

## Chapter2 – Literature Review

In this chapter the findings and past studies of different researchers on consumer behavior, price elasticity will be presented. After reviewing consumer behavior and giving a brief history of its different models, all determinants will be discussed..

### 2.1 Background Information

In recent decades, Asia has been home to many of the world's most dynamic markets. The region now represents *twenty five percent* of world economy and about *fifty percent* of the world's population. ([www.echat.com](http://www.echat.com)). It is this vary reason that international companies see Asia as economic growth engine driver. Although Taiwan population is not as big as other countries in Asia, international firms give Taipei high weighting due to its consumer behavior and preferences are in tandem with the world's most fashionable markets. From 2004~2007, there are three new yoga studios open in Taipei, offering a variety of classes, such as hot yoga, ashtanga, hatha, flow, power..etc. New entrants' penetrating price strategy has changed consumers' behaviors. On top of price reduction, consumers are demanding beyond what they would expect from traditional yoga studios. Squeezing margin plus picky consumers, force yoga marketers to evaluate the re-positioning urgency and new strategy adjustment.

#### 2.1.1 The Sport Industry

The research of Pitts, Fielding, and Miller (1994) and a study by *The Sporting News* and Wharton Econometric Forecasting Association Group ( Comte & Stogel, 1990) provide thorough descriptions of products and buyers that constitute the sport industry. Their research shows that the sport industry includes a wide variety of sport oriented products and buyers. The product offering includes sports, fitness, recreation, or leisure activities and their related goods and services. The buyers include businesses and consumers from all population. (Sport Economics 2001).

In 1990, a report of a study of the sport industry revealed that the Gross National Sport Product (The sum of output and services generated by the sport industry) totaled US\$61.3 billion in 1988 ( Comte & Stogel , 1990). Sport industry was a US\$213 billion business and ranked the sixth major industry in the United States in the twentieth century. The global sport business has already exceeded US\$500 Billion in the new millennium ( Street & Smith's Sport Business Journal , 1999).

According to the special characteristics of sport industry, it can be classified into: sport

facility businesses, sport product businesses, sport service businesses ( Kim, 2000). Harada(1999), indicates that Japan’s sport industry was classified in three basic elements: sport products, sport facility & space, and sport information. The concept of sport industry was introduced in Taiwan in 1993 and segmented in: sport performance, sport production, and sport promotion (Cheng, 2000).

**Table 2.1.1. The Sport Industry**

According to the GNSP(Gross National Sport Product): the sum of the output generated\_by the sport industry.

<b>1st Study</b>	<b>1986 data</b>	<b>\$47.3 billion</b>	
<b>2nd Study</b>	<b>1987 data</b>	<b>\$50.2 billion</b>	<b>23rd largest industry in U.S.A</b>
<b>3rd Study</b>	<b>1988 data</b>	<b>\$63.1 billion</b>	<b>22nd largest industry in U.S.A</b>
<b>4th Study</b>	<b>2006 data</b>	<b>\$256 billion</b>	<b>6th largest industry in U.S.A</b>

Source: Sports, Inc.& Sporting News with WEFA(Wharton Econometric Forecasting Association)

An industry, as defined by Porter ( 1985), is a market in which similar or closely related products are sold to buyers. It is more typical that an industry comprises a variety of product items sold to many existing or potential consumers who vary demographically, psychologically, and who may change in need, want, desire, or demand. ( Porter,1985).

In Taiwan, the first national sport congress has hosted the new age of sport and physical education in the 21<sup>st</sup> century by National Council of Physical Education during May, 1999 (Cheng,2002). Three visions have been formed for 2010 :

- a) Develop happy community.
- b) Elevate the performance in competitive sport.
- c) Promote citizen’s wellness.

From the above data, we can conclude that sport industry is one of the important agenda in the 21<sup>st</sup> century. Factors such as, an increase in global population, an improve in standard of living, an awareness of preventive health care and an increase in amount allocated to leisure have made sport industry management another challenge for sport marketers.

### **2.1.2 Yoga background**

Yoga is said to be as old as the beginning of civilization. There is no physical evidence to support this claim. Earliest archaeological evidence of Yoga's existence could be found in stone seals, which depict figures of Yoga Poses. The stone seals place Yoga's existence around 3000 B.C.

Scholars, however, have a reason to believe that Yoga existed long before that and traced its beginnings in Stone Age Shamanism. Both Shamanism and Yoga have similar characteristics particularly in their efforts to improve the human condition at that time. Also, they aim to heal community members and the practitioners act as religious mediators. Though we know Yoga as focusing more on the self, it started out as community-oriented before it turned inward.

For a better discussion of the history of Yoga, it could be divided into four periods: the Vedic Period, Pre-Classical Period, Classical Period, and Post-Classical Period.

### **Vedic Period**

The existence of the Vedas marks this period. The Vedas is the sacred scripture of Brahmanism , that is the basis of modern-day Hinduism. It is a collection of hymns which praise a divine power. The Vedas contains the oldest known Yogic teachings and as such, teachings found in the Vedas are called Vedic Yoga . This is characterized by rituals and ceremonies that strive to surpass the limitations of the mind.

During this time, the Vedic people relied on rishis or dedicated Vedic Yogis to teach them how to live in divine harmony. Rishis were also gifted with the ability to see the ultimate reality through their intensive spiritual practice. It was also during this time that Yogis living in seclusion .

### **Pre-Classical Yoga**

The creation of the Upanishads marks the Pre-Classical Yoga. The 200 scriptures of Upanishads (the conclusion of the revealed literature) describe the inner vision of reality resulting devotion to Brahman. These explain three subjects: the ultimate reality (Brahman), the transcendental(atman), and the relationship between the two. The Upanishads further explain the teachings of the Vedas.

Yoga shares some characteristics not only with *Hinduism* but also with *Buddhism* that we can trace in its history. During the sixth century B.C ., Buddha started teaching Buddhism, which stresses the importance of Meditation and the practice of physical postures. Siddharta

Gautama, the first Buddhist to study Yoga, achieved enlightenment at the age of 35.

Later, around 500 B.C., the Bhagavad-Gita or Lord's Song was created and this is currently the oldest known Yoga scripture. It is devoted entirely to Yoga and has confirmed that it has been an old practice for some time. However, it doesn't point to a specific time wherein Yoga could have started. The central point to the Gita is that - to be alive means to be active and in order to avoid difficulties in our lives and in others, our actions have to be benign and have to exceed our egos.

Just as the Upanishads further the Vedas, the Gita builds on and incorporates the doctrines found in the Upanishads. In the Gita, three facets must be brought together in our lifestyle : Bhakti or loving devotion, Jnana which is knowledge or contemplation, and Karma which is about selfless actions. The Gita then tried to unify Bhakti Yoga, Jnana Yoga, and Karma Yoga and it is because of this that it has gained importance. The Gita was a conversation between Prince Arjuna and God-man Krishna and it basically stresses the importance of opposing evil.

### **Classical Period**

The Classical Period is marked by another creation - the Yoga Sutra. Written by Patanjali around the second century, it was an attempt to define and standardize Classical Yoga. It is composed of 195 aphorisms or sutras (from the Sanskrit word which means thread) that expound upon the Raja Yoga and its underlying principle, Patanjali's Eightfold path of Yoga (also called Eight Limbs of Classical Yoga). These are:

1. Yama, which means social restraints or ethical values;
2. Niyama, which is personal observance of purity, tolerance, and study;
3. Asanas or physical exercises;
4. Pranayama, which means breath control or regulation;
5. Pratyahara or sense withdrawal in preparation for Meditation;
6. Dharana, which is about concentration;
7. Dhyana, which means Meditation; and
8. Samadhi, which means ecstasy.

Patanjali believed that each individual is a composite of matter (prakriti) and spirit (purusha). He further believed that the two must be separated in order to cleanse the spirit - a stark contrast to Vedic and Pre-Classical Yoga that signify the union of body and spirit.

