Chapter 3

3. RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter discusses the measurement instruments and sampling plans used in this study. It will also discuss the plan on how to analyze the data once the questionnaires are returned back.

Section 3.2 discusses the variables used to measure students' perception of customer service provided by Student Affairs Department (HEP). The importance of collecting data from front liner is also emphasize in this section and the section concluded by the discussion of different scale of measurement to categorize different type of data.

A good questionnaire will enable us to collect valuable information from our sample of interest. Section 3.3 touches the subject in detail, highlighting type of information collected in each part of the questionnaire (Appendix A). Once these questionnaires are ready, they must be distributed to the sample of interest. Section 3.4 discusses the methodology involved to select the right sample market.

Data collection method is discussed in Section 3.5. In this survey, self-administered method is employed using Bahasa Malaysia as the language medium. This section also mentioned the strategy employed to ensure the fieldwork is executed in a timely and professional way. Finally, section 3.6 discusses on the techniques used to understand the data better. The analysis of the findings Among the information expected to be obtained from our survey are demographics and personal characteristics of the students, perceived satisfaction of each variable in determining the students' perception on services provided by the university, relationship between perceived level of customer satisfaction with gender, social background, frequency of interaction with support staff and enthusiast/non-enthusiast.

3.2. SELECTION OF MEASURES

The main component of this study is to determine the variables that influence the students' perception of customer service provided by Student Affairs Department. Evaluation of customer service by students is not made solely on the outcome of service. It also involve evaluations of the process of service delivery (Gronroos, 1982, Babbar, 1992). Therefore it is necessary to listen to the customers, to collect and analyze information from students, and to listen to their feedback during the process of delivering service. The quality

attributes identified by key customers and internal front-line service personnel are first identified and clarified.

A lot of past studies that touches on customer functional quality such as reliability, responsiveness, assurance and empathy served as a guide in preparing the questionnaire. Students are asked to rate their relationship and cooperation extended by the front counter personnel of each service quality measure based on a five point scales from "very good" to "not good at all". Students are also asked on the frequency of interaction with the support non-academic staff. Other scales of measurement were used as well in the questionnaire. Nominal scale is used on questions that categorical in nature such as type of dwelling, type of services offered by HEP and college administration office. Ordinal scales are used to measure the frequency of contact between students and staff (chancellor, college head and college supervisor), overall perception of customer service, level of understanding on the instruction or information given by the HEP staff, cooperation extended by them and interest shown in staff own daily duty.

3.3. DESIGN OF QUESTIONNAIRE

All the questions asked in the questionnaire were arranged in a prearranged order and we would like to take this opportunity to acknowledge the contribution made by Dr Wan Azhar from Faculty of Dentistry for his

invaluable contribution to this study. A questionnaire was used and it was divided into 5 sections. The first part was a demographic variables, which contained items on respondents' age, race, marital status, number of siblings, parents' occupation and type of dwelling. The second part covered information on accommodation and academic achievement of respondents. Part three collected information on their social interactions with family members, academic staff like lecturers, department head and staff, with friends and aim in life. Part four focused on college activities and students' attitude on college activities. The last part contained our main objective, which is to study students' perception of Student Affairs Department.

3.4. SAMPLE DESIGN

Sampling unit is an element or a unit containing the element that is available for selection at some stage of the sampling process. The sampling unit here is the individual student in terms of his or her personal experience as a Student Affair Department customer. In Statistics for Management and Economics by Keller (1994), the term population was defined as the set of all items of interest in a statistical problem. Therefore the population of the student would consist of all the undergraduate students enrolled in University of Malaya, Session 2001/2002. The students were approached in the order they emerged from the college registration premise. In that order they were

then asked to fill in the questionnaire on the spot. All the completed questionnaire were collected and taken back for editing, coding and data entry.

