CHAPTER THREE: METHODOLOGY

This study attempts to examine several questions:

i) Why do the end-users use CD-ROM databases?

ii) What are the common types of searches conducted by the end-users?

iii) From whom do the end-user learn how to use the CD-ROM?

iv) Do they need training?

In order to get convincing answers to the research questions, a questionnaire was designed and distributed to respondents to determine their perceptions and behaviour.

The study uses quantitative research approach to analyze the information from the questionnaire.

An overview of the research design is presented first, followed by a description of population and sample of the study, research instrumentation and data collection procedure, and finally data analysis.

3.0 Overview of the Research Design

When one explains the research approach, one imagine a research design that shapes our choice and use of particular methods and links them to the desired results. This will assist us in finding a rationale for the choice of methods and the particular forms in which the methods are employed.

Traditionally, writers have made a distinction between qualitative and quantitative research. Recently, other writers accept that it is possible for either qualitative methods or quantitative methods, or both, to serve the purpose of the study.
Qualitative studies must meet the same criteria for completeness that quantitative studies do, that is, they must be able to describe in sufficient detail the methods and procedures to permit the replication of the study. Whether we are following qualitative or quantitative research, the methodology must always be linked to what has been said in the problem and in the literature review (Rudestam & Newton, 1992).

3.1 Methods of data collection

The researcher can employ any of the following techniques to gather data for his/her research: observation, surveys (questionnaires and interviews), experimental and focus groups, and protocol analysis.

3.1.1. Observation

Observation is one of the oldest methods of data collection. It employs vision as a means of data collection. It can be used as the only technique for data collection, or jointly with other techniques such as interviewing or case studies. Observation is generally considered to have the following advantages over other methods:

a) it provides information when other methods are not effective

b) it can offer data when the participants are reluctant to provide any verbal data

c) it allows the collection of a wide range of information.

Observation also has its limitations. For example, it cannot be employed with large groups and it cannot offer data related to frequency of behaviour or study opinions or attitudes. Moreover, observation offers no control measures regarding bias attitudes and opinion of the observer and it cannot offer quantitative generalizations on the results (Nunan, 1995).
3.1.2. Questionnaires

Surveys are the most commonly used method of data collection in library and information science. Information can be gathered either through questionnaires or oral questioning known as interviewing.

In questionnaires, the respondents offer the data with limited inferences on the part of the researcher. The most important thing is to construct a valid and reliable questionnaire. Special attention should be given to the wording of questions. Most importantly, the researcher must decide whether the questionnaire is the most appropriate method of data collection before starting his/her research.

The questionnaires have several advantages. The most important ones are:

a) they are less expensive than other methods
b) they produce quick results
c) they are stable, consistent
d) and they have uniform measure.

The disadvantage is that they do not allow probing, prompting and clarification of questions. Moreover, they do not provide an opportunity to collect additional information while they being completed (e.g. through observation).

3.1.3. Interviews

Interviewing is a form of questioning characterized by the fact that it employs verbal questioning as its principal technique of data collection. Interviews are common occurrence in everyday life but as a tool of data collection it is different. Consequently, it needs preparation, construction and execution. Interview can be used in quantitative or qualitative research. Interviews can be characterized in terms of their degree of formality from structured versus unstructured and semi-structured interviews. In the
structured interview, the agenda is totally predetermined by the researcher. In the
unstructured interview, the agenda is guided by the responses of the interviewee. In the
semi-structured interview, the researcher has a general idea about the interview but he
does not interview with a set of predetermined questions (Nunan, 1995)

3.1.4. Experimental and Control Groups

The experiment is a procedure for testing a hypothesis by setting up a situation in which
the strength of relationship between variables can be tested. In this case the researcher
randomly selects two groups of respondents and assigns them to either the experimental
group, which uses new methodology or technology, or a control group, which uses
traditional methodology. The researcher should test the two groups before the
experiment to make sure that the two groups are the same. This is usually done by
carrying out a pre-test and post-treatment test. Unfortunately, it is not always possible
to arrange respondents into different groups. A quasi- experiment may have pre-test
and post-treatment test, and experimental and control groups, but no random assignment
of subjects (Nunan, 1995).