Patanjali's concept was important for some centuries, that some Yogis focused exclusively on Meditation and neglected their Asanas. It was only later that the belief of the body as a temple

was rekindled and attention to the importance of the Asana was revived. This time, Yogis attempted to use Yoga techniques to change the body and make it immortal.

### **Post-Classical Yoga**

At this point, we see a proliferation of literature as well as the practice of Yoga. Post-classical Yoga differs from the first three since its focus is more on the present. It no longer strives to liberate a person from reality but rather teaches one to accept it and live at the moment. Yoga was introduced in the West during the early 19th century. It was first studied as Eastern-Philosophy and began as a movement for health and vegetarianism around the 1930's. By the 1960', there was an influx of Indian teachers who expounded on Yoga. One of them was Maharishi Mahesh, the Yogi who popularized Transcendental Meditation. Another is a prominent Yoga Guru Swami Sivananda. Sivananda was a doctor in Malaysia and he later opened schools in America and Europe. The most prominent of his works is his modified Five Principles of Yoga which are:

1. Savasana or proper relaxation;
2. Asanas or proper exercise;
3. Pranayama or proper breathing;
4. Proper diet
5. Dhyana or positive thinking and Meditation

Sivananda wrote more than 200 books on Yoga and Philosophy and had many disciples who furthered Yoga. Some of them were Swami Satchitananda who introduced chanting and Yoga to Woodstock; Swami Sivananada Radha who explored the connection between psychology & Yoga, and Yogi Bhajan who started teaching Kundalini Yoga in the 70's. (<http://www.abc-of-yoga.com>).

### **Bikram Yoga /Hot Yoga Background**

Bikram Choudhury is a renowned Hatha Yoga Master who developed Bikram Yoga over 30 years ago. Born in Calcutta, Bikram began studying yoga when he was only four. At the age of thirteen, Bikram won the National India Yoga Contest. He was undefeated for the next three years. Bikram went on to pursue an athletic career as a marathon runner and a champion weightlifter, setting world record lifts and competing in the 1964 Olympics in Tokyo a serious knee injury in a weight lifting accident at the age of twenty caused European doctors to predict Bikram would not walk again. Finding his way back to India and his yoga guru, Bishnu Ghosh, it took six months of yoga therapy for his knee to totally recover. This is how Bikram Yoga was created - through Bikram's own healing regime.

Bikram Yoga is a series of *26 postures* conducted over *90 minutes*, beginning with one warming up breathing exercise, progressing through 24 asanas or postures and finishing with one toxin eliminating breathing posture. This series of postures systematically and scientifically works through the entire body. Each posture is completed twice, each leads on from the next, preparing the body. The room is mirrored to allow for greater body awareness and to refine and deepen postures with easy self-correction.

Classes are held in a *heated room(38-40degree celcius)*. The warm room allows for greater flexibility, it minimizes muscle strain, lactic acid build up and reduces the chance of injury, allows for greater cleansing of the body and helps build tremendous stamina and endurance.(<http://www.bikramyoga.com>)

## **2.2 Consumer Buying Behavior**

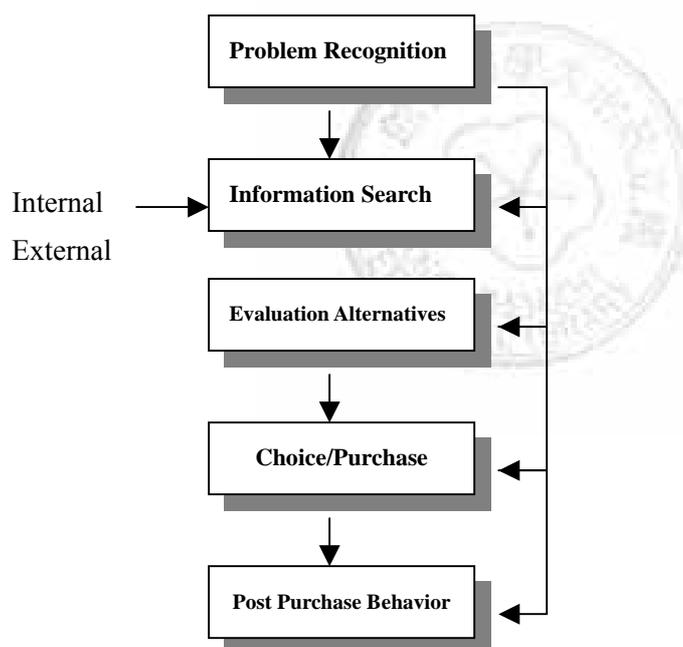
The study of consumers behaviors helps firms and organizations improve their marketing strategies by understanding issues such as :

- The psychology of how consumers think, feel, reason, and select between different alternatives (e.g., brands, products);
- The psychology of how the consumer is influenced by his or her environment (e.g., culture, family, signs, media);
- The behavior of consumers while shopping or making other marketing decisions;
- Limitations in consumer knowledge or information processing abilities influence decisions and marketing outcome;
- How consumer motivation and decision strategies differ between products that differ in their level of importance or interest that they entail for the consumer.
- How marketers can adapt and improve their marketing campaigns and marketing strategies to more effectively reach the consumer.

Understanding these issues helps marketers adapt their strategies by taking the consumer into consideration. For example, by understanding that a number of different messages compete for our potential customers' attention, we learn that to be effective, advertisements must usually be repeated extensively. We also learn that consumers will sometimes be persuaded more by logical arguments, but at other times will be persuaded more by emotional or symbolic appeals. By understanding the consumer, we will be able to make a more informed decision as to which strategy to employ.

### **2.2.1 EKB Model (Engel, Kollat, and Blackwell, 1973)**

The modeling of consumer decision making enables managers to explain and predict consumer behavior, and thereby provides a basis for marketing decisions. The consumer progresses firstly from a state of felt deprivation (*Problem Recognition*) to the search of information on possible solutions. The information gathered, be it from internal sources (e.g memory) or external sources (e.g discussions, brochures, sales promotions) provides the basis for the next stage—the *Evaluation of Alternatives*. This stage requires the development and comparison of purchasing evaluation criteria. The *Choice/Purchase* stage concerns the action or activity of the purchase, and includes such issues as the place and means of purchase as well as the actual decision to buy. Finally, *Post-Purchase Behavior*, as an explicit stage in the process, is critical in the marketing perspective. The degree of satisfaction/dissatisfaction with the product/service is a major concern of marketers, and provides information for future products and services. This framework is useful in enabling the complexities of the external environment and internal information processing to be captured.



Source: Kotler ,2003

**Figure 2.2.1 Internal/ External Information Process**

### 2.2.1.1.1 Problem Recognition

The first stage of the consumer decision process triggers all subsequent activities. The consumer is compelled to fill the gap between the actual state (deprivation) and the desired state (fulfillment) when his or her threshold of problem awareness is reached. A number of external or internal factors may elicit problem recognition. For example, an increase in a

person's financial situation can trigger a consumption decision. Actually, with an external stimulus, if the person's normal needs-hunger, thirst-rises to threshold level and become a drive; need can be aroused by an external stimulus as well.

Consider the external marketing stimuli: In traditional markets, conventional marketing communications stimulate demand via conventional media, e.g. an advertisement on television. On the Internet, however the medium is new, and so new kinds of communications are required. Traditional mass marketing approaches such as advertisement reflect one mass marketer communicating a common message to many consumers. Of course, much of the audience will not be interested, and there is considerable wastage. But new information technologies fundamentally change that. Computer mediated environment enable identification of individual consumer needs and wants, and the subsequent design and delivery of individual, customized communication to the one individual by many suppliers. This, then, supersedes the traditional "one-to-many" practice.

In terms of consumer problem recognition, the Internet marketer can capture the consumer at this early stage in the process. That is, the marketer, by virtue of powerful databases of consumer information, is in a better position to know and anticipate the consumer needs and wants. Furthermore, the problem threshold that will trigger action may also be known. Indeed, the marketer may be in a position to manage the consumer's purchasing function in a way that has only been known in business to business markets.