As our main research objective seeks to determine the perceptions of students on Student Affairs Department's service, survey interviews would be the best approach to the study. It was chosen, because it is the most popular method to collect data and to provide facts and estimates to the particular department to help them identify its area of weaknesses and take action to rectify the problem in order to improve the service level. Also, by using a fixed questionnaire allowed us to control the interview. The survey was be a single cross-sectional design, as we drew only one sample of students studying in University of Malaya during Session 2001/2002.

3.5. DATA COLLECTION

Data collection method used was self-administered questionnaire in order to investigate student's perceptions of the services provided by Student Affairs Department. To measure student perceptions, students of University of Malaya who stayed in the residential hall were selected as they have the most contact with Student Affairs Department. The data collection was also conducted by Dr Wan Azhar from the Faculty of Dentistry, in the beginning of the session 2001/2002, in one of the UM colleges, that is, Kolej Kediaman UM. Forms were distributed in a form of formal questionnaire to the

undergraduates during the college registration week. Self-administered method was chosen because the questionnaire was simple to administer. The data obtained should be more reliable as the responses were limited to the alternatives stated. The uses of fixed-response questions reduced the variability in the results and helped to ease the coding, analysis and interpretation process. However, there are also some open-ended questions to get some feedback. A copy of the questionnaire was attached in Appendix A for your reference.

The survey was conducted in Bahasa Malaysia as the language is our national language. The main reason for using the language was because Dr Wan Azhar felt that the undergraduates would be able to understand the questions better and answer them more accurately. A total of 500 forms were distributed.

3.6. DATA ANALYSIS TECHNIQUES

After the questionnaires were collected back, I was given the privilege to run the analysis for this survey. The analysis was carried out using SPSS for Windows version 9.0. The analysis of the findings was divided into 4 sections, which were:

a) Demographics and personal characteristics of the sample

b) Perceived satisfaction of each variable in determining the students' perception on services provided by the university

c) Relationship between perceived level of customer satisfaction with gender, social background, frequency of interaction with support staff and enthusiast/non-enthusiast

d) Multivariate analysis

In demographic and personal characteristics section, it was further divided into 2 sub sections. The first part described the characteristics of the sample and its distribution. Simple frequency counts and percentages were used for both quantitative and qualitative variables. We will also look into the demographic comparison of students who participate actively in sports/societies (enthusiast) against students who do not participate at all (non-enthusiast). Chapter 4 will touch briefing on how these students were categorized under those classifications. Chi-square test is used to test if there are any significance demographic differences between them.

The second part covered descriptive statistics of ranking the means. In this section, we summarized the responses to all 8 questions pertaining to services provided by Student Affairs Department to obtain minimum and maximum value as well as the mean for each variable. Chi-square test is used

to test the significant differences in the ranking of selection criteria between gender, social background, frequency of interaction between students and support staff and enthusiast/non-enthusiast.

The third part of the analysis looks into the relationship between level of satisfaction of each variable with ethnic, social background, frequency of contact and enthusiast/non-enthusiast. Nonparametric methods are used to measure the relationship of the two variables. Spearman's Rank Coefficient test is employed because it is simple to use and easy to apply. Moreover, it has been proven to be as powerful as its classical counterpart – the Pearson (product-moment) correlation method and even more when the normality assumption is violated (Berenson and Levine, 1992). The coefficients range in value from –1 to +1. The sample Spearman rank correlation is denoted r_s (the population coefficient is denoted p_s) and is obtained using the following steps (Cheong, 2001):

a) Replace the n values of X by their ranks. R_x by giving the rank of 1 to the smallest X and the rank of n to the largest. If two or more X values are tied, they are each assigned the average rank of the rank positions they otherwise would have been assigned individually had ties not occurred

b) Replace the n values of Y by their ranks R_y as in step 1

c) For each of the n subjects, obtain a set of rank difference scores

$$d_{Ri} = R_{xi} - R_{yi}$$

where i = 1, 2, 3, ..., n.

