence of Parents, Peers, Internet Product Search and Visual Social Media on College Students' Purchase Behavior: A Mixed Methods Study. *Textiles, Merchandising and Fashion Design: Dissertations, Theses, & Student Research*. 7. Retrieved September 11, 2017, from <http://digitalcommons.unl.edu/textilesdiss/7>
- Kelman, H. C. (1961). Processes of opinion change. *Public Opinion Quarterly*. 1961;25 :57-78.
- Khan, T. M. (2014). The Concept of 'Marketing Mix' and its Elements.

- International Journal of Information, Business Management*
- Kiafar, H. (2013). *Factors Influencing Purchase of Digital Electronic Devices from the market in the North Cyprus—an Empirical Study*. Master of Arts in Marketing Management, Eastern Mediterranean University
- Kotler, P., & Armstrong, G. (2009). *Principles of Marketing* (13<sup>th</sup> ed.). Upper Saddle River, NJ: Prentice Hall
- Kumar, P. K., & Venkateshwarlu, V. (2017). Consumer Perception and Purchase Intention towards Smartwatches. *IOSR Journal of Business and Management (IOSR-JBM)*. e- ISSN: 2278-487X, p-ISSN: 2319-7668. Volume 19, Issue 1. Ver. IV (Jan. 2017), PP 26-28
- Lafferty, B., & Cate, S. (2017). *HDDs, NAND Enable Growth, but Majority of Data to be Stored on HDDs*. Retrieved July 9, 2017, from <https://wiki.seagate.com/confluence/display/~10933/2017/03/21/Data+Storage+from+a+Wafer+Fab+Perspective>
- Learnmarketing. (2017). *Service Marketing Mix*. Retrieved June 6, 2017, from <http://www.learnmarketing.net/servicemarketingmix.htm>
- Mark & Patrick. (2015). The Marketing Mix 4P's and 7P's Explained. *The Marketing Mix Debunked*. Retrieved May 20, 2017, from <http://marketingmix.co.uk/>
- McCarthy, E. J., & Perreault, W. D. (2002). *Basic Marketing: A Global Managerial Approach* (14<sup>th</sup> ed.). Homewood, IL: McGraw-Hill Irwin
- Mehta, S. C., Lalwani, A. K., & Ping, L. (2001). Reference Group Influence and Perceived Risk in Services Among Working Women in Singapore, *Journal of International Consumer Marketing*, 14(1), 43-65.
- Moschis, G. P. (1976). Social comparison and informal group influence, *Journal of Marketing Research*, 13, 237-244.
- Moschis, G. P., & Churchill, G. A. (1978). Consumer socialization: A theoretical and empirical analysis. *Journal of Marketing Research*, 15(4), 599-609.
- Park, C. W., & Lessig, V. P. (1977). Students and Housewives: Difference in Susceptibility to Reference Group Influence. *Journal of Consumer Research*, 3, 102-110.
- Patricia Arttachariya. (2012). *Environmentalism and Green Purchasing Behavior: A Study on Graduate Students in Bangkok, Thailand*. Assumption University.
- Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment*, 8(4), 350-353.
- Shilov, A. (2015, December 18). *Seagate: Hard disk drives set to stay Relevant for 20 years*. Retrieved December 12, 2016 from <http://www.anandtech.com/show/9858/seagate-hard-disk-drives-set-to-stay-relevant-for-20-years>
- Sirirat Saesieo. (2015). *Factors affecting decision making on purchasing pearl milk tea in Bangkok*. Master of Business Administration. Stamford International University
- Sirgy, M. J., Rappz, D. R., & Portolese, L. (2017). *Consumer Behavior Today*, v. 1.0. Retrieved July 3, 2017, from [https://catalog.flatworldknowledge.com/bookhub/reader/8111?e=sirgy\\_1\\_0-ch11\\_s01](https://catalog.flatworldknowledge.com/bookhub/reader/8111?e=sirgy_1_0-ch11_s01)
- Supawadee Khumrat. (2012). *Factors affecting behavioral intention to buy tablet*. Master of Business Administration. University of the Thai Chamber of Commerce
- Szumala, M. (2015, July 31). *At what age does a child/individual become conscious/aware of his decision making?* Retrieved July 3, 2017, from <https://www.quora.com/At-what-age-does-a-child-individual->

- become-conscious-aware-of-his-decision-making
- Thanin Sinjaru. (2006). *Statistical Research and Analysis by SPSS*. 5th Ed. Bangkok: V. Interprint, 2006.
- The Economic Times. (2017). *Marketing: Definition of 'Marketing Mix'*. Bennett, Coleman & Co. Ltd. Retrieved May 30, 2017, from <http://economictimes.indiatimes.com/definition/marketing-mix>
- The Nation. (2017, June 12). *US hard-disk-drive producer expanding Thai operation to create 2,500 jobs*. Retrieved June 19, 2017, from <http://www.nationmultimedia.com/news/breakingnews/30317835>
- Thokchom, R. S. (2012). *The rise of an Apparageist: Factors affecting Bangkok-based consumers' purchase intention for smart phones*. Master of Business Administration, Graduate School, Assumption University.
- Turcinkova, J., & Moisidis, J. (2011). Impact of reference groups on the teenagers' buying process of clothing in the Czech Republic. *Acta univ. agric. et silvic. Mendel. Brun.*, 2011, LIX, No. 7, pp. 489–496
- Warinda Boonpitak. (2011). *Factors affecting the consumer buying decision towards iPhone4S in Rangsit*. Master of Business Administration, Graduate School, Rajamangala University of Technology Thanyaburi
- Watchara Yisuntes and Chantira Maunmontree. (2016). *Factors Affecting Customers' Buying Decision for Telephone Headset*. Post Graduate School of business administration, Kasem Bundit University
- Yamane, Taro. (1973). *Statistics: An Introductory Analysis* (3<sup>rd</sup> Ed.). New York: Harper and Row Publication