#### **2.2.1.1.2 Information Search**

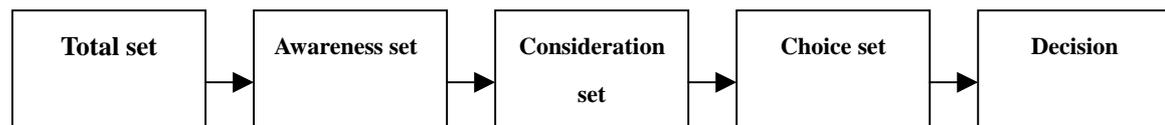
After recognizing the problem, the next stage is searching the information. "An aroused" consumer will be inclined to search for more information. We can distinguish between two levels of arousal. The milder search state is called heightened attention. At this level a person simply becomes more receptive to information about a product.

At the next level, the person may enter an active information search: looking for reading material, phoning friends, and visiting stores to learn about the product. "Of key interest marketers are the major information sources to which the consumer will turn and the relative influence each will have on the subsequent purchase decision". (Kotler, 2003, p204)

The problem recognition stage motivates the consumer to act, and the information search stage is when the consumer takes action to gain knowledge. The sourcing of information is at heart of this stage in the consumer buying decision process. Essentially, the consumer seeks

information for decision- making and the marketer must provide the necessary information.

Through gathering information, the consumer learns about competing brands and their features. Fig.2.2.1.1.2 shows successive sets involved in consumer decision making. The first box is the total set of brands available to the consumer. The individual consumer will come to know only a subset of these brands in the choice set might all be acceptable. The person makes a final choice from this set.



**Figure 2.2.1.1.2 : Successive Sets in Consumer Decision Making( Kotler, 2003)**

Information seeking forms an important and integrated part of problem solving by affecting the quality of a given task solution. While many different models of information seeking have been proposed. Here just one of the models of information search is presented.

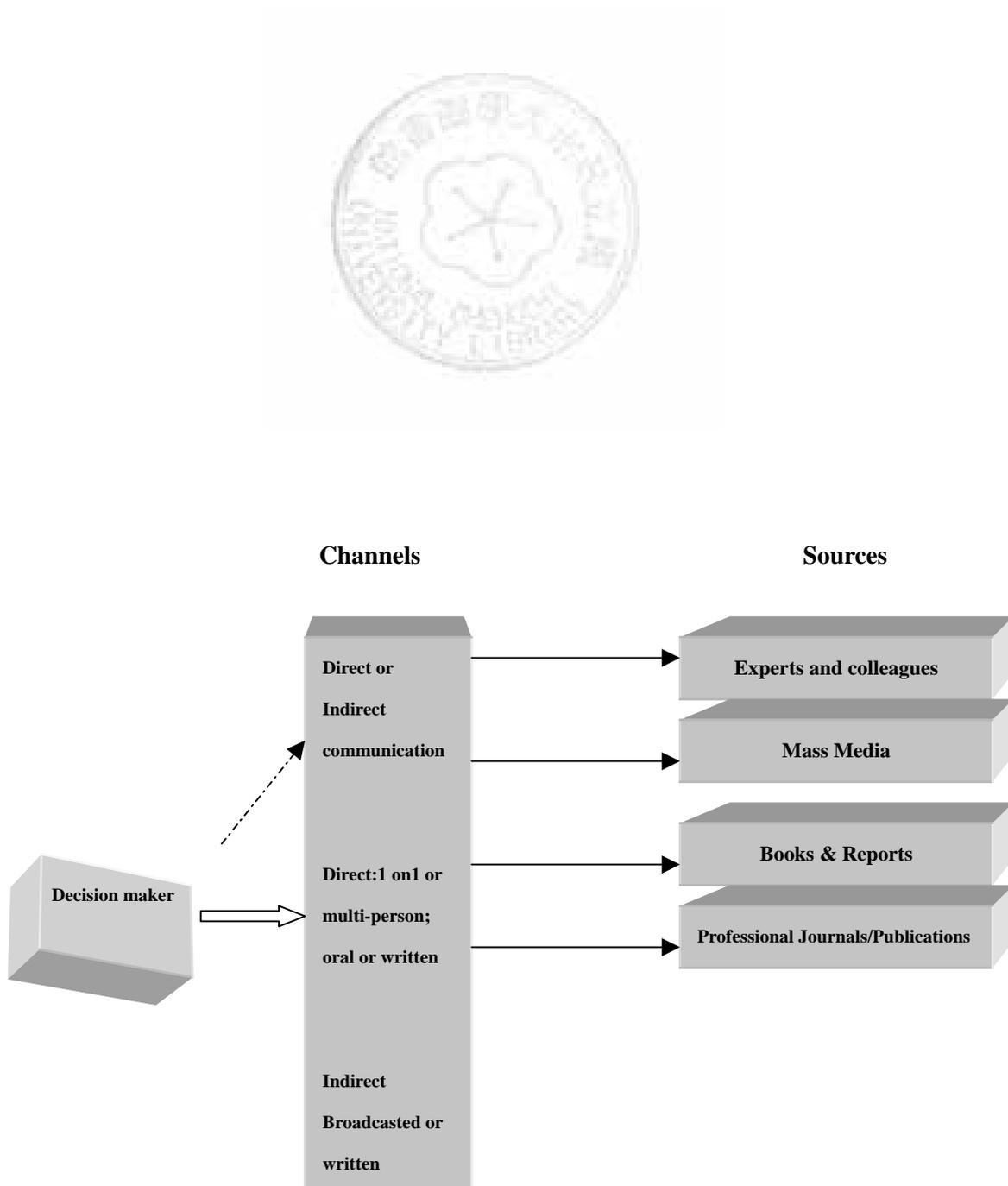
Drestke in 1999 identified four elements of communication: a source, a message, a medium and a receiver (Janse,2004). The message is the information flowing from the source to the receiver through a channel/medium. This representation of the communication process is considered too simple nowadays because besides the given information, also the internal context- mainly determined by the addressee's experience, knowledge and attitudes- and the external context, which is primarily defined by the specific situational and the social setting, influence communication. Furthermore, communication is a two-way street, and receivers are not passive but actively search for information (Innes,1998). According to Wilson (1997), the circumstances that give rise to

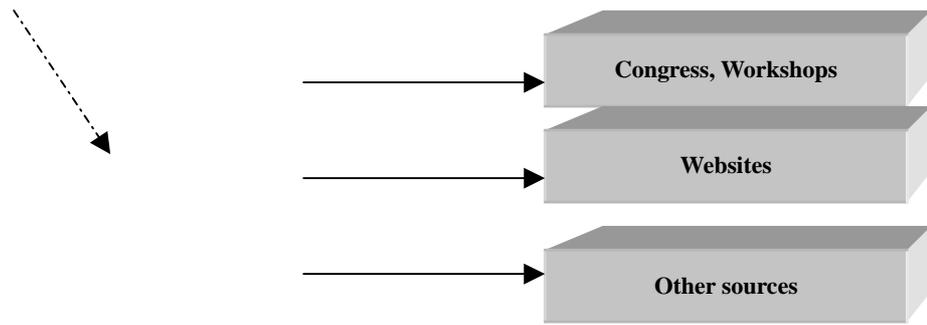
information seeking-behavior are the situation within which a need for information arises (a person performing a role in an environment); the barriers that may exist to either engaging in information seeking behavior or in completing a search for information successfully; and information-seeking behavior itself.

