

## CHAPTER II

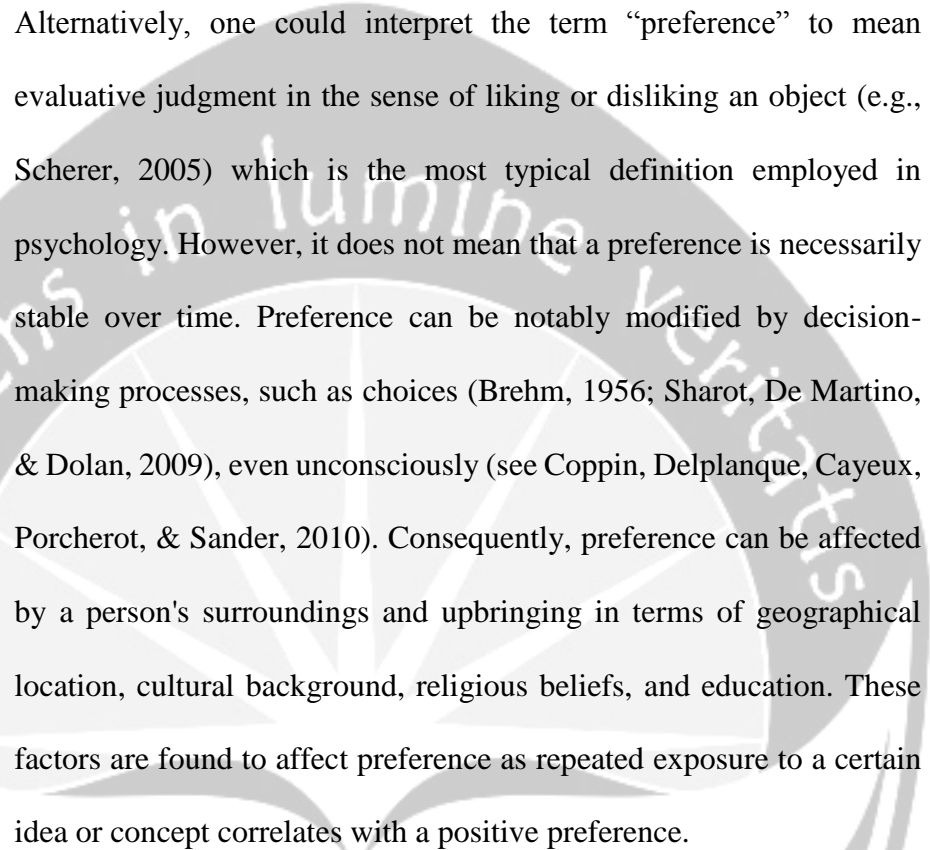
### LITERATURE REVIEW

Restaurant selection may depend upon person's age, sex, education level, social status, knowledge of nutrition, experience on restaurants, convenient period of time, income, political view, religion, etc. Therefore, restaurant selection should be specified in some determined customers. (Ceyhun C.K, Mustafa Semiz, Elif Katircioglu and Cagatay Unusan., 2013)

In this chapter, we will examine the fundamental theory of the research and study of analyzing student preferences in choosing restaurant around campus area. This chapter will also give specific information about instrument or variable that have a role in order to determine the student preferences of choosing restaurant around campus area.

#### **2.1. Theoretical Review of Preference**

A preference is a technical term in psychology, economics and philosophy usually used in relation to choosing between alternatives: someone has a preference for A over B if they would choose A rather than B.



