

Chapter 3

Research Methodology

3.1 Introduction

This chapter outlines the research methodology used for the study. It describes the research design of the study, the setting where it took place, the sampling design that is used, the instruments that are involved in data collection, and also the procedures adopted for data collection. The statistics that are used for data analysis and description of the way in which the data is analyzed are also been discussed.

3.2 Research Design

The survey method was adopted for this research as it is considered the most suitable type of approach in terms of gathering firsthand information, time saving and resource available. This basic research was conducted as a descriptive study which incorporated aspects of correlational research methodology. The above approach was adopted as this research is the first of its kind conducted in Air Defence Unit. It was aimed at providing useful information on level of job satisfaction among the air defence operator and on the relation between motivational, hygiene and personal characteristics to job satisfaction.

The structured experiment was chosen in order to establish the relationship between the independent and dependent variables. The independent variables were the hygiene factors and the motivation factors. The dependent variable used for the study is air defence operator's job satisfaction. All participants received the Minnesota Satisfaction Questionnaire

(short form), modified Job Satisfaction Survey (JSS) questionnaire and a demographic questionnaire which would be explained in details in subsequence section.

3.3 Study Setting

This study was conducted in air defence units at 310 Sqn, Air Base Butterworth, 320 Sqn, Air Base Kuantan, 312 Sqn, Bukit Puteri, 322 Sqn, Bukit Iban, 323 Sqn, Bukit Lunchu, 340 Sqn, in Labuan . All these units are situated in Peninsular Malaysia except 340 Sqn which is located in Labuan Island, Sabah. 310 Sqn and 320 Sqn are designated with role and functions as SOC and CRC while 321 Sqn, 322 Sqn and 323 Sqn are designated as CRP/RP as explained in chapter one. In addition to their role and functions, all these units represent similarities in overall organization structure, staffing, availability of equipment and working environments to other air defence units in Sabah and Sarawak.

The locality of 322 Sqn in Bukit Iban which is considered as a remote area could be used to represent the remoteness of 340 Sqn, Bukit Kubong in Labuan. According to Staff Officer 2, RMAF Human Resource Department, these squadrons have the highest number of informal grievances on working environments and request to be transferred out when he visited the units.

3.4 Sampling Design

The total number of air defence operators is 661 which consists of 188 officers and 473 other rank. It represents the population of this research (N = 661). An unrestricted probability or more commonly known as simple random

sampling design was adopted to obtain participants for the study from the above mentioned air defence units. This sampling is the least bias and offers the most generalizability (Sekaran, 2003).

In this study, those air defence operators have served more than one year in operational unit and had undergone respective basic operator course that were the requirements to participate in the study.

3.5 Research Instrument

The instrument used in this study consists of 3 parts as attached in Appendix A. The short form of Minnesota Satisfaction Questionnaire (MSQ) was selected, based on study commendations reported by Vroom (1964) and Robinson, Athanasiou, and Head (1969) as Part I of the research questionnaire used for data collection because it facilitated the determination of a general or overall job satisfaction score, an intrinsic job satisfaction score, and an extrinsic job satisfaction score. The MSQ was developed by Weiss, Dawis, England and Lofquist (1967) and represented the result of research conducted on the Work Adjustment Project in studies conducted at the University of Minnesota.

The MSQ (short-form) included twenty (20) items. These items are separated in to a twelve-item (12) subscale used to measure intrinsic satisfaction, such as satisfaction with the chance to use abilities and feelings of accomplishment from the job. The remainder eight (8) items subscale are used to measured extrinsic satisfaction such as satisfaction with pay, peer relationship, and supervision. Responses were obtained using a five-point Likert scale where 1 represents very dissatisfied with this aspect of the job, 2

represents dissatisfied with this aspect of the job, 3 denotes cannot decide if one is satisfied or not with this aspect of the job, 4 indicates satisfied with this aspect of the job, and 5 refers to very satisfied with this aspect of the job.

The instrument used in Part I was without any modification as it had proven to have good reliability by several researchers. The internal consistency of coefficient alpha values for the twenty-item MSQ ranged from .85 to .91 (Klenke-Hamel & Mathieu, 1990; Huber, Seybolt & Venemon, 1992; Khodabakhsh et al, 2007). The Overall job satisfaction measured with the twenty item MSQ had test-retest reliability across three time periods of $r = .58$ (Wong, et al. 1998).