Janse,2004, introduced a model with three main elements (Fig.2.2.1.1.3). This model describing the types of information needed, their sources and the channels through which this information is acquired. Janse developed this model for information searching in forest policy decision-making based on information types, channel and sources. He also claimed that information searching for all decision making process contains these three elements

In this model, Janse has classified the channels used to reach the information sources, based on the approach used by Van Woerkum et al. The first distinction made is the one between direct and indirect communication. Direct communication then can be split up into one-on-one communication and multi-person communication. Simultaneously, direct communication can also be divided into oral and written communication. This distinction takes the form of a split up between face-to-face or telephone conversations on the one hand, and emails or letters on the other hand. Indirect communication can be roughly divided into broadcasted (radio and television) and written (publications, newspapers and emails news lists) communication.

Janse's identification of different information sources draws on the work by Hertzum and Mark Pejtersen on internal and external sources, and Fidel and Green's study on human vs. documentary sources.





**Figure 2. 2.1.1.3 Information search model for forest policy decision making based on information types, channels and sources.( Janse,2004)**

### **2.2.1.1.3 Evaluation of Alternatives**

The third stage of the consumer buying decision process involves the analysis and evaluation of alternatives solutions. How does the consumer process competitive brand information make a final value judgment? The consumer has sought and found the relevant information, and must now use it to make the purchase decision. There is no single process used by all consumers or by one consumer in all buying situation. There are several decision evaluation processes. Traditional sources of information for the evaluative stage include past experience, marketing-sponsored communications, consumer groups and research institutions, and word-of-mouth. In Internet markets, however, information technologies allow for more and more defined, evaluative criteria to be used. In this regard, when consumer experience information overload in the evaluation process, or when the “psychological price” of evaluation becomes too high, the advantage may be to the “ safe” branded or establish competitor.

### **2.2.1.1.4 Purchasing Decision**

In the evaluation stage, the consumer forms preferences among the brands in the choice set. The consumer may also forms the intention to buy the most preferred brand. Factors can intervene between the purchase intention and the purchase decision.

The first factor is the attitude of others. The extent to which another person’s attitude reduces one’s preferred alternative depend on two things:

- “(1) The intensity of the person’s negative attitude toward the consumer’s preferred alternative and (2) the consumer motivation to comply with the other person’s wishes.

The most intense the other person's negativism and the closer the other person is to the consumer, the more the consumer will adjust his or her purchase intention. The converse is also true: a buyer's preference for a brand will increase if someone he or she respects favors the same brand strongly. The influence of others becomes complex with several people close to the buyer hold contradictory opinions and the buyer would like to please them all. Related to the attitudes of others is the role played by infomediaries who publish their evaluations, examples include consumer reports, professional movies, books, and music reviewers; customer reviews of books and music in Amazon.com; and the increasing number of chat rooms where people discuss products, services and companies. Consumers are undoubtedly influenced by the evaluations" (Kotler,2003)

The second factor is unanticipated situational factors that may erupt to change the purchase intention. A person might lose his job, some other purchase might become more urgent, or a store salesperson may turn him off. Preferences and even purchase intentions are not completely reliable predictors of purchase behavior.

A consumer's decision to modify, postpone or avoid a purchase decision is heavily influenced by perceived risk. The amount of perceived risk varies with the amount of money at stake, the amount of attribute uncertainty, and the amount of consumer self confidence. Consumers develop routines for reducing risk, such as decision avoidance, information gathering from friends, and preference for national brand names and warranties. Marketers must understand the factors that provoke a feeling of risk in consumers and provide information and support to reduce the perceived risk.

In executing a purchase intention the consumer may make up to five purchase sub decisions: a brand decision (e.g.: brand A), vendor decision (e.g.: dealer 2), quantity decision (e.g.: one computer), and timing decision ( e.g.: week days), and payment method decision (e.g.: credit card). Purchase of everyday products involves fewer decisions and less deliberation. For example, in buying sugar, a consumer gives little thought to the vendor or payment method.

#### **2.2.1.1.5 Post- purchasing behavior**

After purchasing the product, the consumer will experience some level of satisfaction or dissatisfaction. The marketer's job does not end when the product is bought. Marketers must monitor post purchase satisfaction, post-purchase actions, and post-purchase product users.

#### **2.2.1.1.6 Post- purchasing satisfaction**

What determines whether the buyer will be highly satisfied, somewhat satisfied, or dissatisfied with the purchase? The buyer's satisfaction is a function of the closeness between the buyer's expectation and the product's perceived performance. If performance falls short of expectations, the customer is disappointed. If it meets expectations, the customer is delighted. These feelings make a difference in whether the customer buys the product again and talks favorably or unfavorably about it to others. Consumers form their expectation on the basis of messages received from sellers, friends, and other information sources. The larger the gap between expectation and performance, the greater the consumer's dissatisfaction. The importance of post-purchase satisfaction suggests that product claims must trustfully represent the product's likely performance. Some sellers might even understate performance levels so that consumers experience higher-than-expected satisfaction with the product.

#### **2.2.1.1.7 Post- purchasing actions**

Satisfaction or dissatisfaction with the product will influence a consumer's subsequent behavior. If the consumer is satisfied, he or she will exhibit a higher probability of purchasing the product again. For example, "data on automobile brand choice show a high correlation between being highly satisfied with the last brand bought and the intention to buy the brand again. One survey showed that 75 percent of Toyota buyers were highly satisfied and 75 percent intended to buy again; 35 percent of Chevrolet buyers were highly satisfied, and about 35 percent intended to buy a Chevrolet again" (Kotler,2003). The satisfied customer will also tend to say good things about the brand to others. Marketers say "Our best advertisement is a satisfied customer" (Barry L.Bayus,1985)

Post-purchase communications to buyers have been shown to result in fewer product returns and order cancellation. Computer companies, for example, can send letter to new owners congratulating them on having selected a fine computer. They can place ads showing satisfied brand owners. They can solicit customer's suggestions for improvement and list the location of available services. They can write intelligible instruction booklets. They can send owners a magazine containing articles describing new computer applications. In addition, they can provide good channels for speedy redress of customer grievances.

#### **2.2.2 Internal Search and Stored Information**

Little is known about internal search; Hansen (1972) attempted to measure a construct that is at least related to internal search, using a projective technique by asking : How carefully would you think that most people would consider the alternatives? . However, the question

may be more closely related to processing than to search. No other studies have attempted to measure the amount of internal search prior to purchase. However, a number of studies suggests the very plausible hypothesis that experience leads to knowledge, which gives rise to internal search in the future. For example, William and Leahmann (1980) suggested that people who are interested (and probably more experienced as well) in a product category have more information stored in memory than others.

Studies using behavioral process methodologies have found that consumers acquire less information when brand names are present than when they are not ( Jacoby 1977). This suggests that more internal search is taking place when brands names are present. Newman and Staelin (1971) have found that external search decreases with satisfactory experience with a product class. One might infer from these findings that more internal search is taking place after knowledge has been gained through previous experience.

### **2.2.2 External Search and Effort**

External search effort is the degree of attention, and the effort directed towards obtaining environmental data and information related to specific purchase under consideration. The focus is directed toward active rather than passive search due to the ambiguity and difficulty of measuring passive search. It is likely, however that some passive search will be captured in these measures, particularly for media search ( Hawkins, Best and Coney 1986).

The idea that consumers may undertake external search for information prior to a purchase to a purchase decision has been widely popularized by conceptual models such as those of Howard and Sheth (1969). These models imbue the concept of search with certain connotations of systematic approach to decision making, utilizing a variety of information sourcing and with clear evaluation criteria. However, extensive reviews of the conceptual and empirical literature such as those by Newman (1977) indicate that at best such external search should be characterized as limited rather than extensive. That is, many individuals do not visit more than one retail outlet, and many appear to rely on small subset of all available information sources (personal, neutral and advertisement).

The extent of external search for information exhibited by consumer prior to purchase typically has been found to be very limited. In some cases little or no external search occurs ( Dommermuth 1965; Newman 1972). Limited search sometimes occurs even for specialty and shopping goods and for first time purchase. Large individual differences in the extent of search have also been observed. These findings are of obvious significance to private and public policy making and many factors have been proposed to explain them.

