

CHAPTER III

METHODOLOGY

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3.0.0 INTRODUCTION

A proper methodology is very important for conducting a research study. This chapter deals with the research methodology adopted in the present study. The main focus of this chapter is to describe the research procedure used in the present study. It describes the methods used and the procedure use to collect data to address the objectives of the present study. The researcher stated the objectives of the study and on the basis of them, a methodology was chalked out. The detailed research methodology includes the population of the study, sample of the study, tools of data collection, procedure of data collection and the procedure of data analysis.

3.1.0 RESEARCH METHODOLOGY

The present study adopted the survey method. In social science research, there is no single method that should be regarded as the most suitable or applicable without first scrutinizing the various approaches available. Every method has its own identity. The research method is selected as per the requirement of the design of the study, suitability of the researcher and resources available for the study. This notion further justifies the method selected for this study. A mix of quantitative and qualitative approach was used for the present study.

3.1.1 POPULATION

The population for the present research study consisted of 25 Community Science Centres in Gujarat (as in year 2014) running under different administrations. There were 18 Community Science Centres under the administration of Gujarat Council on Science and Technology (GUJCOST), Government of Gujarat and rest were outside GUJCOST

administered by different bodies. Following are the details of these Community Science Centres in Gujarat .

Community Science Centres Under GUJCOST: There were 18 Community Science Centres in different districts of Gujarat which were established by different trusts as non-government organizations and falls under Gujarat Council on Science and Technology (GUJCOST), Department of Science and Technology, Government of Gujarat. The Community Science Centres under GUJCOST were established at two levels viz. (1) Regional level Community Science Centres and (2) District level Community Science Centres.

Regional Community Science Centres under GUJCOST: There were three Regional level Community Science Centres under GUJCOST functioning at Vadodara, Rajkot and Bhavnagar. The regional Community Science Centres performed their functions in urban and rural areas of district as well as in the nearby districts where it is located.

District level Community Science Centres under GUJCOST: There were 15 District level Community Science Centres under GUJCOST.

Table 3.1 shows details about these science centres .

Table 3.1: District Level Community Science Centres in Gujarat under GUJCOST

Sr. No.	District	Name of Community Science Centre
1.	Amreli	Girdharbhai Sangralay District Community Science Centre
2.	Anand	C.C.Patel Community Science Centre
3.	Banaskantha	District Community Science Centre
4.	Bharuch	Param Community Science Centre
5.	Dang	Prayosha Community Science Centre
6.	Gandhinagar	Nisarg Community Science Centre
7.	Jamnagar	M.D.Mehta District Community Science Centre
8.	Junagadh	Shri Brahmanandji District Community Science Centre
9.	Kachchh	Kachchh Mitra Community Science Centre
10.	Narmada	Manthan Narmada Community Science Centre
11.	Patan	Punabha District Community Science Centre
12.	Porbandar	Shree Sahajanand Swami District Community Science Centre
13.	Sabarkantha	Pramukhswami District Community Science Centre
14.	Surat	Jay Bharti District Community Science Centre
15.	Surendranagar	Dr. Homi Bhabha District Science Centre

The district level Community Science Centres performed their functions in urban and rural areas of district where it is located.

Community Science Centres outside GUJCOST: There were seven Community Science Centres functioning outside GUJCOST which were managed and administered by different agencies as follows:

- A) There was one Community Science Centre at Ahmedabad in the name of Gujarat Science City. It was established by State Government of Gujarat and managed by Gujarat Council of Science City under Department of Science and Technology, Government of Gujarat.
- B) There was one Community Science Centre at Dharampur Taluka of Valsad district in the name of Community Science Centre, Dharampur established and

managed by National Council of Science Museum (NCSM), Government of India.

- C) There were five Community Science Centres which were established independently as non-governmental organizations by different organizations.

Table 3.2 shows details about it.

Table 3.2: Independent Community Science Centres in Gujarat

Sr. No.	Location	Name of Community Science Centre	Name of the organization who operates the centre
1.	Ahmedabad	Vikram Sarabhai Community Science Centre	Independent non-governmental organization
2.	Bhavnagar City	Balvant Parekh Vigyan Nagari	Monghiben Bal Vihar Trust
3.	Sanosara Village, Ta.- Sihor, Dist.- Bhavnagar	Lokbharti Community Science Centre	Lokbharti Gram Vidyapeeth
4.	Bharuch	Narmadanagar Community Science Centre	Gujarat Narmada Fertilizers Company
5.	Surat	Science Centre	Surat Municipal Corporation

All these 25 Community Science Centres constituted as the population for the present study. All the heads and staff of the stated 25 Community Science Centres constituted as the population for the present study. The students, teachers and public who visited these centres were also constituted as the population of the present study.