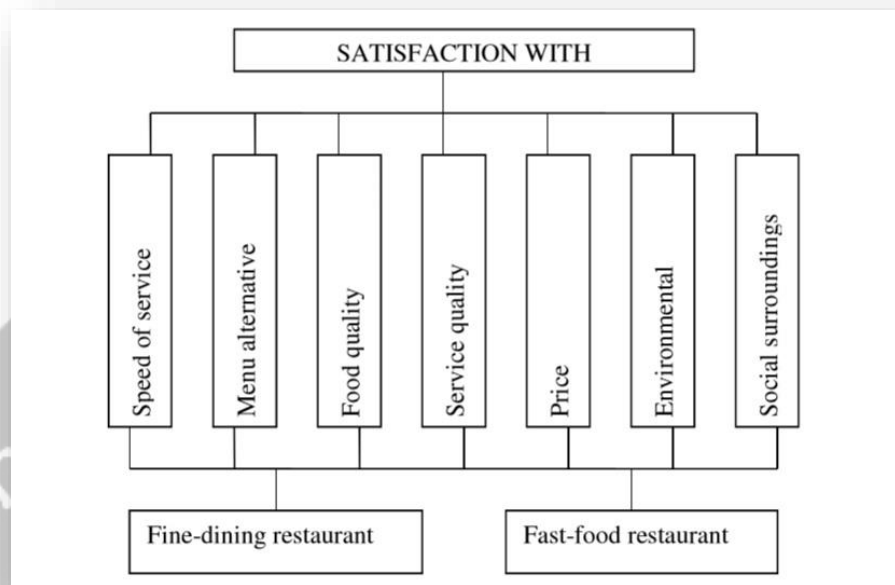
In psychology, preferences could be conceived of as an individual's attitude towards a set of objects, typically reflected in an explicit decision-making process (Lichtenstein & Slovic, 2006). Alternatively, one could interpret the term "preference" to mean evaluative judgment in the sense of liking or disliking an object (e.g., Scherer, 2005) which is the most typical definition employed in psychology. However, it does not mean that a preference is necessarily stable over time. Preference can be notably modified by decision-making processes, such as choices (Brehm, 1956; Sharot, De Martino, & Dolan, 2009), even unconsciously (see Coppin, Delplanque, Cayeux, Porcherot, & Sander, 2010). Consequently, preference can be affected by a person's surroundings and upbringing in terms of geographical location, cultural background, religious beliefs, and education. These factors are found to affect preference as repeated exposure to a certain idea or concept correlates with a positive preference.

## 2.2. Important Criteria for Student in Selecting Restaurant

Based on the previous research from Ceyhun C.K, Mustafa Semiz, Elif Katircioglu and Cagatay Unusan. (International Journal of Economic Perspectives, 2013, Volume 7, Issue 2, 5-10), there are seven factors or criteria that contribute to the goal in determining the student preferences in choosing restaurant around campus area, as follow:

- 1) **Speed of Service:** On time service, on time payment and the speed of their process.
- 2) **Menu Alternatives:** Variety of menu according to nourishment, religion, culture, taste and price.
- 3) **Food Quality:** Freshness, image, adequate cooked.
- 4) **Service Quality:** Consistency of price, service and hospitality.
- 5) **Price:** Suitable and invariable price.
- 6) **Environmental Ambiance:** Cozy, comfortable, relaxing, safe, confidential.
- 7) **Social Surroundings:** To see and to make friends, social activities.

**Figure 2.1. AHP Structuring of the restaurant choosing problem**



*Source: International Journal of Economic Perspectives, 2013, Volume 7, Issue 2, 5-10.*

### **2.3. Analytic Hierarchy Process**

AHP is a method for ranking decision alternatives and selecting the best one when the decision maker has multiple criteria (Saaty and Vargas, 2001 and Taylor, 2004). In AHP, preferences between alternatives are determined by making pair wise comparisons. The application of the AHP to the complex problem usually involves two major steps (Cheng, et all, 1999):

- Break down the complex problem into a number of small constituent elements and then structure the elements in a hierarchical form,
- Make a series of pair wise comparisons among the elements according to a ratio scale,

The fuzzy AHP technique can be viewed as an advanced analytical method developed from the traditional AHP (Chang, 1992, Chatterjee and Mukherjee, 2010).

The AHP was developed by Saaty and has been identified as an important approach to multi-criteria decisionmaking problems of choice and prioritization.

The AHP procedure is applicable to individual and group decision settings. There are four ways to set the priorities: consensus, vote or compromise, geometric mean of individuals' judgments and separate models or players (Dyer and Forman, 1992). If consensus can not be reached, the group may then choose to vote or compromise on a judgment. If a consensus can not be achieved and the group is unwilling to vote or to compromise, then a geometric mean of the individuals' judgments can be calculated (Lai, Wong and Cheung, 2002).

## **2.4. Group Decision Making in AHP**

As mentioned before, the simple group decision making is calculating by taking the geometric mean of individual decisions (Lai, Wong and Cheung, 2002). Taking the mode or median of comparison matrices is first suggestion. However, there is a small chance that the compromise comparison matrix can be consistent. The other suggestion is to appoint weights on each decision makers according to their how agreed decisions with common decisions (Semiz, 2013).