Given that it is so difficult to measure external search, it is not surprising that the determinants of external search are not well established empirically. The cost benefit concept, drawn from economic theory (Stigler and George 1961), provides that primary theoretical basis for most empirical studies (Goldman and Johansson 1978). This concept implies that a person will continue to acquire and process information until the costs of additional acquisition and processes outweigh that expected benefits. Thus, other things being equal, product importance would imply higher benefits and, hence, more search. Similarly, learning and experience (Howard and Sheth 1969) would imply smaller expected benefits for additional external search. Newell and Simon (1972) emphasis on limited processing capacity does not suggest which product classes will be searched more extensively, but does suggest limits to the amount and type of information processing.

### **2.2.2.1 Categorization of External Variables**

Different categorizations of variables that are related to external search have been provided by researchers.

#### **Newman categorization**

Newman (1977) categorized the determinants into six categories

Cost

Potential payoff ( price, style, perceived difference, perceived risk, knowledge, experience, education and income)

Buying strategies ( brand and store preference, satisfying versus optimizing strategy of information acquisition)

Situational variables (urgency, financial pressure, special buying opportunities, location of residence)

Personality variables

Other variables ( household role, party or major influence, social class, occupation, age, stage of life cycle)

#### **Bettman classification**

A similar breakdown (Bettman 1979) classified determinants of “choice process intensity” into five categories:

- Properties of choice situation (availability of information, difficulty to choice task and time pressure)
- Cost versus benefit of information
- Conflict and conflict response strategies

- Individual differences (in-store versus prior processing, abilities, concern with optimality of choice)
- Knowledge

### **Moore and Lehmann (1980) categorization**

They offered a third categorization in an attempt to combine Newman and Bettman categorizations and eliminated some inconsistencies. This typology differs from Bettman's in two ways. First, their choice situation category has been split into two components, market environment and situational variables, because of the difference in the nature of these two influences. Second, their costs and benefits category has been split into a number of categories, as all of the categories ultimately fall under this heading. Similarly, the primary difference from Newman's list is that their potential payoff category has been split into a number of categories (potential payoff, knowledge/experience, and individual differences), as these aspects are usually treated separately. Also their category "buying strategies" has been made a part of Moore and Lehmann's individual differences category.

### **Duncan and Layton categorization**

Duncan classified these factors into environmental and consumer factors. He defined environmental factors as number of alternatives present and information availability and consumer factor in his definition, include perceived risk, knowledge, experience, time and finance pressure and personality variables (Duncan, 1982)

### **Other studies on search variables**

Sharone's (1987) research and findings on external search variables are as follows:

- 1) Consumers tend to engage in more searches when purchasing higher priced, more visible, and more complex products- i.e., products that intrinsically create greater perceived risk.
- 2) Search is also influenced by individual factors, such as the perceived benefits of search, demographic aspects, and product knowledge possessed.
- 3) Search effort tends to be further influenced by factors in the marketplace such as store distribution and by situational factors such as time pressure impinging on the shopper.

Moore external search studies focused on "search style segment". Westbrook and Fornell, (1979) noted two "search style segments" shoppers tended to differ on 1) the extent of physical shopping, and 2) the tendency to use either neutral sources or personal sources or information. Midgley (1983) continued to refine "search style segments" by clustering individuals who utilized sources of information differently in the search process. Four

dimensions explained patterns of search for men's suits: life cycle (age, attitude to change and risk, income and marital status), status involvement ( income, social class, and purchase frequency), pro fashion attitudes (attitudes to change and risk; marital status) and store loyalty. Punj and David and Stewart (1983) identified six clusters of individuals with verifying patterns search.

An extended framework on consumers search that distinguishes between pre-purchase search and ongoing search was presented by Bloch, Sherrell, Ridgway (1986). They suggest that purchase search (search related to a specific purchase) is influenced by involvement in the purchase, while ongoing search (search independent of specific purchase needs of decisions) is influenced by involvement with the product.

As this study will specifically focused on the aspects of external search by consumers, factors which are affected by external search effort, will be described completely below. It should be mentioned that these factors were directly extracted fro Laroche's (2004) research.

### **2.2.3 Influencing Factors**

#### **2.2.3.1 Personal variables**

Researchers have looked at the effort of personality traits and/or lifestyle characteristics on search behavior. These variables are discussed below:

##### **2.2.3.1.1 Lifestyle and Personality**

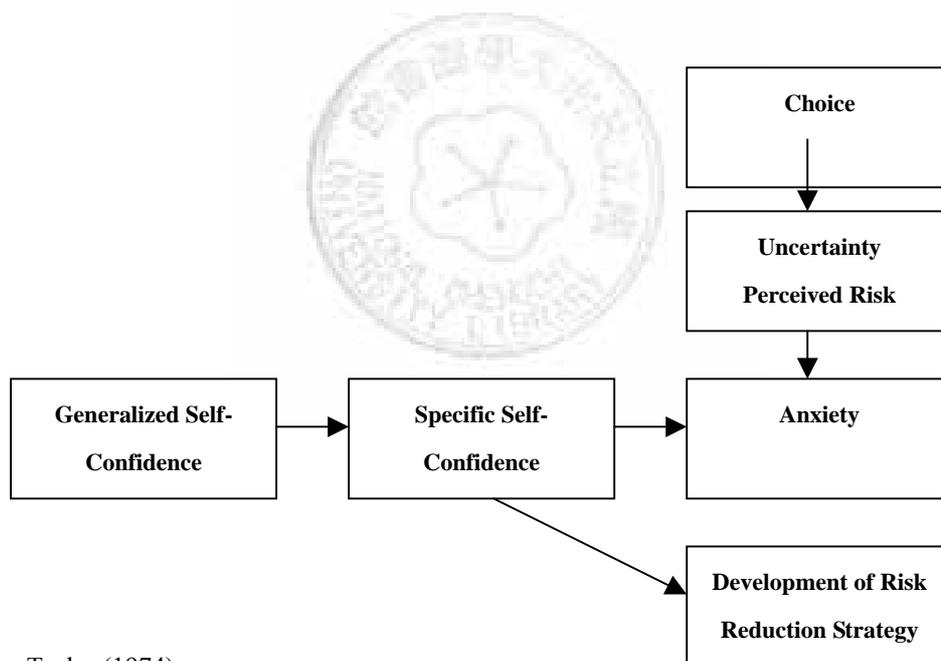
People from the same sub-culture, social class, and occupation may lead quite different lifestyle. A lifestyle is a person's pattern of living in the world as expressed in activities, interest and opinions. Lifestyle portrays the " whole person" interacting with his or her environment. Marketers search for relationships between their products and lifestyle groups. The marketers may aim the brand more clearly at the achiever lifestyle.

Each person has personality characteristics that influence his or her approaches in information searching. By personality, we mean a set of distinguishing human psychological traits that lead to relatively consistent and enduring responses to environmental stimuli. Personality is often described in terms of such traits as self confidence, dominance, autonomy, deference, sociability, defensiveness and adaptability. Personality can be a useful variable in analyzing consumer's information search approach.

##### **2.2.3.1.2 Self –confidence and risk reduction**

Although risk taking is categorized by Laroche (1004) as situational variables, but because self-confidence and risk are interrelated, we also discuss this subject here.

Researchers always try to find relationship between self-confidence and risk taking. Tayloe,1974, outlines a theoretical structure for risk taking in consumer behavior. In his literature review, Taylor states that very little is known about three individual differences variables (generalized self-confidence, specific self-confidence, and anxiety) and their effect on risk-reduction strategies. Figure 2.2.3.1.2 shows the relationship between these two concepts in the consumer research literature (Taypor 1974). Basically, the consumer is confronted with a choice situation and as a result experience uncertainty or perceived risk. As a result of uncertainty, risk reduction strategies are developed by consumers and as William and Locander (1979) point out, these strategies can operate on either of the two risk components: 1) uncertainty and 2) importance or danger. For the most part, consumers tend to reduce the uncertainty component by seeking information about purchase decision.



