Chapter III

METHOD OF RESEARCH
CHAPTER III

METHODOLOGY

3.1 SETTING

This chapter deals with the methodology adopted in the study. This study was conducted to identify the current needs and problems pertaining to education of children with low vision. The study has two fold tasks. The first task is to record the performances of children with low vision against vision stimulation, visual efficiency and vision utilization components. The other task is to record the problems viewed and challenges indicated by children with low vision by administrators, parents and personnel at grass-root level. The following personnel provided the qualitative views regarding problems, current needs and suggestions to improve education of these children:

a) Teacher Educators
b) Administrators
c) Headmasters of the Schools for Blind
d) Special teachers of the Schools for Blind
e) Resource Teachers
f) Care Takers / Wardens
g) Parents of Visually Impaired / Low vision children
h) Low Vision Children
3.2 OBJECTIVES OF THE STUDY

The objectives of the study are as follows:

1. To study the vision stimulation skills taught to children with low vision on the basis of different educational settings, degree of blindness, gender and age.

2. To study the visual efficiency skills taught to children with low vision on the basis of different educational settings, degree of blindness, gender and age.

3. To study the vision utilization skills taught to children with low vision on the basis of different educational settings, degree of blindness, gender and age.

4. To investigate the methods used by Special teachers / Resource teacher in educating children with low vision.

5. To find out the nature of devices used by educational institutions in providing services to children with low vision.

6. To find out the views of teacher-educators about the adequacy of low vision content areas in teacher preparation courses.

7. To find out the views of administrators about the problems encountered in providing services to children with low vision.
8. To find out the views of headmasters of schools for the blind about the problems encountered in providing low vision services to children with low vision children.

9. To find out the ways in which parents can help children with low vision improve their visual efficiency skills.

10. To find out the views of low vision children about the problems encountered on reception of low vision services.

3.3 TOOLS FOR THE STUDY

Tool is essential to gather true and unbiased data from the sample of the study. Tool may either be developed by the researcher or adapted to the needs of the study. As there are no ready made tools for the purpose of the study, a systematic effort was made by the researcher to develop the tool.

The investigator developed two different tools. The first tool was used to collect data to document the performance of low vision children in vision stimulation, visual efficiency and vision stimulation. The second tool aimed at collecting data from teacher educators, administrators, special teachers, resource teachers, parents and low vision children.
3.3.1 Tools for the study: Assessment of Vision Stimulation

Vision stimulation tasks are primary for the efficient use of functional vision. These tasks should be given to children with low vision as early as possible. Hence training in this area is fundamental and crucial. The total numbers of items in the tool were 12. The procedures adopted in the development of the tool are as follows:

a) Development of tools

The investigator developed a vision stimulation assessment tool by keeping the following four major components in vision stimulation, which are enumerated below:

- Object perception
  
  i) Perception of similarity
  
  Ability to find the likeness is the meaning of this skill.

  ii) Perception of dissimilarity

  Ability to find differences in a given stimuli is the meaning of this skill.

  iii) Recognition of Tamil letters

  Ability to identify “forms” of Tamil letters is the meaning.

  iv) Perception of facial expression

  Ability to perceive facial expression at a specific distance is the description of the skill.
• **Perception of form**
  
  Ability to perceive the shape.

• **Spatial perception**
  
  Ability to perceive two dimensional and three dimensional objects is the expected skill.

• **Mobility Perception**
  
  The various sub-components of this skill are as follows:

  i) **Speed**

  Time taken to cross from one point to another point per minute is the meaning of this skill.

  ii) **Direction**

  Ability to identify the direction of visual stimuli is the meaning of this skill.

  iii) **Hand eye coordination**

  Ability to coordinate eye and hand to carry out the given task.

  iv) **Mobility**

  Ability to move from one place to another.

  v) **Perception of posture and gait**

  Ability to perceive the position of body and gait is the included meaning of the skill.
• **Colour perception**

  Ability to detect different colour is the meaning of the skill.

b) **Expert Opinion on the Test Items:**

  A panel consisting of Teacher Educators and Experts in field of education of low vision children and Administrators of Integrated Education Implementation Committees gave consent for validating the test items to test the skill performance of low vision children in vision stimulation.

