Chapter-3 Research Methods used in this study

3.1 Introduction

No research worth the name can be undertaken without some previous planning. The research design is required to get the picture of the process of dealing with problem on hand. It gives an idea about the sampling, the tool of the data collection, the tabular and the graphical presentation of the result. In other words it is an answer of the procedure of finding the solution of research problems. It is a detailed plan that shows how the problem is discussed, how the research is to be conducted, what variables are taken into account and how the results are analyzed. Jehoda and others[11] describe the research design as the way of collecting the data concerning the problem, arranging it and analyzing it in a scientific manner. Accordance to these features the design of the present problem was formulated.

This chapter focuses on the method in which the research question was investigated. It provides insight into the research design, data gathering instruments used and various techniques applied.

3.2 RESEARCH DESIGN – A THEORETICAL UNDERPINNING

Research design is considered as a "blueprint" for research, dealing with at least four problems: which questions to study, which data are relevant, what data to collect, and how to analyze
the results. From the scientific point of view a research is basically evaluated in terms of its design. Design is the core and focus of investigation and the value of any investigation are measured on the qualities of its research design. The authors of “Research methods in social-sciences” Seltez Jehoda and others [11] define that "A research design is the arrangement of conditions for collection and analysis of data in a manner that aim to combine relevance to the research purpose with economy in purpose its procedures. According to C.R. Kothari[6] a decision regarding WHAT, WHERE, WHEN, HOW MUCH BY WHAT MEANS, concerning an inquiry or a research study, constitute a research design. Fred Kerlinger[10 ] defines that "Research design is the plan, structure and strategy of investigation conceived, so as to obtain answers to research questions and to control variance”. The PLAN is the overall scheme or program of research. The STRUCTURE of research is more specific. It is the outline, the scheme the paradigm of the operation of the variables, STRATEGY inculcates methods to be used to gather and analyze the data. It implies HOW the research OBJECTIVES will be reached and HOW the problems encountered in research will be tackled.

This chapter contains information about various tools and techniques used for collecting relevant data.

The main purpose of this research study (“A Survey, Analysis and IT Tools for knowledge Acquisition and Rehabilitation of Disabled People”) is to identify the number of individuals
(physically/mentally challenged people) who could potentially benefit from the use of accessible technology. The study is designed to identify individuals who have physical or cognitive difficulties or impairments that restrict their performance of daily tasks and determine who could most likely benefit from using accessible technology. The study identified individuals who considered themselves to have impaired.

3.3 Research Methods used in this study

Research methods are all those methods/techniques that are used for conduction of research. Research methods or techniques, thus refer to the methods the researchers use in performing research operations. In other words all those methods which are used by the researcher during the course of studying his research problem are termed as research methods.

Research methodology is a way to systemic solution of the research problem. It may be understood as a science of studying how research is done scientifically. The first step of any research is to collect the data according to research problem. Before collecting data one should identify the population and samples for one’s relevant study.

3.4 Population and Sample

A population is defined as the “total collection of individuals or objects that forms the focus of the research” whereas the sample
is “a selected part or a subset of the population”. According to Pretorius [12] research is generally conducted to make inferences about the population based on the information available about the sample, in order to make inferences from the sample to the population.

In the present study researcher takes institutes working for disabled people in India as population. To collect the data, Researcher visited the Rehabilitation Council of India (RCI)[45] website. From that website he selected a sample of 50 institutes working for disabled people, which meet the requirement of the data. Researcher contacted each institute either through phone call or mail regarding collecting data. While talking with the staff of the institute, he found that many of the institutes are not proper maintaining the records. So simple random sampling, systematic sampling, stratified sampling etc. may have some drawbacks, because of that researcher used purposive sampling technique to select a sample of institutes working for different types of disability. Researcher selected 50 institutes to collect relevant data. A survey form was sent to institutes by post with an acknowledgment cover.

Out of nearly 50 institutes researcher received around 25 responses. The detailed analysis of received data is mention in chapter-4 (Analysis of Data).
The purpose of this study is to identify the range of physical and cognitive abilities among working-age adults and current computer/technology users, the types of difficulties and impairments that limit the scope of activities and their degree of severity, and the number of people who could potentially benefit from using accessible technology. The following five research tools are implemented to collect all necessary information:

1. Survey of physically/mentally disable institutions.
2. Questionnaire.
4. Interviews.
5. Personal observations.

Implementation of all these tools for this research study is as explain bellow:

3.5 Survey of physically/mentally disable institutions

The survey covered the all four types of disability and impairments that would most likely impact computer use: Visual Impairment, Speech & Hearing Impairment, Mental Retardation and Locomotors Impairment.

A survey is inappropriate, without its specific purpose. Therefore the various purposes are kept in mind before starting the survey for disabled peopled.
1. **To Analyze**, the activities of daily self care in which the disable persons would face problem according to type of disability.

2. **To Examine**, the day to day routine chores in which the disable persons would face problems according to type of disability.

