CHAPTER THREE

DESIGN OF THE STUDY

3.0. Introduction

3.1. The Sample

3.2. The tools and their administration

3.2.1 Literacy Achievement Test

3.2.2 Interview schedule and observation taken in the class room to assess the method of teaching, use of teaching-learning media and materials in the literacy centres

3.2.3 Interview schedule on socio-economic background (income, education and occupation) of the learners

3.2.4 Interview schedule on learners need, interest to attend the literacy classes

3.2.5 Personal profile of the instructors and their knowledge about literacy

3.3 Evaluation of literacy achievement (according to NLM norm)

3.4 Pilot study

3.5 Collection of data

3.6 Statistical treatment

3.7 Conclusion
CHAPTER THREE

DESIGN OF THE STUDY

3.0. Introduction

This chapter deals with the design of the study. In order to test the hypotheses it has been divided into two parts: The first part describes the sample for this study and description of various tools used for collecting data. The second part describes how the data for the study were collected and the way various statistical and other measures were used to analyze the data.

3.1. The Sample

Multiphase stratified random sampling technique was adopted in this study. The methodology took care of special pockets (SC/ST, Muslim, Minority) by giving them due representation. The sample for the study was both male and female learners in the age group 9-35 years. South 24- Parganas, Birbhum and Kolkata were selected on the basis of literacy level (low, medium and advanced) for this study. 276 learners from twenty four literacy centres (eight centres from each district) was selected randomly for the study. First, researcher approached Narendrapur Lokshiksha Parisad of Ramkrishna Mission who runs literacy centres in different districts of West Bengal. Then the researcher collected a list of centres running in different block and villages of South
24 Parganas by the Mission. From this list the researcher randomly selected eight villages from four grampanchayat of two blocks (Diamond Harbour Block-I and Mandirbazar Block) in South 24 Parganas district. The distribution of grampanchayat and villages were not equal because when the data was collected many literacy centres were already completed their course.

In the same way, eight villages of four grampanchayats of two blocks (Ilambazar and Bolpore) were selected from Birbhum district which were run by Pallisangathan Bibhag, Sriniketan of Viswabharati. In case of Kolkata, researcher collected a list of literacy centres from the office of Bangiya Saksharata Prasar Samity. From this list the researcher randomly selected eight centres from different area of Kolkata. Among these centres some centres were run by local party and one center was organized by Alipore Correctional Home which was totally for the prisoners. Design for the selection of the sample centres are shown in Figure 1A and 1B.
Figure 1A

*Design for the selection of the Sample Centres*

West Bengal

- District 1
  - Block 1
    - G.P.1
      - Vill.1, Vill.2, Vill.3, Vill.4
    - Block 2
      - G.P.2
      - Vill.1, Vill.2, Vill.3, Vill.4

- District 2
  - Block 1
    - G.P.1
      - Vill.5
    - Block 2
      - G.P.2
      - Vill.1, Vill.2

- Kolkata
  - P.O.1, P.O.2, P.O.3, P.O.4, P.O.5
    - Centers 1, 2, 3, 4, 5, 6, 7
Figure 1B

Design for the selection of the Sample

West Bengal

South 24 Parganas (District with low rate of literacy)

Birbhum (District with medium rate of literacy)

Kolkata (District with advanced rate of literacy)

Bolpore Block

Ilambazar Block

Raypur Supur G.P.

Ruppur G.P.

Nurpur Vill

Mirzapur Vill

Mohidapur Vill

Ballavpur Vill

Adityapur Vill

Gopalnagar Vill

Ramnagar Vill

Goyalpara Vill

Diamond Harbour Block I

Netra G.P.

Kanpur Dhanberia G.P.

Gabberia G.P.

Ghateswara G.P.

Saordaha (N) Vill

Kamalpur Vill

Netra Vill

Saordaha (S) Vill

Hansdahara Vill

Kidderpore P.O.

Biddin Street P.O.

Tiljala P.O.

Ichapur P.O.

Alipore P.O.

