METHODOLOGY
CHAPTER 3

METHODOLOGY

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CHAPTER 3

METHODOLOGY
(PLAN AND PROCEDURE OF THE STUDY)

"A method is the means or manner of determining whether a theoretical construct or proposition is true or false. Each of the scientific disciplines has developed criteria and conventions about what constitutes legitimate tests of theory and what lines of development researchers are to follow as they move from data to knowledge claims. Methodology has as much to do with reasoning as it does with data. There are rules for testing knowledge, and it is this set of rules that define methodology in a discipline."

- Rychlak (1968)

Research Methodology is a way to systematically investigate the research problem. It gives various steps in the conduct of the research in a logical way, which is empirical and replaceable. It is essential to define the problem, and state the objectives and hypotheses, clearly, at the onset. The research design provide the details regarding what, where, when, how much and by what means concerning an inquiry.

The population, procedure and processes of data analyses, are predetermined to a certain extent by the objectives of a study. The research hypothesis is a formal affirmative statement predicting a single research outcome, a tentative explanation of
the relationship between two or more variables (Best and Kahn, 1989).

3.1 STATEMENT OF THE PROBLEM

"A comparative study of the impact of pre-school education on motor, cognitive, language and socio-emotional development of under-privileged children enrolled in CASP-PLAN and ICDS pre-schools of Delhi."

3.2 OBJECTIVES OF THE STUDY

The main objectives of the present study are:

1. To study and compare the structure, organisation, aims and functions of CASP-PLAN and ICDS pre-schools.

2. To study and compare the socio-personal characteristics of children in CASP-PLAN and ICDS pre-schools.

3. To study and compare the motor development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

4. To study and compare the cognitive development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

5. To study and compare the language development of children who are enrolled in CASP-PLAN and ICDS pre-schools.
6. To study and compare the **socio-emotional development** of children who are enrolled in CASP-PLAN and ICDS pre-schools.

7. To study and compare the **overall impact** of pre-school education of CASP-PLAN and ICDS pre-schools on motor, cognitive, language and **socio-emotional development** of children.

8. To study and compare the effect of pre-school education between **male** and **female children** in both type of pre-schools.

### 3.3 HYPOTHESES

Keeping in view of the above mentioned objectives of the study, the following hypotheses are to be tested:

I. There is no significant difference in the **structure**, **organisation**, **aims** and **functions** of CASP-PLAN and ICDS pre-schools.

II. There is no significant difference between the **socio-personal characteristics** of children in CASP-PLAN and ICDS pre-schools.
III. There is no significant difference between the motor development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

IV. There is no significant difference in cognitive development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

V. There is no significant difference in language development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

VI. There is no significant difference in socio-emotional development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

VII. There is no significant difference in overall development of children who are enrolled in CASP-PLAN and ICDS pre-schools.

VIII. There is no significant difference between the development of male and female children in CASP-PLAN and ICDS pre-schools.

3.4 DELIMITATION

I. The area of the study is confined to the urban slums of Sangam Vihar in Delhi.
2. The sample of the study included only 120 children who are enrolled in these pre-schools for at least six months. 60 children were taken from CASP-PLAN Balwadis and 60 from ICDS Anganwadis.

3.5 POPULATION

In the present study, the population comprised of all children in 3 to 5 years of age group who are enrolled in CASP-PLAN Balwadis and ICDS Anganwadis.

3.6 SAMPLE

The sample comprised total 120 children. 4 Balwadis of CASP-PLAN and 4 Anganwadis of ICDS were selected from Sangam Vihar, from each selected pre-school 15 children were drawn randomly for administration of the test. In this way 60 children from Balwadis and 60 children from Anganwadis were selected.

3.7 DESIGN OF THE STUDY

The present study is descriptive as well as comparative in nature. In the present study 2 x 2 factorial design was used. There were two groups: (1) Children enrolled in CASP-PLAN Balwadis (2) Children enrolled in ICDS Anganwadis. With two levels of age, i.e. (1) Children between 3 to 4 years (2) Children between 4 to 5 years.
Purposive sampling was done according to the need of study. Design of the study is diagramatically presented below:

![Sample Design Diagram]

The sample of the study was drawn from two different settings of pre-schools i.e. CASP-PLAN Balwadis and ICDS Anganwadis 120 children were taken from each group. Further, sample was split on the basis of age as the child grows rapidly at this age. Two levels of age, 3-4 years and 4-5 years were taken into consideration. Table given below indicates the break up of sample of study.

