CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology of the research. Methodology refers to the branch of philosophy that analyzes the principles and procedures of inquiry in a particular discipline (Neuman, 1997). Methodology also can be properly referred to as the theoretical analysis of the methods appropriate to a field of study or to the body of methods and principles particular to a branch of knowledge (Blaikie, 1993). In other words, this chapter discusses the procedures, techniques and methods used to gather all the information and data needed for analysis of this research.

This research involves getting data regarding the impacts of electronic commerce on manpower requirements in Malaysia. This is an important study because this research will find out what the manpower (that is the employees themselves) need to know about the skills and knowledge in developing electronic commerce. Besides that, this study also highlights some of the efforts that is being undertaken by the government of Malaysia to prepare the country for the Information Age. Previous studies are done on macro level whereas this study is at micro level. This means that the study will find data on what knowledge and skill required of our human resource in order to have proficient electronic commerce industry, especially in the area of system hardware/engineer, software developer/engineer, business/ system analyst, computer programmer and technical support. The main method of data collection is questionnaire. Thus, this chapter is organized into the following:
1) the sample selection,
2) the instrument,
3) the data collection and treatment and
4) Data analysis.

3.2 **Objective of methodology**

The methodology chapter normally answers these two main problems;

1) How was the data collected and
2) How was it analyzed

Firstly, it is important to know how data was obtained because the method affects the results. For example if you are investigating users' perceptions of the efficiency of public transportation in University of Malaya, you will obtain different results if you use a survey-questionnaire than if you conduct interviews. This is because interviews can give a more in depth answer to your questions. In addition, knowing how the data was collected helps the reader evaluate the validity and reliability of the results, and the conclusions you draw from them.

Often there are different methods that can be used to investigate a research problem. The methodology should make clear the reasons why you choose a particular method or procedure. The research method also must be appropriate to the objectives of the study. For example if you perform a case study on just one student in order to investigate users' perceptions of the efficiency of the main library in University of Malaya, then your method is unsuited to your objectives. Furthermore, the reader also wants to know that the data was collected in way that is consistent with the accepted practice in the field of study. For instance, if you are using a questionnaire, readers need
to know that it offered the respondents a reasonable range of answers to choose from (asking if the efficiency of the main library is “a) excellent, b) very good, c) good” would not be acceptable as it does not allow respondents to give negative answers.

The methodology should also discuss the problems that were anticipated and explain steps taken to prevent them from occurring and the problems that did occur and the ways their impact was minimized. In some cases it is useful for other researchers to adapt or replicate your methodology, so often sufficient information is given to allow others to use the work. This is particularly the case when a new method had been developed.

3.3 The Population and Sample

Population can be defined as the total number of cases with a set of characteristics that can potentially be studied. In this case, the population is the total number of employees in Information, Communication and Technology (ICT) related companies in Klang Valley area. Whereas sample refers to the systematic selection of individuals or things from the population (Babbie, 2001). In this study, the simple random sample of 100 participants was drawn from a population of employees in Information, Communication and Technology -related companies in Klang Valley. This is due to the limited number of employees in this field. The rationale for selecting Klang Valley is because the researcher is more familiar with the companies located in Kuala Lumpur and the near-by area as he stays and studies there. Moreover, it was easier for the researcher to collect the questionnaires personally from the respondents in Kuala Lumpur because he does not have to travel far as he does not own transportation. There are also time and financial constraints to conduct the research nationwide, where it would be impossible to
administer the questionnaires to all the Information, Communication and Technology-related companies in the whole country. However, to get more responses the questionnaires were also posted electronically on the Internet.

The sampling frame was obtained with full cooperation from the three companies; Ericsson, Intel and Motorola respectively and other small and medium scale Information, Communication and Technology-related companies located around Klang Valley.

3.4 The Pilot Study

A pilot study was conducted prior to the actual collection of the data to pre-test the questionnaire for this study in order to:

1) determine the clarity of the meaning of the items in the questionnaire
2) determine the effectiveness of the instructions
3) evaluate the appropriateness of the format of the questionnaire
4) determine the overall understanding of the questionnaire

The pilot study consisted of ten employees from different levels of employment from two different organizations. As a result of the pilot study, several necessary changes were made to the final questionnaire format for the data collection process.

3.5 The Instrument

As people are often reluctant to express their views openly in person or in a group, they are more willing to do so in writing. Furthermore, interviews are too time-consuming. In view of this, the instrument used to collect the data is a newly designed questionnaire. In designing the questionnaire, questions were carefully tailored in accordance with the objectives of the study in order to get the desired answers. One
major advantage of using questionnaire is that, the researcher can give questionnaires directly to respondents, who read the instructions and the questions and then record their answers, sometimes on the spot, sometimes within a few days or weeks. This type of technique in data collection is by far, the cheapest and it can be conducted by a single researcher (Neuman, 1997).