Center 1

Center 2

Center 3

Center 4

Center 5

Center 6

Center 7

Center 8
## Table – 1A

**Details of the literacy centres in rural areas**

<table>
<thead>
<tr>
<th>Name of the centres</th>
<th>District</th>
<th>Block</th>
<th>G.P.</th>
<th>Village</th>
<th>No. of learners</th>
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<tbody>
<tr>
<td>Uttar Saordaha</td>
<td>South 24-Parganas</td>
<td>Diamond Harbour (I)</td>
<td>Netra</td>
<td>Saordaha (North)</td>
<td>11</td>
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<td>Santi Sangha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kamalpur</td>
<td>South 24-Parganas</td>
<td>Diamond Harbour (I)</td>
<td>Netra</td>
<td>Kamalpur</td>
<td>6</td>
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<td>Vivekananda Brati Sangha</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hansdahara Sakshatra Kendra</td>
<td>South 24-Parganas</td>
<td>Diamond Harbour (I)</td>
<td>Kanpur Dhanberia</td>
<td>Hansdahara</td>
<td>14</td>
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<td></td>
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<td>Netra Social Welfare Society</td>
<td>South 24-Parganas</td>
<td>Diamond Harbour (I)</td>
<td>Netra</td>
<td>Netra</td>
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<td>Dakshin Saordaha Pallishree Sangha</td>
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<td>Diamond Harbour (I)</td>
<td>Netra</td>
<td>Saordaha (S)</td>
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<td>Nabajagaran</td>
<td>South 24-Parganas</td>
<td>Mandirbazar</td>
<td>Gabberia</td>
<td>Madhusudanpur</td>
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<td></td>
<td></td>
</tr>
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<td>Arunaday Unit 7</td>
<td>South 24-Parganas</td>
<td>Mandirbazar</td>
<td>Gabberia</td>
<td>Sultanpur</td>
<td>7</td>
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<tr>
<td>Lakshmirikantapur Anandaniketan</td>
<td>South 24-Parganas</td>
<td>Mandirbazar</td>
<td>Ghateswar</td>
<td>Lakshmi Kantapu</td>
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<td>75</td>
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<td>Nurpur Ambagan</td>
<td>Birbhum,</td>
<td>Bulpore</td>
<td>Raypur Supur</td>
<td>Nurpur</td>
<td>18</td>
</tr>
<tr>
<td>Dharabahik Sikshakendra</td>
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<tr>
<td>Gopalnagar</td>
<td>Birbhum,</td>
<td>Ilambazar</td>
<td>Ilambazar</td>
<td>Gopalnagar</td>
<td>11</td>
</tr>
<tr>
<td>Dharabahik Sikshakendra</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramnagar</td>
<td>Birbhum,</td>
<td>Ilambazar</td>
<td>Ilambazar</td>
<td>Ramnagar</td>
<td>11</td>
</tr>
<tr>
<td>Dharabahik Sikshakendra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mirzapur</td>
<td>Birbhum,</td>
<td>Bulpore</td>
<td>Raypur Supur</td>
<td>Mirzapur</td>
<td>8</td>
</tr>
<tr>
<td>Dharabahik Adibasi Sikshakendra</td>
<td>Birbhum</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mohidapur</td>
<td>Birbhum,</td>
<td>Ilambazar</td>
<td>Ilambazar</td>
<td>Mohidapur</td>
<td>13</td>
</tr>
<tr>
<td>Samajkalyan Sarmity</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Adityapur Pragati Sangha</td>
<td>Birbhum,</td>
<td>Ilambazar</td>
<td>Ilambazar</td>
<td>Adityapur</td>
<td>8</td>
</tr>
<tr>
<td>Pragati Sangha</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ballavpur</td>
<td>Birbhum,</td>
<td>Bulpore</td>
<td>Ruppur</td>
<td>Ballavpur</td>
<td>13</td>
</tr>
<tr>
<td>Jyoti Sangher Prangan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goyalpara</td>
<td>Birbhum,</td>
<td>Ilambazar</td>
<td>Ilambazar</td>
<td>Goyalpara</td>
<td>10</td>
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<tr>
<td>Mansatala</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sakshatra Kendra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                     |                    |                      |                    |                          | 92             |
Table – 1B