**TABLE 3.2**
**A break up of sample of study**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASP-PLAN (Balwadis)</td>
<td>60</td>
</tr>
<tr>
<td>ICDS (Anganwadis)</td>
<td>60</td>
</tr>
</tbody>
</table>
### TABLE 3.3
A break up of sample of study

<table>
<thead>
<tr>
<th>Groups</th>
<th>Number of subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children between 3-4 years</td>
<td>60</td>
</tr>
<tr>
<td>Children between 4-5 years</td>
<td>60</td>
</tr>
</tbody>
</table>

#### 3.8 TOOLS

* Interview schedule for pre-school workers.
* Interview schedule for parents.
* Developmental scale for the children in 3-4 years age group.
* Developmental scale for the children in 4-5 years age group.

The present chapter covers the statement of the problem, objectives, hypothesis, description of the design, population, sampling, tools, procedure and statistical techniques used.

**Locale** of the study was proposed to be conducted among underprivileged children in urban slums. Hence Sangam Vihar was selected as the locale of the study. Delhi, the capital of India, is one of its fastest growing cities. The city is spread over an area of 1483 sq. km. The total population of the city, according to 1991 census is 94,20,644 comprising 5155512 males and 4265132 females. The population of Delhi per sq. km. is 6352. The overall literates in Delhi city are 5882297 including 3539500 males and 2342797 females. Literacy among men is 68.65 percent and among women is 54.93 percent.
Sangam Vihar is an urban slum in the southern border of Delhi spread on about approximately 20 kms of unauthorised land. The families residing in Sangam Vihar tenements are essentially immigrants from the states of U.P., Bihar, Rajasthan and adjoining areas of Delhi who have come in search of livelihood and better prospects. They belong to the poorer economic strata of society. Very few of them have any skill which find a market in Delhi. As a result they find it difficult to make both ends meet.

CASP-PLAN Balwadis and ICDS Anganwadis, both type of pre-schools are running in these slums have been taken as a sample for the present study.

Planning of the questionnaire

Planning is an important stage in the construction of a test. Planning not only determine the goals but also gives a sense of direction. As a matter of fact a good questionnaire or test just does not happen, it results from careful planning because a questionnaire is not merely a collection of items. But it is an instrument designed to measure knowledge, understanding or skills in a specific discipline.

Vaughn gave a clear idea about the operations encompasses in test planning. In his words – Test planning encompasses all of the many and varied operations that go into producing a test. Not only, does involve the preparation
of an outline or table specifying the content or operations to be covered by the tests, but it must also involve careful attention to item difficulty, to types of items, to directions to examine, to arrangements for try out, to problems of test reproduction, to provision for expert review, to the provision of adequate equipment and facilities, to the procurement of personnel and so forth.

(Vaughn, 1963, P. 159)

Present planning of the development schedule involved the decisions about the following criteria:

* Developing the Interview Schedule for pre-schools workers.
* Developing the Interview Schedule for parents.
* Weightages to be given to the responses.
* Construction of the developmental scale for the children in 3-4 years age group.
* Construction of the developmental scale for the children in 4-5 years age group.

* Interview Schedule for pre-school worker

To get the information about the centre interview schedule was prepared by the investigator in accordance to the need of study. Questions were included to know about the structure, organisation and functions of pre-schools.
Interview Schedule for parents

To get the first hand information about the child an Interview Schedule for parents was developed by the investigator.

Discussion about the areas to be measured

Comparison between two settings of ECCE or pre-schools can not be done, unless and until we assess the output i.e. development of children who are enrolled in these pre-schools.