The Part II of the questionnaire consisted of situational items utilizing a five point, Likert scale. The value of 1 represents strongly disagree and increases incrementally to 5 for strong agree. The questionnaire for each facet was structured in accordance to the theoretical framework of this study. The Part II of the instrument (see Appendix 1) was used to gather data which concerned air defence operators' perception of 10 factors related to job satisfaction. The Hygiene factors consisted of 5 facets which included salary; superior- subordinate relationship; relationship with peers; work conditions and policy and procedure. The Motivation factors comprised of 5 facets that included work itself, promotion opportunities, recognition, achievement and responsibility. The questionnaires were derived mainly from Job Satisfaction Survey (JSS) developed by Spector (1985), uses thirty-six items to describe nine job facets (4 items per facet). The job facets include pay, promotion, supervision, benefits, contingent rewards, operating procedures, co-workers, nature of work, and communication. It was originally developed to assess job

satisfaction in human service, non-profit, and public organizations. However, for the purpose of this study, it has been modified with several items each for the 10 factors mentioned earlier. Some of the items used for pay, and benefits from JSS were selected to measure salary variable. The superior and subordinate relationship dimension was measured using some of the items from supervision and communication skills item of JSS. Most of the items used for co-worker satisfaction in JSS were selected to measure relationship with peers' dimension of this study. The items for policy and procedure and work itself were directly adopted from JSS. The items for the remainder facets were developed by the researcher. These instruments were field tested using 15 randomly selected air defence operators serving in Klang valley area and who were not selected for the research sample. Besides, testing the internal consistency reliability, this pilot test was intended to gauge the level of understanding of the questionnaire written in English. An overall Cronbach's Alpha coefficient of .74 was calculated for this part of the instrument and respondents said they were able to understand the questionnaire written in English without any problem.

Part III of the questionnaire used in the study, consisted of demographic questionnaire designed by the researcher. It records the personal characteristics of respondents, such as age, academic qualifications, appointments, rank, number of years in service, job tenure and air defence unit served.

Prior to the actual field test of the questionnaire, Parts II and III of the questionnaire were examined and critiqued by the supervisor of this study to determine the readability and suitability of the questionnaire as well as to

establish content validity of the instrument. The suggestions obtained from the supervisor were incorporated into the final questionnaire design and wording.

3.5.1 Score Measurement

The general satisfaction scale involved the use of all 20 items with a potential scores ranging from 20 to 100. The intrinsic scale involved 12 items with potential scores from 12 to 60. The extrinsic scale involved 6 items with potential score ranges from 6 to 30. In scoring the MSQ for general job satisfaction, when percentile scores were used, Weiss et al. (1967) reported that a score of 50 or better indicated satisfaction. A percentile score of 75 or higher indicated a high degree of satisfaction, and a percentile score of 25 represented a low level of satisfaction. It was reported that percentile scores which ranged from 26 to 74 indicated average satisfaction.

3.6 Data Collection Procedures

Primary data were collected through questionnaires and interviews with policy makers in the RMAF. The primary data used to evaluate the job satisfaction among the air defence operators were collected from a cross-sectional survey over the period of 10 days in each designated unit. Following the Commanding Officer (CO) approval from the respective units, the survey packet was mailed to each unit in the research sample. The packet included a cover letter, MSQ as part I questionnaire, part II questionnaire and demographic questionnaire. Included in the cover letter was the general description of this research study and its purpose, basic instructions to answer

the questionnaire were also provided. It also briefly stated the assurance of anonymity, and requested the operator's participation.

In each unit, an officer was appointed by the CO to administer the questionnaire. The respective appointed officers were briefed thoroughly by the researcher either in person or via telephone call prior to the administration of questionnaire. All the respondents were given a designated room and appropriate time to take the survey. Participation of respondents was based on volunteer basis. It was conducted in the natural environment and during their off shift hour with no interference to the normal flow of work. To ensure the respondents were comfortable with the research undertaken and obtain their full cooperation, the appointed officers were told to verbally brief the respondents that their responses to the questionnaire would be kept confidential by the researcher and that individual responses would not be revealed to anyone in the organization. The respondents were also encouraged to offer their frank answers to facilitate the effectiveness of this study.

A total of 400 questionnaires were sent to the six designated units. At the end of the ten days period, 340 questionnaires had been received from the respective units which constituted of 85 percent response rate.

3.7 Data Analysis Techniques

This section briefly explained the various statistical tests of data collected and the objectives of data analysis which included statistics that give a feel for the data collected or how well the question were framed for tapping

the concept in this study, testing the goodness of data and testing the hypotheses developed for this study.