3.1.2 SAMPLE

The sample for the present study was taken randomly. Stratified random sampling method was used to select the sample Community Science Centres from 1) Community Science Centres under GUJCOST and 2) Community Science Centres which were outside GUJCOST.

There were total three regional level Community Science Centres under GUJCOST. One regional Community Science Centre was selected randomly i.e. Community Science Centre at Vadodara. The researcher selected three district level Community Science Centres out of 15 Community Science Centres randomly. The selected centres were Prayosha Community Science Centre at Dang, C.C.Patel Community Science Centre at Anand and Community Science Centre at Amreli. Hence, a total of four Community Science Centres were taken from the Community Science Centres under GUJCOST.

Both Community Science Centres, one run by State Government of Gujarat and managed by Gujarat Council of Science City under Department of Science and Technology, Government of Gujarat i.e. Gujarat Science City and other Community Science Centre at Dharampur established and managed by National Council of Science Museum (NCSM), Government of India, were taken as the sample.

Three Community Science Centres were taken randomly from the five independent science centres managed by different bodies. These centres were Vikram Sarabhai Community Science Centre at Ahmedabad, Vigyan Nagari at Bhavnagar and Lokbharti Community Science Centre at Sanosara (Dist. Bhavnagar).

Thus, total nine Community Science Centres-one regional level Community Science Centre under GUJCOST, three district Community Science Centres under GUJCOST and five independent Community Science Centres were taken as sample. All the nine heads and staff of all nine selected Community Science Centres also constituted as sample. The students, teachers and the general public who visited the science centre on the days when the researcher went to these centres for data collection were considered as the sample for the present study.

Figure 3.1 shows the flowchart of the sample taken for the study.