On the basis of this theory the following variables were identified and taken for the investigation:

(a) Motor development
(b) Cognitive development
(c) Language development
(d) Socio-emotional development

Weightages given to the responses

The purpose of this step is to determine the number of items or statements to be included in each dimension.
Having decided about the weightages to be given, the next task of the construction of the questionnaire was to decide about the type of items. And it was decided to construct a Check list of Developmental Scale. The investigator also decided to assess the development of child and filled up the check list with (Yes) or (No) to assign the scores.

**Construction of Development Schedule**

Having decided about the weightages to be given, the next task of the construction of questionnaire was to decide about the type of items. The present investigator decided to construct the statements to check: Is the child able to do it or not? All the items of the Development Schedule were structured to check and assess the development of child.

Keeping in view of type of questions, the investigator discussed with the experts and prepared a manuscript of the questionnaire which include 100 statements for Scale-I and 100

### TABLE 3.4
Weightages given to the responses

<table>
<thead>
<tr>
<th>Variables</th>
<th>Number of Items</th>
<th>Maximum Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developmental Aspects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor</td>
<td>25 (3-4 years)</td>
<td>25 (4-5 years)</td>
</tr>
<tr>
<td>Cognitive</td>
<td>25 (3-4 years)</td>
<td>25 (4-5 years)</td>
</tr>
<tr>
<td>Language</td>
<td>20 (3-4 years)</td>
<td>20 (4-5 years)</td>
</tr>
<tr>
<td>Socio-emotional</td>
<td>15 (3-4 years)</td>
<td>15 (4-5 years)</td>
</tr>
<tr>
<td>Total</td>
<td>85</td>
<td>85</td>
</tr>
</tbody>
</table>
statements for Scale-II. All items were prepared on the lines of Gassel's Development Schedule.

After the construction of test items writing, reviewing and editing of the items was done. According to Nunnally (1967) items should be critically reviewed first, the items would be reviewed by experts in test construction. They would consider each item for its appropriateness, apparent difficulty and clarity. The items that survived that review, would than be reviewed by teachers and other potential users of the test.

The statements were recorded, the investigator reviewed these items again after few days and the structure of the items, ambiguity in content, grammar, response, technical terms and terminology etc. were checked carefully with a view to eliminate ambiguities in content and technical errors.

After review, the investigator checked thoroughly each item. The investigator held discussion with the teachers and necessary improvements were made in the development schedule.

Altogether the total number of statements noted by the investigator were 120. The statements were than edited with the help of 10 experts. These experts belong to the various educational Institutions in Delhi from NCERT, DACFE (J.M.J).
T.T.I, (J.M.I), and Nursery School (J.M.I), Nursery School (I.I.T).

A detailed picture of these experts can be seen below:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Experts</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

Due to certain anomalies as mentioned earlier, 15 statements from scale I and 15 from scale II were dropped on the suggestions of these experts. The final list of statements included 90 in scale A and 90 in scale –B with respect to all aspects of development.

The following points were taken into consideration during the editing of the questionnaire:

- Statements should be short and direct.
- The language of statements should be clear and simple.
- Statements should not be ambiguous.

A preliminary study was done on 20 pre-school children with the aim to standardise the scales. The results of preliminary study were discussed with the guide and other experts of the field. The items which were very easy for all children and consisted less validity were dropped from the scales. In the same manner the items which were too difficult for children and more than 75% children were unable to perform it rightly were dropped from the scale.
The Development scale selected for the final study are as follows:

**Development scale – A:** Consisting 85 statements of motor cognitive, language and socio-emotional development.

**Development scale – B:** Consisting 85 statements of motor, cognitive, language and socio-emotional development.

### 3.9 PROCEDURE FOR DATA COLLECTION

After the construction of the tools next step was data collection for two type of analysis (i) Qualitative analysis. (ii) Quantitative analysis.

- Informations were collected from pre-school worker through an interview schedule.
- Informations were collected from parents through an interview schedule.

Interview and observation techniques were used to collect the above informations.

**Developmental Scale**

The scale was developed according to the need and objectives of the study on the lines of Gassel’s developmental schedule. It consist 85 statements covering all aspects of development viz. motor, cognitive, language and socio-emotional. Responses in the form of (Yes) or (No) were collected. The investigator intended to see how far the results of assessment of development of CASP-PLAN’s children are in agreement with
results of the ICDS children. The developmental aspects of children were studied by giving the following tests:

(a) **Motor development** - Was assessed by observing standing, walking and running skills, ball playing, climbing, skipping, hopping, jumping, balancing, controlling the speed, cutting, pasting, scribbling, beading and tracing.