As mentioned earlier, the study made use of a set of questionnaire, which included mainly structured and closed-ended questions, (please see Appendix 1). The questionnaire is divided into three sections. The first section asks the respondents to fill their personal particulars. This is to generate the profile of the respondents. The second part asks the respondents regarding their knowledge on the subject of electronic commerce. And the last section asks the respondents about the general issues pertaining to the matters of electronic commerce and other related concepts such as the Internet and other Information Technology matters.

Completing the questionnaire could be considered a relatively simple task as the questionnaire made use of mainly closed-ended questions. This was done purposely because of the general assumption that most private firms' employees do not spare much time for non-official matters at work.

Items in the questionnaire were selected deliberately because of the purposes of the research that is to find out whether our manpower knows what electronic commerce is and know what skill and knowledge is required of them to promote electronic commerce industry in this country. For purposes of identification and confidentiality, the respondents were asked not to write their names but to indicate their other personal particulars that are relevant to the research. Abiding the ethics in doing research, the
information given in the questionnaires was analyzed in such a way that would not reveal
the identity of the respondents.

Even though 100 questionnaires were administered, the response rate was not
very high as only 55 respondents returned the questionnaire. Other respondents however,
were not able to participate in the study due to work pressure, scarcity of time and also
due to lack of interest. The researcher fully understood this problem and to overcome
this problem, the researcher posted the questionnaire in the electronic group, in which he
is a member to get feedback from his fellow subscribers. The researcher also posted this
questionnaire in his homepage to get more feedback from wider Internet users who are
interested to participate in this kind of study. However, only 4 people responded via the
electronic mode. Nevertheless, due to the limitations faced in the collection of data, it
is hoped that the sample size would be representative of the findings in this study.

3.6 Data collection and treatment

There are two kinds of data in this study, primary data and secondary data.
Primary data are first hand data that is generated by the researcher. In this study, the
researcher designed a set of questionnaire and distributed them to the respondents who
then recorded the answer. Thus, the primary data in this study come from the answers of
the questionnaire. Secondary data, on the other hand, was obtained from various books,
journals, articles, and newspaper clippings and through the Internet search.

3.7 Data analysis

The questionnaire was designed to meet the following objectives:
a. To find out the level of knowledge of the existing manpower on the subject of electronic commerce

b. To know which skills among the five listed in the occupational skills in the questionnaire are shortage in the market

c. To know if the current infrastructure is adequate for electronic commerce industry to thrive

d. To predict the viability and the future of electronic commerce in Malaysia

The returned questionnaires were then collected and screened for completeness. The raw scores of data were coded, so that the data would be easily transferred to the computer. Data analysis then is accomplished by the use of various programs from the Statistical Package for Social Sciences (SPSS). One of the steps taken is this study was to prepare a master code for the answers to the questions in the questionnaires (Appendix 2-Master Code). Upon receiving the questionnaire from the respondents, the answers were coded accordingly, before being keyed in into the SPSS Data Editor. In order to see the overall distribution of the data and to check for extreme values (may be due to typing errors or other possibilities) preliminary analysis were carried out. Each of the following types of statistical analysis was then carried out:

i) Data summary - Frequencies (counts, percentage and others)

ii) Cross-tabulation- to see distribution between sex and ethnic and level of knowledge on Electronic commerce and the training needed
3.8  Web Site Review

Besides collecting the primary data via questionnaire and secondary data via literature review, on-line review of web sites of was also carried out to identify and highlight the impact of electronic commerce on the economy and on human resource development in general, and in Malaysia specifically. The web sites visited to get the information such as definitions of E-commerce, applications of E-commerce in Malaysia, categories of E-commerce in Malaysia and so on, are as follows:

http://www.kamath.com/colums/comsutra/ccs0001_whatiscom.asp
http://www.bakerinfor.com
http://www.directory.net
http://www.ecommercetimes.com
http://www.cari.net.my
http://www.google.com
http://www.midcom.com/organization/organization.html

3.9  Conclusion

At the heart of it, methodology is simply a plan of study that will yield the best information possible. It is basically a scientific study of research techniques, research instruments and research strategies for obtaining valid and reliable data and information. This study made use of one set of newly designed questionnaire as the research instrument. There were several unavoidable problems that the researcher anticipated such as the limited reference for this subject as it is a fairly new subject and not many people did research on it. There is also another problem of low rate of response from the
respondents where the researcher solved by posting the questionnaire on the Internet. However, the response rate is still fairly low. Nevertheless, with limited time and resources, it is hoped that the sample size would be representative of the findings in this study.