Source: Taylor (1974)

**Figure 2.2.3.1.2 Relationship between self -confidence and anxiety**

The following operational definitions help to better understand figure 2.2.3.1.2

- Uncertainty / Perceived Risk

The work of Lutz and Reilly (1973) based on Bettman’s (1972) previous efforts, was used to

construct the purchase situations. Consumers were asked to project themselves into five different purchases, situations and rate their information-seeking behavior. The following paragraph, Lutz (1973), was used for the hypothetical purchase situation.

“ You need to buy a product for your own personal use, but when you go shopping you discover that all the brands that you are familiar with are unavailable. The only brands available in the entire town are brands A,B,C,D,and E, brands which you know nothing about. Nevertheless, you need the product and therefore must take a choice among the five brands. However, for you to select a brand without any information about the brands would be virtually the same as selecting at random”

- Generalized self-confidence

This term is defined as the extent to which an individual believes himself to be capable, significant, successful, and worthy ( William and Locander (1979)).

- Specific self-confidence

This term refers to the subject’s confidence with respect to the discussion at hand. Much of the work with specific self –confidence has been conducted in a persuasive context. Bell (1976) studied self-confidence and persuasion in automobile buying . William (1979) developed a seven-point specific self-confidence measure. Respondents were asked to complete a rating scale with bipolar scales “ I would” , “ I would not”.

“Be confident of my ability to pick the best buy from the five available brands”

The brands refer to unfamiliar ones set up as part of the role-playing situation.

- Risk-reducing strategies

Consumers do seek information from different sources when faced with risk or uncertainty, William and Locander (1979) outlined five types of information sources from which consumer can seek information to satisfy a particular need. The five sources and the operational definitions of each are:

- 1) Impersonal Advocate: mass media advertisement including reading magazines ads, listening to radio commercials, reading newspapers ads, viewing TV commercials or looking at point-of-purchase displays.
- 2) Impersonal Independent: Checking with consumer reports or finding a technical report on the product.
- 3) Personal Advocate: asking clerk’s or store manager’s opinion.

- 4) Personal Independent: trying to remember what a friend or neighbor uses, asking opinions of family members or close friends, asking the opinion of a neighbor or co-worker.
- 5) Direct/Observation/Experience: asking for a product demonstration, relying on past personal experience, trying the product before buying, or reading the information on the package .
- 6) Pick a brand: a behavior to go ahead and pick a brand.

The rationale for number six is that it allowed the subject to respond without being forced to select an outside information source.

The uncertainty or risk variable in figure 5 generally has been viewed as varying along two dimensions: 1) performance and 2) social risk (Brody and Cunningham 1968). The choice and resulting perceived risk bring about an anxiety-producing situation. That is, the individual realization that something must be accomplished or possessed in turn causes feeling about competence to handle the situation (Taylor 1974). William and Locander (1979) noted that to understand the anxiety variable, one must distinguish between state and trait level of the construct. State anxiety related closely to the stimulus conditions initiating behavioral sequence designed to reduce the feeling of anxiousness. However, individual differences in trait anxiety, along with past experience, determine which stimuli are cognitively appraised as discomfoting. Taylor's theory focuses on state anxiety to exclusion of trait variable.

William's research in 1979 showed that specific self-confidence has a significant impact on information seeking. The general trait variables confidence and anxiety were of no or little importance in explaining risk reduction. There does appear to be some evidence that the specific by general confidence interaction is significant for low performance products. With respect to information sources, as the total risk of purchase situation decreases, a person's observation and experience becomes the favored information source.

### **2.2.3.1.3 Brand Loyalty**

Jacoby has suggested that consumers select only limited amount of information from available package information arrays and tend to place substantial behavioral importance on price and particularly brand name information. When brand name information is available and used, consumers are more satisfied with their purchase decision and tend to select fewer information dimensions.

Researchers also believe that brand name does indeed serve at least some information chunking function in consumer decision making. However, at least three other possible

explanations exist for the decreased amount of information acquisition under the brand name available condition. First, because most of the brand names were generally highly familiar to the subjects, they might have believed they knew more about these brands than they actually did, and thereby been lulled into a sense of security which resulted in their acquisition less information. Second, the brand name available condition may have been perceived as being somewhat novel, thereby inducing greater desire for and attention to information. This possibility is consonant with recent findings adduced by Buck (1974). Third, the brand name unavailable condition may have been perceived as being less realistic and might have introduced a game-like quality to decision task such that the subjects assumed a much more rational, problem solving cognitive set than might be the case in real world consumer choice decision tasks. Regardless of the reason, knowing brand name does seem to affect information acquisition behavior. This suggests that greater attention needs to be devoted to the nature and impact of familiarity and information residing in long-term memory.

#### **2.2.3.1.4 Demographic variables**

In 1977, demographic and lifestyle changes in American females were the subjects of many journals (Zeithaml,1985). Demographic changes revealed the increasing rate of working women. Other demographic changes, including the growth of single parent households, non-family households, and the elderly outdistance past estimates. Social trends, such as longer life spans, later marriage, and frequent divorce, indicate greater changes to come. These demographic shifts may require alterations in the way firms view their target markets, for many traditional markets are being replaced by these new groups of consumers .

#### **2.2.3.1.5 Gender Differences**

Males and females have been postulated to employ significant different information processing strategies. Studies have shown that men and women differ in aspects of their consumer behavior, from the products they tend to buy to their responses to advertising and product positioning (Buttle,1992). For example, “Krugman’s (1966) study determined that women elaborated ads to a larger degree than men, regardless of whether that, in comparison with men, women appeared to have a lower threshold for elaborating on message cues, and thus made greater use of such cues when judging products” (Laroche and Saad,2000). Finally, Zeithmal(1985) found that even the same products, men and women often shop differently (in terms of the amount of pre-search activity and time spent in stores).

“Meyers-Levy’s (1994) analysis of research conducted on gender differences in cortical organization identified three propositions that suggest how hemispheric activity may

contribute to gender differences:

- Males tend to be right-hemisphere dependent, excelling at tasks associated with right hemisphere functioning( such as non-verbal production, visual spatial processing)
- Females tend to be left-hemisphere dependent, excelling at tasks associated with left-hemisphere functioning
- Males hemispheres are more specialized than females' hemispheres. She theorized that because males rely on right hemisphere processing, they would be expected to rely on “global ruled or categorical concepts” when processing information, whereas females are expected to analyze “the specificities and intricacies represented or implied” in the presence if stimulus information” (Laroche and Saad,2000)

In her analysis on the influence of sex role on judgment, Meyer-Levy (1988) determined that in general, males are characterized as being relatively self-focused, whereas females are more sensitive to the needs of both self and others. Synthesizing the results of earlier studies, she states that while males are guided by goals, females are guided by communal concerns. This theory offers a partial explanation for gender differences in processing strategies. Meyers-levy (1988) concludes that “males” adherence to a single-focused orientation may represent their more general propensity to base responses on a rather selective consideration of available cues; whereas females adherence to a communal orientation may be indicative of a broader tendency to consider a variety of cues as a basis of response”.

#### **2.2.3.1.6 Education and Working Status**

There are many studies that clearly established a relationship between socioeconomic factors and information processing. Although not dealing directly with information acquisition or utilization, Engel, Kollat, and Blackwell (1973) state that extended decision-making is more likely for individuals of higher education, middle income, and white collar occupations. Although contradictory evidence exists (Fry and Siller 1970), Engel, Kollat, and Blackwell (1978) concluded that highest social class consumers engage in less search than average, suggesting a curvilinear relationship. Other research (Claxton, Fry and Portis 1974) found information search to be greatest among household with higher education and higher income. Engel, Blackwell (1978) also concluded that lower social class consumers shop less and tend to depend more on word-of-mouth communications. These findings suggest that lower status households engage in less search for information. Although conflicting results have been reported on middle and upper-status households, information search appears to increase with social class, education, and income.