The data collected from the surveys were coded and entered into the Statistical Package for the Social Sciences (SPSS), version 16 for statistical calculation and analyses. The data collected was first checked for completeness and proper data entry prior to other analyses. The Cronbach's Alpha was used to measure the reliability of the instruments. The data were analyzed using both descriptive and correlation statistics. Data analysis used in the descriptive statistics, which included measures of central tendency, frequency distributions, percentages, and measures of variance or standard deviations. The means and standard deviations were used to summarize the data in the descriptive statistics. The above frequencies and percentage were reported for the demographic data. The sample population was broken down according to the demographics and questions in the survey. The average scores on the independent and dependent variables are presented by age, gender, education level and rank structure.

. The purpose of these analyses was to provide statistics that give a feel for the data collected or how well the question were framed for tapping the concept in this study.

In this study, besides knowing the means and standard deviations of the dependent and independent variables, correlation analysis was used to report the nature, direction and significant of the relationship between variables. Person Correlation Matrix was used to determine the inter-item consistency reliability of the job motivator/hygiene factors (independent variables) and the overall level of job satisfaction among air defence operators.

In addition, multiple regression analysis was also used to report the results of regression the independents variables against overall job satisfaction of Air defence operators. The suitability of the data for multiple regression analysis was assessed by investigating the relationship among the independent variables and dependent variable. In this study a significant of $p \leq .05$ is considered acceptable as it follows the generally accepted conventional social science research (Sekaran 2003). The purpose of these analyses was to test the goodness of data.

3.7.1 Reliability Test

The Cronbach's Alpha was used to measure the reliability of the instruments. According to Sekaran (2003), the closer the reliability coefficient gets to 1.0, the reliability is better. In general, reliability coefficient less than 0.60 are considered as poor, those in the range of 0.70 are acceptable and those above 0.80 are considered as good.

3.7.2 Normality Test

The assumption of normality is prerequisite for many inferential statistical techniques. In this study, normality test was conducted prior to other statistical testing. It was conducted to ensure that the data collected was normally distributed. There are a number of different ways to explore the normality test. According to Coakes and Steed (2007), a histogram can indicate data collected are normally distributed by observing the shape of distribution. Salkind (2000) states that if the values of mean, median and mode are almost within the similar range, it could be considered as a normal

distribution. Hair, Babain & Philips (2003), reports that when the value of Skewness and Kurtosis are not greater than ± 2.58 , then it indicates the data is normally distributed at significant level of 0.01. If the significant level is taken at 0.05, the Skewness and Kurtosis must be within the range of ± 1.96 .

3.7.3 One -Way Analysis of Variance (ANOVA)

ANOVA is used to determine if there are any differences between means where there are more than 2 elements that exist in a variable. In this study, the analysis is carried out to test some of the hypotheses that have been developed. By comparing the total variation between categories against the total category, the bigger the variation between category, the higher the probability of obtaining a null hypothesis, in other words if there is no difference between categories, the hypothesis develop may be wrong and thus be rejected. In the event of no different between the categories occurred, the decision to accept or reject is depend on the value of F ratio and the degree of freedom (Healey, 2005). This analysis is used to determine the difference in means for variables such as rank, basic level of education qualification and age group among the respondent.

3.7.4 Bivariate Analyses

The Bivariate Analysis used Perason product moment correlation. This analysis was used to report the nature, direction and significant of the relationship between variables. In this study, to determine the inter-item consistency reliability the criteria set by Davis (1991) was used. The r value less than 0.3 is consider low correlation relationship, 0.3 to 0.5 represents

moderate correlation relationship and 0.6 and above indicates high relationship. The positive and negative sign of r represents positive and negative correlation.

3.7.5 Multiple Regressions

Multiple regressions is an extension of bivariate correlation. Besides indicating the relationship between independent variables and dependent variables, it also shows the result of the predictive power of the determinants. In this study, this analysis is used to observe the level of influence of independent variable has against job satisfaction.

3.8 Summary

This chapter explained the methodology of the study including the design of the study, the setting where it took place, the sampling design that was used, the instruments and procedures that were used for data collection. It also described the way in which the data was analyzed. The study used a questionnaire survey with a simple random sampling as this sampling is the least bias and offers the most generalizability. The independent variables were the motivation and hygiene factors and the dependent variable was air defence operator's job satisfaction. The short form of MSQ, modified version of JSS and a demographic survey were distributed to approximately 400 operators from six air defence units in RMAF. The data was analyzed using descriptive and correlational statistics.