d) Obtain

$\sum_{i=1}^{n} d^2_R$, the sum of each the squared rank difference scores

e) The spearman coefficient of rank coefficient of rank correlation, r_s, is given by the following formula:

f) To obtain the Z value,

$$Z = r_s (n-1)^{1/2}$$

If the r_s is positive, variable X is associated with variable Y. In order to determine if this result is statistically significant, we need to test the population Spearman rank correlation coefficient. Because we want to know whether variable X is related to variable Y, we test hypothesis $\rho_s > 0$. The test statistic is r_s, and the critical value of the rejection region is found in Critical Value of the Spearman Rank Correlation Coefficient Table. Rejection region is $r_s > r_0$. If $r_s > r_0$, null hypothesis is rejected and we can conclude that there is sufficient evidence to indicate that $\rho_s > 0$. Hence there is enough evidence to

allow us to conclude that, in general variable X has positive influence on variable Y (Keller et al., 1994).

Lastly, in the multivariate analysis, factor analyses were applied in the study to simplify the customer perceptions toward services provided by Student Affairs Department. Factor analysis is a procedure that groups items, usually variables on the basis of correlations. A factor analysis will form groups of variables that have strong correlations (either positive or negative) with one another. Because the technique relies upon correlations, all variables should be quantitative in nature, though dummy (0-1) variables can be used (Sudman and Blair, 1998).

The key results obtained from factor analysis are factor loadings, eigenvalues and factor scores. Factor loadings measure the correlations between a factor and the individual variables being analyzed. Each factor will have loadings fro all variables being analyzed. Variables that have loadings with absolute values larger than 0.50 are said to "load highly" on the factor and are considered to be members of a group of variables identified by the factor. Variables that have loadings with absolute vales of less than 0.50 are usually ignored in interpreting the factor. Eigenvalue is the sum of the squared loadings for all variables on that factor. The first factor is chosen is the one with the largest eigenvalue.

The second factor will have the second largest eigenvalue. Eigenvalues represents the total amount of variance to be explained in the analysis and the ratio of each individual eigenvalue to that sum indicates the percentage of variance explained by the relevant factor. So, if the sum of the eigenvalues in a factor analysis is 11.00 and the eigenvalue for the first factor is 2.17, the first factor accounts for 2.17/11.00 = 0.197 or 19.7% of the total variance. The third important descriptive measure in factor analysis is factor scores. When a factor analysis is used to group variables, the resulting factors can be treated as a new variables that represent combinations of the original variables. Appropriate values for each observation on these new variables (the factors) can be calculated and known as factor scores. Upon obtaining the factors, these factors were then reapply into the cluster analysis to segment groups of undergraduates to identify similar groups of undergraduate who have similar service criteria (Sudman and Blair, 1998).

We will conclude the analysis with Cluster analysis. Cluster analysis is used to identify market segments. Cluster analysis is usually used to group observations and it is commonly used to identify market segments. Customers can be grouped according to behaviours and preferences for the particular product category. At a broader level, consumer can be grouped according to "values, attitudes and lifestyle" to give companies a broader view of the kinds of people who buy their products. Like factor analysis, there are three

descriptive results that we look for in cluster analysis, which is the cluster centroids, number of observations belonging to each cluster and determination of cluster membership for specific observation. Cluster centroids help us describe each cluster by showing the variables on which it has high or low average values. Number of observations belonging to each cluster indicates the size of the market segment and lastly for the segment membership, it is used in subsequent analyses (Sudman and Blair, 1998). We can attack clustering problem through factor analysis. However it is important to note when factor analysis is used to cluster objects, that the number of clusters is not given by the number of factors. Sometimes only two factors are necessary to account for all the variation in the sum of squares and cross products matrix, and the first factor accounts for the bulk of it. Yet, there may be three clusters in the data, even when only the first factor is used. Rather than using the number of factors to indicate the number of clusters, analysts need to examine the loading matrix. The pattern of loadings determines both the number of clusters and which objects belong to which cluster (Churchill, 1999).