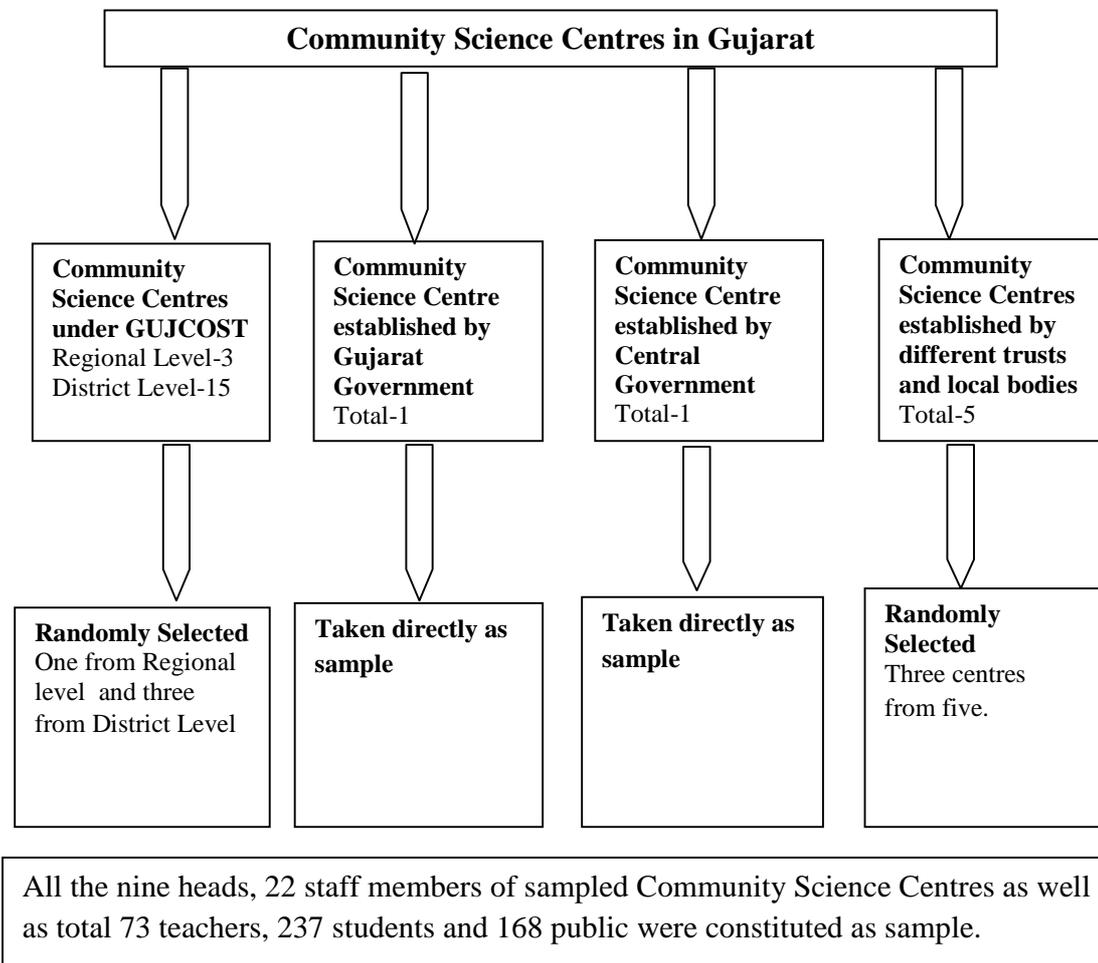


Figure 3.1: Selection of Sample Community Science Centres

3.2.0 TOOLS FOR DATA COLLECTION

Observation is an organized watching of a specific phenomenon or event for gathering data. In participant observation, the researcher is involved in a study to be observed while in non-participant observation, the investigator does not participate in the observation.

A detailed questionnaire is prepared to know the choices and preferences of respondents. There are open-ended as well as close-ended questions in it.

Interview is a two way systematic conversation between researcher and respondent done for getting required information on research study. There are structured interview, semi structured interview and unstructured interview. In structured interview, a standard schedule is prepared in organized manner. The semi structured interview is a mix of structured set of questions and informal talk. The unstructured interview is not pre-planned and the respondent is free to talk in an informal way.

The following tools were constructed by the researcher for the purpose of data collection for the research study to achieve different objectives.

3.2.1 Observation Schedule

The researcher developed an observation schedule to observe the implementation of activities of the selected Community Science Centres. The researcher prepared observation schedule, detailed questionnaire and semi-structured interview schedule for the research. In observation schedule, the researcher observed the components like medium of instruction, topic of discussion, aids used in the process, leadership style of the instructor, attitude of instructor during session, content knowledge of the instructor, time management for activities and attentiveness of learners during instruction. The researcher also observed the infrastructural facilities like building condition, facility of electricity, facility of drinking water, working condition of models and condition of materials used during demonstrations.

3.2.2 Semi- Structured Interview for head and staff of centres, students, teachers and general public

Semi-structured interview schedules were prepared for head and staff of the centre, students, teachers and general public visiting science centres for the present study.

The researcher prepared a semi-structured interview schedule for head of Community Science Centres. The schedule consisted of questions on infrastructural facilities,

financial management, human resources management and programmes of the centres. There were also questions on problems faced by the centre. The semi-structured interview schedule for the staff members of the centre consisted of questions related to conduction of experiments, innovative methods adapted and problems faced during organization of activities.

The researcher made a semi-structured interview schedule for the students who visited the centre. The schedule consisted of questions related to learning at the centre, satisfaction level with respect to time duration and management of activities and overall facilities at the centre. The semi-structured interview for teachers consisted of questions related to content knowledge of the staff of the centre, relevance of activities for students, time management and duration of activities and overall facilities at the centre. The researcher prepared a semi-structured interview schedule for teachers in which questions related to content knowledge of the instructor, time management of activities and overall impression of the centre. The researcher prepared a semi-structured interview schedule for public in which questions related to satisfaction for events and activities of the centre as well as science learning gained by them were included. (See Appendix for details).

All the tools were validated by the experts and their suggestions were included.

3.3.0 PROCEDURE FOR DATA COLLECTION

The researcher personally visited the selected Community Science Centres to collect the data. The researcher visited each Community Science Centres of the sample for one week time period for data collection. Total four days were spent for observing activities at the centre, two days for interviews and one day for overall observation at the centre. Hence nine weeks were spent by the researcher for the purpose of data collection. The researcher used the prepared tools for the purpose of data collection.

3.4.0 DATA ANALYSIS

The data was analyzed qualitatively. Data were collected to know the opinion of students, teachers and public on the liking of activities of Community Science Centres. The qualitative data was analyzed to know the general administration, infrastructural facilities, financial management, human resources management and implementation of activities. The percentage was used to analyze the data. The data has been put as it is as collected by the researcher.