## **2.5. AHP in Application**

The first step in the analytic hierarchy process is to model the problem as a hierarchy. In doing this, participants explore the aspects of the problem at levels from general to detailed, then express it in the multileveled way that the AHP requires. As they work to build the hierarchy, they increase their understanding of the problem, of its context, and of each other's thoughts and feelings about both.

The AHP converts these evaluations to numerical values that can be processed and compared over the entire range of the problem. A numerical weight or priority is derived for each element of the hierarchy, allowing diverse and often incommensurable elements to be compared to one another in a rational and consistent way. This capability distinguishes the AHP from other decision making techniques.

In the final step of the process, numerical priorities are calculated for each of the decision alternatives. These numbers represent the alternatives' relative ability to achieve the decision goal, so they allow a straightforward consideration of the various courses of action. (Saaty, 2008)

## **2.6. Define Hierarchies**

A hierarchy is a stratified system of ranking and organizing people, things, ideas, etc., where each element of the system, except for the top one, is subordinate to one or more other elements. Though the concept of hierarchy is easily grasped intuitively, it can also be described mathematically. (Saaty, 2010). Diagrams of hierarchies are often shaped roughly like pyramids, but other than having a single element at the top, there is nothing necessarily pyramid-shaped about a hierarchy.

Human organizations are often structured as hierarchies, where the hierarchical system is used for assigning responsibilities, exercising leadership, and facilitating communication. Familiar hierarchies of "things" include a desktop computer's tower unit at the "top", with its subordinate monitor, keyboard, and mouse "below."

In the world of ideas, we use hierarchies to help us acquire detailed knowledge of complex reality: we structure the reality into its constituent parts, and these in turn into their own constituent parts,

proceeding down the hierarchy as many levels as we care to. At each step, we focus on understanding a single component of the whole, temporarily disregarding the other components at this and all other levels. As we go through this process, we increase our global understanding of whatever complex reality we are studying.

Think of the hierarchy that medical students use while learning anatomy—they separately consider the musculoskeletal system (including parts and subparts like the hand and its constituent muscles and bones), the circulatory system (and its many levels and branches), the nervous system (and its numerous components and subsystems), etc., until they've covered all the systems and the important subdivisions of each. Advanced students continue the subdivision all the way to the level of the cell or molecule. In the end, the students understand the "big picture" and a considerable number of its details. Not only that, but they understand the relation of the individual parts to the whole. By working hierarchically, they've gained a comprehensive understanding of anatomy.

Similarly, when we approach a complex decision problem, we can use a hierarchy to integrate large amounts of information into our understanding of the situation. As we build this information structure, we form a better and better picture of the problem as a whole. (Saaty, 2008).



### 2.6.1. Hierarchies in the AHP

An AHP hierarchy is a structured means of modeling the decision at hand. It consists of an overall goal, a group of options or alternatives for reaching the goal, and a group of factors or criteria that relate the alternatives to the goal. The criteria can be further broken down into sub criteria, sub-subcriteria, and so on, in as many levels as the problem requires. A criterion may not apply uniformly, but may have graded differences like a little sweetness is enjoyable but too much sweetness can be harmful. In that case the criterion is divided into sub criteria indicating different intensities of the criterion, like: little, medium, high and these intensities are prioritized through comparisons under the parent criterion, sweetness.

The design of any AHP hierarchy will depend not only on the nature of the problem at hand, but also on the knowledge, judgments, values, opinions, needs, wants, etc. of the participants in the decision-making process.

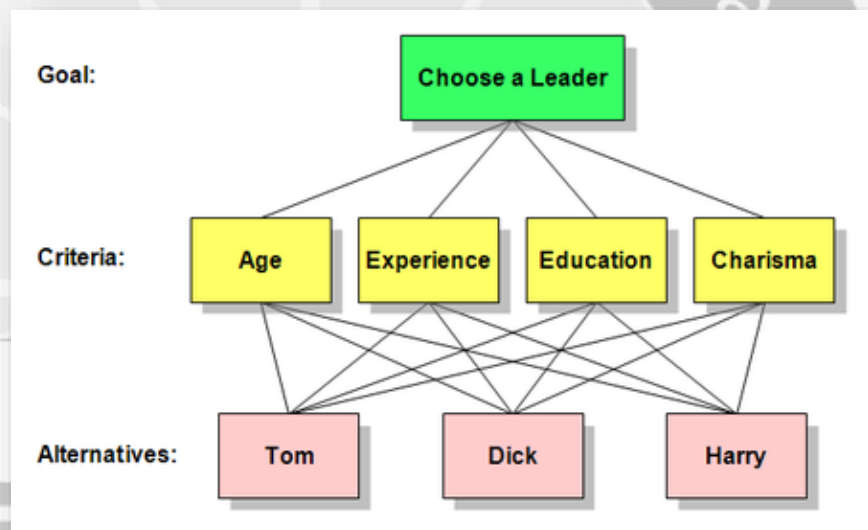
Constructing a hierarchy typically involves significant discussion, research, and discovery by those involved. Even after its initial construction, it can be changed to accommodate newly-thought-of criteria or criteria not originally considered to be important; alternatives can also be added, deleted, or changed.(Saaty and Ernest, 1992).