3. **To Observe**, the day to day outdoor chores in which the disable persons would face problem according to type of disability.

4. **To Know**, the problem facing related to social behavior and communication according to the type of disability.

5. **To Examine**, access to various level of education as well as difficulty to acquire education and withdrawn from education according to type of disability.

6. **To Explore**, employment and earning of disable people according to type of disability.

To collect all necessary information a survey form is constructed. It is divided into three parts:

First part containing the primary information of institute working for disabled people.
Second part was about general information about inmates which include sex, age and percentage of disability and cause of disability of disabled people according to type of disability.

Third part consists of various activities concern to daily self care activity, house-hold routines chores, social behavior and communication. It also includes education level, information relevant to employment, income and types of work.

This survey form is sent to 50 institutes working on different types of disability. Out of nearly 50 institutes researcher received around 25 responses. Detailed analysis of survey was given in chapter-4.

3.6 Questionnaires

In second phase researcher tried to collect information regarding use of various tools and technology used in institutes/organizations. Here researcher try to know that whether different tools and technology available in the market are used to support disabled people, in various activities like education, navigation, game playing, rehabilitation, and daily self care and for day to day routine work.

Keeping two purposes in view a close ended structured questionnaire prepared.
1. **To know**, the tools and technology they are using for different type of work.

2. **To find out**, specifically which tools and technique they are using in various type of activity.

Each question was specifically mention in the name of tools and answer was to be given is Yes/No type.

A questionnaire was consists of three parts, first part was about identification of an institute which include name of Institute , address, contact number year of establishment and type of disability. The second part consists of close-ended structure questionnaire. It contains, for what purpose the tools and technology are used like education, gaming, vocational training, daily living activity etc. and which type of tools, technology and software are being used such as brail printer, brail keyboard, video magnifier JAWS, Screen Reading software, FM – System, Personal Amplifier, signing device, speech recognize software, communication software etc . The third part is an open question where respondent i.e. head of the institute can write his/her personnel opinion.

To conduct second phase of research the questionnaire was sent to 25 respective Institutions working for disabled located in
Gujarat region. The questionnaire was sent by post with self address acknowledgement envelop.

Out of those 25 Institutions, 18 responses have been received. The analysis of received information is mention in chapter-4 (Analysis of Data)

3.7 Schedules

A schedule is prepared to know, what are the actual problems occurred while using modern tools and technology. Two different schedules were prepared: one for instructors and the other for learners.

Purposes of preparing these schedules are:

1. **To know**, the difficulty faced by instructors as well as learners while using different modern tools and techniques.

2. **To know**, the way out of these difficulties by instructor based on his/her experience.

3. **To get**, the learners suggestions for improvement.

While preparing these tools, there were two parts. The first part consists of instructor’s background (name, age, sex, education and experience, special training for using modern tools and
technology) and also background of learner’s (name, sex, age, education, social background etc.).

The second part was about their free responses including the difficulties and suggestions of instructors and learners according to type of disability.

The prepared schedule was sent to respective instructors and learners of an Institute by post. It was also personally distributed to individual instructors and learners during the visit of an Institute. It is distributed to approximate 20 instructors and 50 learners.

Out of 20 instructors we have received 16 responses from instructors and out of 50 learners more than 40 responses received from learners. The analysis of these received information is mentioned in chapter-4 (Analysis of Data)

3.8 Informal Interviews

To collect more information, informal Interviews technique was used, here a personal informal interview was conducted for administrators, instructors and learners of Institute.

The main purpose of conducting this informal interview was to know a personal view of all individuals concerning to the activity.
During our informal interview following questions were asked to the administrators, instructors and learners.

1. What type of tools and technology are they using?

2. Are they familiar with latest technology available in market?

3. How are they benefited by using modern tools and technology in the field of education and rehabilitation?

4. What types of problems are they facing while using these modern technologies?

5. What are their practical suggestions regarding difficulty in utilization and implementation of these tools and technologies used for improvement of disabled people?

During our personal visit to Institutions, we have conducted one to one informal talk with administrator, Lab instructors, teaching staff and learners. All this informal discussions were conducted in class room while they were learning.

We are happy to inform, we received enthusiastic and encouraging responses from administrators, instructors, members of staff and learners during informal interviews. The analysis of received information is mentioned in chapter-4 (Analysis of Data).
3.9 Personal Observations:

Whenever we visited the disabled institute we have made personal observations and thereby we could understand the reality of the working situation.

During visit of institute, we have a long and interesting discussion with administrators, instructors, staffs and learners. We observed the working environment of the Institutes. We have also observed various activities carried out by institutes for education and rehabilitation of disabled people.

The analysis of received information is mention in chapter-4 (Analysis of Data).

3.10 Summing up Note

In this chapter, we have given how the various tools and techniques are implemented for data collection. Here for collecting data a survey, questionnaire, schedules, informal interviews and personal observation methods are used. The analysis of collected data is given in chapter-4 (Analysis of data).