(b) **Cognitive Development** - Was assessed by block building, drawing, number concept, colour identification, immediate memory, comparative judgement and problem solving.

(c) **Language Development** - Was assessed by ability of following directions, following prepositions, use of objects, naming and identification of objects, sentence making, comprehension, ability to give one's name, sex, age and address. Ability to distinguish between morning and evening, part and whole, response to picture books, picture cards and story telling.

(d) **Socio-emotional Development** - Was assessed by observing these variables personal hygiene, eating, dressing, communication, cooperation and adjustment to school environment.

In each of the four principal aspects of child development, these particular behaviours were looked for and recorded. Under motor development, the observer needs to watch how the child
walks, runs, climbs, jumps and balances. Does he have eye-hand coordination in using tools, making puzzles, painting?

In cognitive development, it is obvious the observer was not able to know what the child is thinking but relied on classroom responses and reactions that demonstrated reasoning ability. Language development was observed by listening closely to the child and recording on paper and tape. Does the child initiate conversation or is he a listener? Can he speak complete sentences? Are they understandable? Under socio-emotional development, the observer paid special attention to nonverbal cues. What facial expressions are exhibited? Are the eyes staring, downcast, slit, closed? Are the eyebrows raised, lowered, straight? Is the mouth in a smile, a scowl? About posture - Is it ramrod straight, stumped, swaggering, slouched? What kind of gestures are made with the hands, arms, feet? Are the hands to the sides, fists clenched, arms swinging free, feet together?

The observer also observed how children interacts and get along with one another. Is he alone or a part of the group? Is he a leader or a follower? Popular with the others or often excluded? What roles does he play when pretending? How does he respond to sharing or taking turns? Is he cooperative and helpful?

**Supportive material in Administering the test**

A series of testing materials and questions was prepared by the investigator herself. It was prepared with the help of experts.
in the field. Instructional materials developed by the Child Media laboratory, NCERT were also included in administration of test.

Administration of the Development Scale

After construction of tools, the next step was the data collection from pre-schools. The investigator visited the each targeted centre a day earlier for administration of development scale and met the worker of the centre, and collected information on the proforma. The investigator took an appointment for the next day visit and discussed the purpose behind the whole work. Thus the investigator established a rapport with the centre’s worker and ask them to help in the work.

On the day of the administration, the investigator visited the targeted centre with the development scale and the materials needed to assess the children.

The testing was done individually on each child. The sequence of testing was so designed that motor, cognitive, language and socio-emotional developmental tests were intermingled in order to sustain the child’s interest. The investigator was able to test about five children in a week with the help of the worker of the centre.
The testing procedure had the following characteristics:

(a) It did not consider any operation right or wrong but studied the operation as it was, which was termed as the individual pattern of doing the task.

(b) The test were not speed tests and children were free to take as much time as they needed to complete the task.

(c) The tests were administered as individual tests.

**Scoring**

After the completion of administration of the development scale, scoring was done. The Check-list filled at the time of administration, counted in order to assess all developments carefully. The Development Scale was a point scale, one to one scoring method was applied. A child’s performance scores were noted by counting the number of items passed by him on the scale. The same procedure was followed for scoring motor, cognitive, language and socio-emotional development. On the basis of the developments each response was scored and tabulated item-wise. From these tables the necessary combinations of scores were taken out for further analysis and interpretations.

### 3.10 STATISTICAL TECHNIQUES USED:

Statistics is a body of mathematical techniques or process of gathering, organizing, analyzing and interpreting numerical data.
The data gathered through development schedules were coded, transformed on the data sheet and tabulated in respect of frequencies. The main technique have been employed as per design of the study, for testing various hypotheses, so as to arrive at certain conclusions.

The main techniques that have been employed includes:

* Mean
* Standard Deviation
* t-Value
* Pearson Product Moment Coefficient of Correlation