## 2.7. Evaluate the Hierarchy

Experienced practitioners know that the best way to understand the AHP is to work through cases and examples. Two detailed case studies, specifically designed as in-depth teaching examples, are provided as appendices here:

- Simple step-by-step example with four Criteria and three Alternatives: Choosing a leader for an organization.

**Figure 2.2. Choosing a leader for an organization example.**



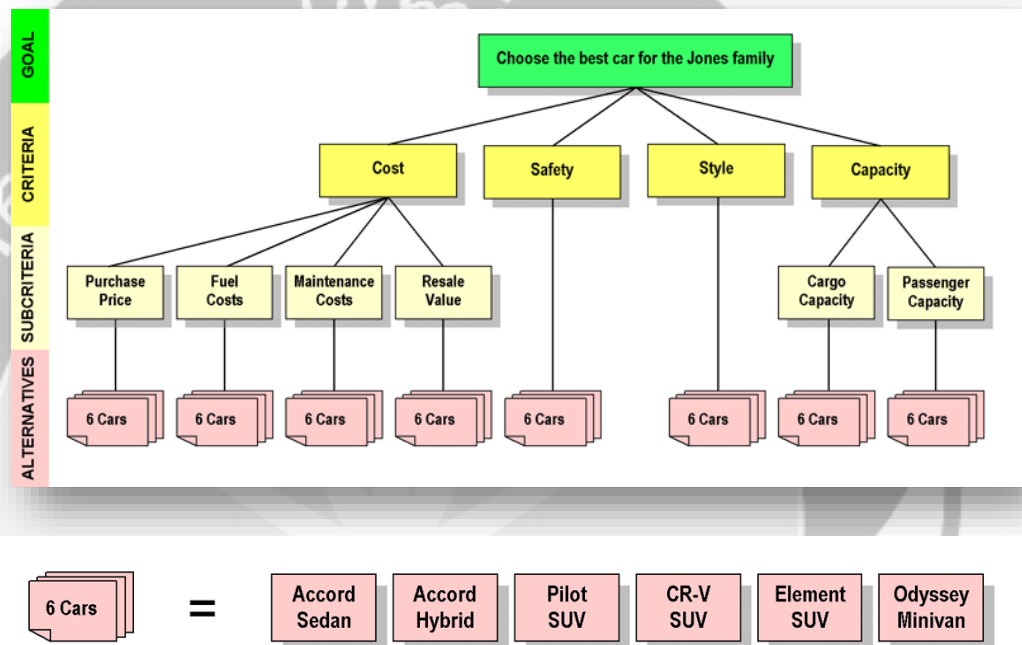
*Source: Saaty, Thomas L.; Ernest H. Forman (1992). The Hierarchon: A Dictionary of Hierarchies*

The goal of this decision is to select the most suitable leader from a field of three candidates. The factors to be considered are experience, education, charisma, and age. According to the judgments of the decision makers, Dick is the strongest candidate, followed by Tom, then Harry.

- More complex step-by-step example with ten Criteria/Sub criteria and six Alternatives: Buying a family car and Machinery Selection Example.

**Figure 2.3. Buying a family car and Machinery Selection**

**Example.**



*Source: Saaty, Thomas L.; Ernest H. Forman (1992). The Hierarchon: A Dictionary of Hierarchies*

AHP hierarchy for the Jones family car buying decision. The goal is green, the criteria and subcriteria are yellow, and the alternatives are pink. All the alternatives (six different models of Hondas) are shown below the lowest level of each criterion. Later in the process, each alternative (each model) will be rated with respect to the criterion or subcriterion directly above it.(Perez et.al, 2012).