The emerging literature on working wives (Douglas 1976) suggests that, compared to their non-working counterparts, working wives may engage in less information search, spend less time shopping, and visit fewer stores. Lower status working wives also tend to use more instant products.

Schaninger and Sciglimpaglia (1981) found that number of cues and number of alternatives examined is consistently and significantly related to individual differences in demographics characteristics. Their research revealed that housewives who are younger, earlier in family cycle, more educated, or higher social class, and non-home owners examined more cues and alternatives in information searching processes.

#### **2.2.3.1.7 Marital Status: Multiple Roles for the Singles**

Single individuals must perform all tasks and activities usually divided between a husband and wife. When the single individual has children, he/she must perform the husband-father and housewife-mother roles simultaneously working outside the home as well as performing household duties. In that situation, role overload may be experienced, leading to diminished time and energy to devote to household responsibilities and shopping.

When the single individual has no children, the housewife-mother role may be irrelevant, leading to low expectations regarding cooking and supermarket shopping. Either way, single people are hypothesized to plan and economize less, to spend less time and money in the supermarket, and process less positive attitudes toward supermarket shopping than married individuals. (Schaninger and Sciglimpaglia, 1981)

#### **2.2.3.1.8 Income**

Different researchers found different results for the relationship between income and information search behavior. For example, Speh (1977) found that individuals with higher incomes may be less inclined to be economical shoppers, partly because they have less need to conserve money than those with lower incomes. In the other hand, results from Zeithaml (1985) research revealed that while income is related to time spent shopping, shoppers with higher income spent more time than those with lower income. A possible explanation for this finding is that high income respondents shop less frequently and spend more per trip.

Zeithaml (1985) also revealed that high income shoppers don't view supermarket shopping as less important and do not differ in the amount of economizing or information use. High income, however, does plan significantly less than low income shoppers.

“ Role theory may also partially explain the effect of income on supermarket shopping. The higher the income, the lower the need to perform the “good shopper” role” (Zeithaml 1985).

Income affected the time spent shopping, number of supermarket visited weekly, extent of planning, amount of purchase, weekly expenditures on groceries, and one of the situational variables. ( Zeithaml 1985).

In the other hand, Sharir 1974, has indicated that as income increases, the demand for leisure time increases. Activities associated with food shopping may be views as unnecessarily time consuming and may be de-emphasized as income increased.

### **2.3 Pricing Strategies For The Sport Industry**

Pricing Strategies are important either to maximize profit margin or to maximize quantity. From the following literature reviews, below are the steps of pricing, pricing objectives and pricing methods.

Determining the price of a sport product is difficult. The price, from the consumer’s perspective, is the amount of money the consumer must sacrifice for something. In addition, money is a relative concept. Every consumer has a unique amount to spend for sport products.(Pitts& Stotlar)

One of the four major elements of the marketing is price. Pricing is an important strategic issue, because it is related to product positioning. Furthermore, pricing affects other marketing elements such as product features, channel decisions and promotion.(Business Knowledge Center,2007).

There is no single recipe to determine pricing, but there are sequences of steps that might be followed for developing the pricing for a new product: (Business Knowledge Center,2007).

- a) **Develop marketing strategy:** perform marketing analysis, segmentation, targeting and positioning.
- b) **Make marketing mix decisions:** define the products, distribution, and promotional tactics.
- c) **Estimate the demand curve:** understand how quantity demand varies with price.

- d) **Calculate cost:** a structure include fixed and variable costs associated with the product.
- e) **Understand environmental factors:** evaluate competitors' likely actions, understand legal constraints, etc.
- f) **Set pricing objectives:** for example, profit maximization, revenue maximization, or price stabilization.
- g) **Determine pricing:** use information collected in the above steps, select a pricing method, develop the pricing structure and give discounts.

### **Pricing Objectives**

According to Joel Dean ,HBR articles , the firm's pricing objectives must be identified in order to determine the optimal pricing. Common objectives include the following:

- a) **Current profit maximization:** seeks to maximize current profit, taking into account revenue and costs. Current profit maximization may not be the best objective if it results in lower long- term profits.
- b) **Current revenue maximization:** seeks to maximize current revenue with no regard to profit margins. The underlying objective often is to maximize long term profits by increasing market share and lowering costs.
- c) **Maximize quantity:** seeks to maximize the number of units sold or the number of customers served in order to decrease long term costs as predicted by the experience curve.
- d) **Maximize profit margin:** attempts to maximize the unit profit margin, recognizing that quantities will be low.
- e) **Quality leader:** use price to signal high quality in an attempt to position the product as quality leader.
- f) **Partial cost recovery:** an organization that has other revenue sources may seek only partial recovery

- g) **Survival:** in situations such as market decline and overcapacity, the goal may be to select a price that will cover costs and permit the firm to maintain in the market. In this case, survival may take a priority over profits, so this objective is considered temporary.

**Table 2.3 Summary of Pricing Objectives from different periods**

Who	When	Definition
<b>Tarpey et al.</b>	1979	1-Avoid government investigation and control 4- Enhance image of firms and its offering 5- Be regarded as " fair" by customers 6-Be considered as trustworthy and reliable by rivals 7-Create interest and excitement about the item 8-Help in the sale of weak items in the line 9- Discourage others from cutting prices 10- Make a product " visible" 11-" Spoil the market" to obtain high price for sale of business 12- Build traffic 13-Achive maximum profit in product line
<b>Howard &amp; Crompton</b>	1980	1- Efficient use of financial resources 2-Fairness or equitableness 3-Maximum opportunity of participation 5-Positive user attitude 6-Commercial sector encouragement
<b>Peter &amp; Donnelly</b>	1991	1- Target return on investment 2- Target market share 3-Obtain long run profits 4-Obtain maximum short run profits 5-Promote growth 6-Stabilize the market 7-Maintain price leadership arrangement
<b>Pride &amp; Ferrel</b>	1991	1- Survival 2-Profit 3- Return on investment 4- Make share 5- Cash Flow 6- Product quality

Source: This research

**Pricing Strategies**

Kotler and Boone & Kurtz, 1989, discussed pricing strategies as following: to *maximize profit margin* or to *maximize quantity*. These two pricing policies for new products are:

- a) **Skim Pricing Strategy:** attempts to “skim the cream” off the top of the market by setting a high price and selling to those customers who are less price sensitive. Skimming is a strategy used to pursue the objective of profit margin maximization.

Skimming is most appropriate when:

- Demand is expected to be relatively inelastic; that is, the customers are not highly sensitive.
- Large cost savings are not expected as high volumes, or it is difficult to predict the cost savings that would be achieved at high volume.
- The company does not have the resources to finance the large capital expenditures necessary for high volume production with initially low profit margins.

- b) **Penetration Pricing Strategy:** pursues the objective of quantity maximization by means of a low price.

Penetration is most appropriate when:

- Demand is expected to be highly elastic; that is, customers are price sensitive and the quantity demanded will increase significantly as price declines.
- Large decrease in cost is expected as cumulative volume increases.
- The product is the nature of something that can gain mass appeal fairly quickly.
- There is threat if impeding competition.

As the product lifecycle progresses, there likely will be changes in the demand curve and costs. As such, the pricing policy should be reevaluated over time.

Kotler and Boone & Kurtz 1989, pricing strategies are defined and classified based on market demand sensitivity. If demand is inelastic, *skimming strategy* will be suggested to maximize margin profit. On the other hand, if demand is elastic, *penetration pricing* strategy will be recommended to maximize sales and increase market share. This is typically used as a first time offering of a product.