3.1.5. Protocol Analysis

This is a written record of a subject's data, usually obtained through some form of
elicitation. In think aloud protocol analysis, the subjects verbalise their thought
processes as they complete a task or solve a problem. The researcher collects the think-
aloud protocol on tape and then analyses it for the thinking strategies involved. The
main problems are the varied quantity and varied informative value of data and the
difficulty to control sociopsychological variables for peer think-aloud.

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3.2 Methodology Used

The survey by questionnaire technique remains the most popular research method for CD-ROM use and most other library information studies. It is characterized by its simplicity and inexpensiveness. It allows the researcher to get responses from a relatively large population with the specific time limit and the respondents have the opportunity to answer at their own leisure. It gives straightforward answers to the questions that we need to answer. The choice of the questionnaire is dedicated by the nature of the topic since it seeks objectives and needs explanation by statistical description and manipulation.

3.3 Design of Study

The study involves the following steps:

a) Reviewing the literature to see what previous studies have been done in the area of CD-ROM use and to gain better understanding of the problem in question.

b) Preparing the objectives of the study.

c) Preparing the research questions.

d) Developing the research instrument i.e. the questionnaire.

e) Selecting the sample of postgraduate students.

f) Distributing the questionnaire to the sample.

g) Analyzing and interpreting the results by coding the responses and conducting suitable SPSS statistical analysis.

h) Presenting results and findings
3.4 Sampling Procedure

The study was conducted at the Sultan Qaboos University, Oman. Data were collected during semester 2, 2002-2003. The participants of the study are postgraduate students in their High Diploma and Master Programmes. This study aims to investigate end-user searching behavior to identify users of CD-ROM databases and to identify the effectiveness of CD-ROM usage at the College of Education. The college, according to the librarians, is the most appropriate college for the study, due to the heavy use of the CD-ROM by postgraduate students. For the 2003 academic year, there were a total of 2542 registered students at the college (Appendix C). Of the 2542 students, 2027 were undergraduates and 515 were postgraduates (Masters and postgraduate diploma). A total of 300 (i.e. 58.2% of postgraduate population) students were randomly selected as a sample for the study population (i.e. postgraduate students). The study employed the following technique.

3.5 Questionnaire

In order to answer the research questions, a questionnaire (Appendix A) was distributed to 300 postgraduate students at the College of Education, the Sultan Qaboos University. The questionnaire asked the participants to answer questions related to their use of CD-ROM databases. A seven-page questionnaire was employed to gather information related to the topic which was translated into Arabic.

In order to check the validity and reliability of the questionnaire, it was sent to academic staff and the researcher made some changes after their suggestions. Changes were made to the wording of some questions. The questionnaire consists of three sections. Section A is meant to elicit demographic data such as gender, age, race, and level of study. Section B asked general questions pertinent to the use of the library. Section C
contained fourteen questions regarding experience in the use of the CD-ROM. The respondents were asked to tick the relevant answers.

When the respondents were asked to tick either 'yes' or 'no', they were also asked to elaborate on that to get precise information. The questionnaire offered respondents the option of ticking others. This gives the respondents an opportunity to give answers that had not been included in the questionnaire.

3.6 Data Collection

A cover letter accompanied each questionnaire. Permission to distribute the questionnaires was sought from the Dean and Heads of Departments as well as lecturers. When the researcher arrived in Oman, it was time for the final examinations. The researcher personally distributed the questionnaires to the students in the examination halls. Data collection was made during the whole month of May 2003.

3.7 Data Analysis

Data from the questionnaires will be analysed using the Statistical Product and Service Solutions (SPSS: formally, Statistical Package of Social Science) Version 10.0 for Windows. Analysis of the study will be based on frequency count and cross tabulations.

3.8. Summary

This chapter reports the methodology employed to carry out the study by first discussing about qualitative and quantitative research, then the various methods of data collection. The study uses the survey questionnaire to obtain demographic information about the respondent and their CD-ROM use. The researcher randomly selected 300
(58.2.9\%) students among 515 postgraduate students at the College of Education, the Sultan Qaboos University. A written questionnaire, which consists of three sections was developed covering demographic data, library use and CD-ROM usage. The data collected will be analysed and reported according to appropriate statistics using Statistical Product and Service Solutions Version 10.0 for Windows.