Details of the literacy centres in urban areas

<table>
<thead>
<tr>
<th>Name of the centres</th>
<th>Metropolitan city</th>
<th>Post office</th>
<th>No. of learners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabitirtha R.C.C.</td>
<td>Kolkata</td>
<td>Khidirpur</td>
<td>5</td>
</tr>
<tr>
<td>Ward No. 16 Sakharata Prasar Kendra</td>
<td>Kolkata</td>
<td>Biddin Street</td>
<td>10</td>
</tr>
<tr>
<td>Vidyasagar Vidyalaya (Evening I)</td>
<td>Kolkata</td>
<td>Tiljala</td>
<td>8</td>
</tr>
<tr>
<td>Vidyasagar Vidyalaya (Evening II)</td>
<td>Kolkata</td>
<td>Tiljala</td>
<td>5</td>
</tr>
<tr>
<td>Bapuji Colony Puja Mandop</td>
<td>Kolkata</td>
<td>Ichapur</td>
<td>3</td>
</tr>
<tr>
<td>G.S.F. School Mayapalli</td>
<td>Kolkata</td>
<td>Ichapur</td>
<td>5</td>
</tr>
<tr>
<td>Inchipur Mayapalli</td>
<td>Kolkata</td>
<td>Ichapur</td>
<td>13</td>
</tr>
<tr>
<td>Alipore Central Jail Vidyarthi Bhavan (Alipore Correctional Home)</td>
<td>Kolkata</td>
<td>Alipore</td>
<td>60</td>
</tr>
</tbody>
</table>

Total number of learners : 276 (Rural : 167 and Urban : 109)

3.2. The tools and their administration

With a view to achieving the objectives of the present study mentioned in chapter one, six tools were used which are described below in brief. All the tools were prepared by the researcher under the guidance of Dr. Sharmistha Chakrabarti. All the tools were prepared on the basis of the guidelines and suggestions given by the expert in this field like Prof. P. K. Chakraborty, former Dean, Faculty of Education Calcutta University, Dr. Sugata Sen Roy Reader, Department of Statistics, Calcutta University and Dr. Subir Mitra Indian Statistical Institute Kolkata. All tools were prepared in bengali. After pilot study tools were modified and lastly all the tools were finalized on the basis of the findings of pilot study.
3.2.1. *Literacy Achievement test*

It measures competency of reading, writing and numeracy as suggested by National Literacy Mission (NLM). Out of 100 marks reading have a weightage of 40 marks, writing 30 and numeracy 30.

For measuring the writing skills nine items no. 1 to 9 were written by the learners.

1. Name:

2. Father’s / Husband’s Name:

3. Age:

4. Village and Post:

5. District:

6. Name of two seasonal fruits and vegetables:

7. Name of learner’s any friend:

8. Dictation given on five lines:

9. One letter writing:

Item no. 1 to 7 were measured of numeracy skills.

1. Concept of number

2. Addition

3. Subtraction

4. Multiplication

5. Division

6. Application of addition, subtraction, multiplication and division.
7. Whether they able to time the watch.

Five items were framed to measure reading skills.

1. Reading of a passage and sentences with meaning

2. Silent reading of a passage and answering the question from the passage

3. Reading from a poster

4. Reading a passage from a news paper

5. Road sign presented to the learners

3.2.2. Interview schedule and observation taken in the class room to assess the method of teaching, use of teaching-learning media and materials in the literacy centres

Following six components were measured through interview schedule and class observation.

1. Types of instructional methods practice in literacy classes.

2. Method followed by the teacher to judge the understanding level of the learners.

3. Instructor’s observation about effective teaching learning method.

4. Availability of teaching learning materials in the literacy centres.

5. Sources of receiving materials.

6. Media used in the literacy centres.
3.2.3. Interview schedule on socio-economic background (income, education and occupation) of the learners

The schedule collects information regarding level of income and education of the family, occupation of the households, demographic information like religion, caste, mother tongue, types of family, family size, types of house were also included.

For measuring the income, items on individual income level of the family members, direct and indirect sources of income of the family, income from agricultural land and domestic animals etc. were included.

The educational level of all the family members were included in schedule.

There were items on main and additional occupation of all the family members including learners.