## 2.4 Price Elasticity

Having the lowest price is not a strong position for small business. Larger competitors with deep pockets and the ability to have lower operating costs will destroy any small business competing on price alone. Avoiding the low price strategy starts with looking at the demand in the market by examining the Price Elasticity. Following definition from Nicholson 1992, will demonstrate the demand sensitivity in front of price change

Price elasticity of demand is used to measure the sensitivity the demand for a good is to a price change. The higher the price elasticity, the more sensitive consumers are to price changes. Very high elasticity suggests that when the price of that good decreases, consumers will buy a great deal more. Very low elasticity implies just the opposite, that changes in the price have limited influence on demand.

The price elasticity of demand measures how much consumers respond in their buying decisions to a change on price. Price elasticity can be expressed in the following equation( Nicholson,1992)

$$\eta_p = (\% \Delta Q) / (\% \Delta P)$$

where  $\eta_p$  is the price elasticity,  $P$  is the price of the good and  $Q$  is the quantity demanded for the good, such that :

**$(\% Q) > (\% P)$  the  $|\eta_p| > 1.0$  and the demand is *price elastic***

if the opposite is true then:

**$|\eta_p| < 1.0$  and the price is *inelastic***

\* if  $|\eta_p| > 1$ , the good is price elastic: Demand is responsive to a change in price.

\* if  $|\eta_p| < 1$ , the good is inelastic: Demand is not very responsive to changes in price.

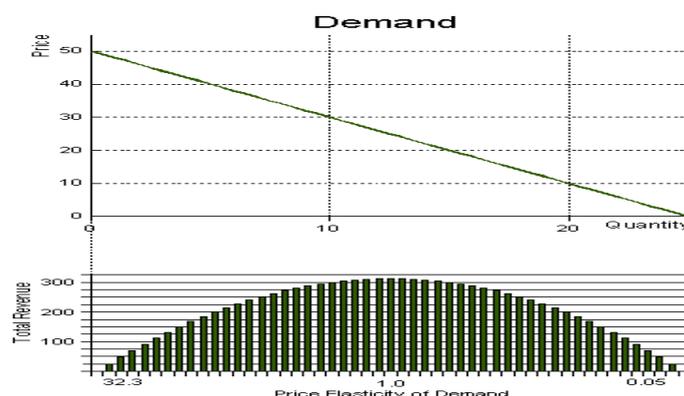
\* if  $|\eta_p| = 1$ , the good has unit elasticity. The percentage change in quantity demanded is equal to the percentage change in price. That is, demand changes proportionately to a price change.

\* if  $|\eta_p| = 0$ , the good is perfectly inelastic. A change in price will have no influence on quantity demanded. The demand curve for such a product will be vertical.

If  $\eta_p$  is infinite, the good is perfectly elastic: Any change in price will see quantity demanded fall zero. This demand curve is associated with firms operating in perfectly competitive markets.

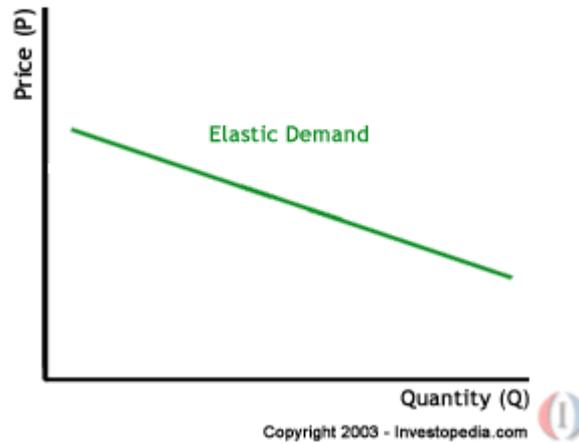
Factors that determine the value of price elasticity of demand can be summarized as following:

- 1- Number of close substitutes within the market: The more ( and closer) substitutes are available in the market, the more elastic demand will be in response to a change in price. In this case, the substitution effect will be strong.
- 2- Luxuries and necessities: Necessities tend to have a more inelastic demand curve, whereas luxury goods and services tend to be more elastic. For example, the demand for opera tickets is more elastic than the demand for urban rail travel. The demand for vacation air travel is more elastic than the demand for business air travel.
- 3- Percentage of income spent on a good: It may be the case that the smaller the proportion of income spent taken up with purchasing the good or services, the more inelastic demand will be.
- 4- Habit forming goods: Goods such as cigarettes and drugs tend to be inelastic in demand. Preferences are such that habitual consumers of certain products become de-sensitized to price changes.
- 5- Time period under consideration: Demand tends to be more elastic in the long run rather than in the short run. For example, after the two world oil price shocks of the 1970s , the response to higher oil prices was modest in the immediate period after price increases, but as time passed, people found ways to consume less petroleum and other oil products. These included measures to get better mileage from their cars, higher spending on insulation in homes, and car pooling for commuters. The demand for oil became more elastic in the long run.



Source: Economics, Basics

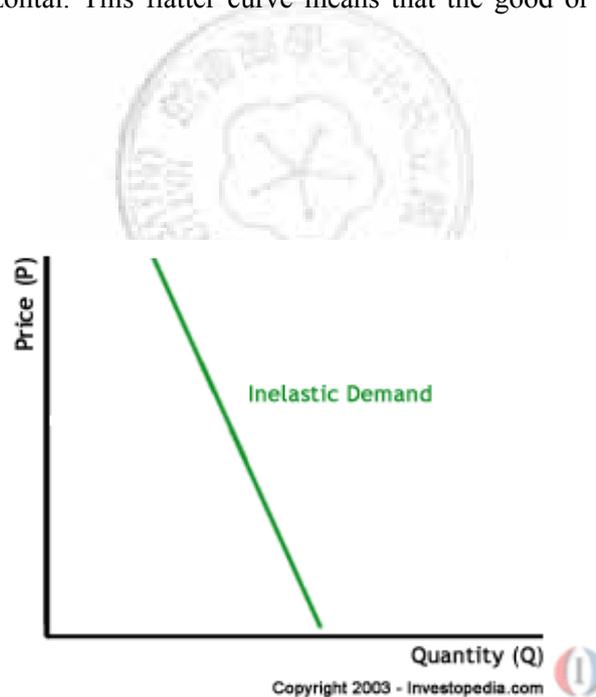
**Figure 2.4 Price Elasticity Demand**



Source: Investopedia.com

**Figure 2.4.1 Elastic Demand**

As mentioned previously, the demand curve is a negative slope, and if there is a large decrease in the quantity demanded with a small increase in price, the demand curve looks flatter, or more horizontal. This flatter curve means that the good or service in question is elastic.



Source: Investopedia.com

**Figure 2.4.2 Inelastic Demand**

Inelastic demand is represented with a much more upright curve as quantity changes little, there is a large movement in price.

### 2.4.1 Price Elasticity Demand Model

The procurement decision for any innovative product is, to some extent, a function of price elasticity. As we later highlight in Chapter 3, panel prices are likely to experience an exponential fall of 30-50% once a new generation technology is available. As a price in line with the emergence of new technology, a diffusion model that includes pricing elasticity should reduce approximately equivalent to the Bass model curve. Moreover, the price reduction at time ( $t$ ) will not only stimulate the adoption at time ( $t$ ) but carry through future time periods due to the diffusion effect.

#### Constant-elasticity model:

Bass applied simple constant-elasticity demand function to fit the price elasticity into demand forecasting:

$$Q(t) = f(t)c[Pr(t)]^\eta$$

Where:

$Q(t)$  = quantity demanded at time  $t$

$Pr(t)$  = price at time  $t$

$f(t)$  = Bass model specification at time  $t$

$$f(t)/(1-F(t)) = p + qF(t)$$

$c$  = cost function

$\eta$  = price elasticity parameter

In this model, it assumes that the maximize profitability, a firm will choose the optimal output under a given price where marginal revenue=marginal cost. For marginal costs follow the long term decline curve, which is normally true for technology products, then prices will be proportionally raised according to accumulated output raised to the learning rate parameter  $\lambda$ . However, model does not reduce to the Bass model when prices are changing. It is a “current-effect” or “one time effect” model without the carry-through property. As a result, it is less useful for practical managerial usages.