3.2.4. Interview schedule on learners' need, interest to attend the literacy classes

The following eight items measure the learners’ need, interest to attend the literacy classes.

1. Learners’ liking or disliking to attend the literacy centres.

2. Problems faced by the learners for attending literacy centres.

3. Ways the learners attempt to overcome the problems to attend the literacy classes.
4. Availability of study time and study materials at home.

5. Learners eagerness to attend literacy centres for continue education.

6. Lesson practicing at home in the presence of educated family members if necessary.

7. Learners perception about continuing further education.

8. Reasons for fulfilling the needs to join the literacy centres.

3.2.5. Personal profile of the instructors and their knowledge about literacy

It is a personal profile of the instructors. It includes:

Socio-economic background (Income, Education and Occupation) of the instructors and their family.

Nature and duration of training.

Instructors knowledge about literacy.

It comprise the following twelve items:

1. Concept of literacy.

2. Three major things of literacy which was highlighted in literacy programme.

3. Concept of post-literacy.

4. Preparation of lesson plan prior to teaching.

5. Concept of application of teaching aids in teaching learning process on reading, writing and numeracy.
6. Day to day evaluation.

7. Feed-back

8. Need of develop a bridge between literacy and post literacy programme.


10. Role of the instructor to create bridge.

11. Identifying the difficulties to create bridge.

12. Basic principles of teaching.

This questionnaire is prepared by the research under the guidance of Dr. Sharmistha Chakrabarti on the basis of 'Instructor's Manual' published by Bengal Social Service League State Resource Centre. Home visits, individual interview and discussion with the learners, instructors, members of local village education committee and parents were undertaken.

3.3. Evaluation of literacy achievement (According to NLM norm)

National executive committee appointed a subcommittee under the chairmanship of Dr. R. H. Dave in January 1991 for setting the norms and standard of evaluation of the learners for declaration of total literacy. They have submitted their report on 26th May, 1992.
Norms for declaration of literate persons.

Pass or fail will not be determined by evaluation levels of learning reached by learners will be considered. The declaration of literate person will be on the basis of the following percentage of marks scored by the learners.

- No. of learners scored 50% or below
- No. of learners scored 51% - 60%
- No. of learners scored 61% - 70%
- No. of learners scored 71% - 80%
- No. of learners scored 81% marks or above

The learners who scored 71% marks or above will be considered as literate and reached the standard of NLM.

Marks

Total marks will be 100 in the evaluation paper. Distribution of marks among the subjects concerned and minimum marks to be scored by the learners in the concerned subjects area as follows.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Minimum Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>50%</td>
</tr>
<tr>
<td>Writing</td>
<td>50%</td>
</tr>
<tr>
<td>Numeracy</td>
<td>50%</td>
</tr>
<tr>
<td>Aggregate</td>
<td>71%</td>
</tr>
</tbody>
</table>
3.4. Pilot Study

Pilot study was conducted on twenty five learners from two literacy centres. These two centres were ‘Parasmoni’ in Dayarampur village under ‘Gabberia’ Grampanchayat of Mandirbazar block of South 24 Parganas and the other was Vivekananda Jubo Parishad in Kolkata Nagerbazar under Dumdum Municipal Corporation. A good rapport was established before the interview with learners and instructors. The literacy achievement test in reading, writing and numeracy was administered on twenty five learners. Interview schedule and observation taken in the class room to assess the method of teaching and use of teaching learning materials used in the literacy centres. Through interview schedule learners' need interest about literacy was collected. Home visits were conducted by the researcher to collect information about learners and judge it. Instructor’s socio-economic background and knowledge of the subject matter were collected through the interview schedule. After analyzing the results of pilot study necessary modification was done. The findings of pilot study is presented in chapter four.

3.5. Collection of data

Literacy achievement test was administered on the learners of twenty four adult literacy centres. The test was administrated with the help of the
instructors. The time limit was one hour. After completion their answer
the sheets were collected and scored.

To assess the method of teaching, effective use of teaching learning
media and display of study materials such as posters, leaflets, charts by
instructor classroom observation was undertaken by the researcher.
Instructors were interviewed to find out regular supply of study materials
such as primers, exercise books, slate, pencils, chalk, lantern, kerosin etc.
in the literacy centres.

Information regarding instructor’s personal profile, their socio-economic
background (income, education, occupation) and their knowledge of
subject matter was found through interview schedule.

3.6. Statistical Treatment

For qualitative analysis of data, percentage, mean, standard deviation,
C.V, correlation coefficient, t-test and z-test were applied. Inferences
were drawn on the basis of t-test and z-test. Qualitative analysis was
done during visits to literacy centres, house and informal discussion with
learners, parents and instructors.

The statistics that have been used in this study are as follows:

For a single variable with n observations

\[ \text{Mean} : x = \frac{1}{n} \sum_{i=1}^{n} x_i \]
Standard deviation : 

\[ s = \left( \frac{1}{n} \sum_{i=1}^{n} (x_i - \bar{x})^2 \right)^{1/2} \]

And coefficient of variation : 

\[ v = \frac{s}{x} \times 100 \]

In addition, for two variables with \( n \) paired observations

**correlation coefficient**

\[ r = \frac{\frac{4}{n} \sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})}{\left[ \frac{1}{n} \sum_{i=1}^{n} (x_i - \bar{x})^2 \frac{1}{n} \sum_{i=1}^{n} (y_i - \bar{y})^2 \right]^{1/2}} \]

Inferences have been drawn mainly on the basis of statistical tests.

**t-test** : For comparing the means of two groups the t-test has been used.

Suppose the two groups \( x \) and \( y \) have \( n_x \) and \( n_y \) observations in each.

Then to test the hypothesis \( H_0 : \text{mean of } x = \text{mean of } y \) against the hypothesis; \( H_1 : \text{mean of } x > \text{mean of } y \), the statistics used is defined as

\[ t = \frac{\overline{x} - \overline{y}}{S \left[ \frac{1}{n_x} + \frac{1}{n_y} \right]^{1/2}} \text{ where } S^2 = \frac{n_x S_x^2 + n_y S_y^2}{n_x + n_y - 2} \]

and \( \overline{x}, \overline{y}, S_x \) and \( S_y \) are respectively the means and standard deviation of \( x \) and \( y \).

The degree of freedom (df.) = \( n_x + n_y - 2 \).
The hypothesis that the means are equal (that is there is no significant difference between them) is accepted if \( t > t_{n_x+n_y-2}, \alpha \) otherwise the difference is significant (that is the mean of \( x \) is greater than that of \( y \)). Here \( \alpha \) is the level of significance and is generally taken as 0.05. \( t_{n_x+n_y-2}, \alpha \) is obtained from the statistical tables corresponding to \( \alpha = 0.05 \) and df. = \( n_x+n_y-2 \).

\textit{z-test}: For comparing two proportion, the \textit{z}-test has been used. To test the hypothesis \( H_0 \) : proportion of group 1 = proportion of group 2 against the alternative \( H_1 \) : proportion of group 1 > proportion of group 2, the statistic used in

\[
Z = \frac{\hat{P}_1 - \hat{P}_2}{\sqrt{\hat{P}(1-\hat{P})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}
\]

where \( \hat{P} = \frac{n_1\hat{P}_1 + n_2\hat{P}_2}{n_1 + n_2} \), \( n_1, n_2 \) being the sample sizes and \( \hat{P}_1, \hat{P}_2 \) the sample proportion of the two groups.

The critical value at the 5% level (i.e. \( \alpha = 0.05 \)) is 1.64.

Hence the difference between the two groups is significant if \( z > 1.64 \)

Otherwise the group proportions can be taken to be equal.

To test the hypothesis \( H_0 \) : proportion of group 1 = proportion of group 2 against the alternative \( H_1 \) : proportion of group 1 \( \neq \) proportion of group 2,
the same statistic is used. Hence the difference between the two groups is significant if $1 = 1 > 1.96$.

3.7. Conclusion

This chapter is concerned with presenting the design of the study which attempted to find out the literacy achievement of the learners in literacy centres, teaching learning methods, teaching media and materials used in the literacy centres, socio-economic background of the learners in the literacy centres, need interest of the learners for literacy development and instructors background and knowledge of the subject matter. Presentation of data, analysis and interpretation of results and discussion are reported in the next chapter.