  The experts opined that adequate coverage had been given in the tool on the basis of skills stated above in vision stimulation tasks. Tasks from awareness of visual stimuli to motor coordination, sensory organs with visual stimuli etc., were incorporated. The panel eliminated the difficult test items during pre-try out. The test items with minute details or poor contrast were eliminated.

c) **Scoring procedure**

  The rating scale technique was employed to assess the performance test which consisted of 12 items. Test materials were prepared to test the skills of low vision children in the above stated areas and data were collected. Three marks were assigned to good performance; two marks were assigned to average performance, and
one mark for poor performance. The maximum possible score was 36 and minimum 12.

3.3.2 Assessment of Visual Efficiency:
Components of visual efficiency taken for the assessment are listed below:

- **visual attention**
  Conscious direction of vision over particular object.

- **maintenance of gaze**
  Some amount of constant focus is needed to gather visual data for given object.

- **shift gaze**
  Shifting focus from one point to another.

- **far fixation**
  Vision focus for long distance object is the meaning of the skill. This is predominantly useful for mobility.

- **near fixation**
  Vision focus within distance of usually 30 cms is the meaning of this skill. This is predominantly useful for reading and other close distance tasks.
• **adjusting head movement**
  Knowledge of selection of good angle for gathering of visual data is reflected in this skill.

• **eccentric vision**
  The seeing pattern of an object by normal person is usually straight but here it is not the centre.

• **peripheral vision**
  This is generally uses during mobility to detect movements.

• **visual fusion** - Reading letters

• **visual fusion** - adjusting postural activities
  For the execution of task of reading, adjustment of reading distance, and selection of right distance between letter to letter are crucial.

• **visual tracking** - horizontal tracking

• **visual tracking** - vertical tracking

• **visual tracking** - circular tracking
  Ability to follow (horizontal, vertical and circular tracking) and gather visual data is crucial for close and long distance tasks.

• **visual memory** - systematic scanning
• **visual memory** - likeness and difference

Clockwise systematic scanning and ability to remember objects with similar and dissimilar nature. How good the low vision child remembers is the meaning of the skill.

• **visual discrimination** - likeness and difference

• **visual discrimination** - from gross to fine

• **visual discrimination** - concrete to abstract

Ability to discriminate the given stimuli is the meaning of the skill. Accuracy, speed etc., were taken into consideration.

• **visual figure discrimination** – letters were used in this skill.

• **visual ground discrimination** - visual figure discrimination.

• **visual ground discrimination** - visual ground discrimination.

Selection of colour background for reading letters or images by low vision child is the meaning of the skill.

• **object permanence**

Image presented at various angle is the meaning of the skill.

• **print reading** (eye-hand coordination)

• **eye preference** (eye-hand coordination)
Ability of selection of “efficient eye” for the task of print reading among the pair of eyes is the meaning of the skill.

- **eye-foot coordination** (mobility)
- **eye-foot coordination** (glare)
- **eye-foot coordination** (floor pattern)

All the three skills stated above are useful for mobility.

Assessing visual efficiency is a long term training task. It includes to help the child interpret visual stimuli by making sense of visual images (outlines, details, colours, contours, configurations, patterns) of objects; making time-efficient decisions about visual information; coordinating visual information with other senses and motor actions; coordinating communication and language with visual images; utilizing verbal mediation and other responses, as needed to confirm visual hypotheses; and anticipating, identifying and generalizing specific visual images.

**a) Assessment components – visual efficiency**

The total number of items included for the development of tool in visual efficiency were 26. The following six major components were included for the assessment under the category.
a) Visual awareness  
b) Visual fixation  
c) Visual scanning  
d) Visual discrimination  
e) Visual memory, and  
f) Visual motor coordination  

b) Expert Opinion  
The experts opinion were obtained for all the above stated visual efficiency items. They suggested that the components and the test items were adequate to test the skill of vision utilization of low vision children.

c) Scoring procedure  
The tool consisted of 26 items. Same scoring procedure adopted for visual efficiency was followed for all the items. Therefore, the maximum possible score was 78 and minimum 26.

3.3.3 Assessment of Vision Utilization  
The purpose of this component is to help a child become an active participant in the enhancement of his or her low vision use by learning to perceive and interpret environmental cues; altering body positions to rearrange environmental cues; modifying the environment;
using prescribed optical devices; knowing when to combine senses; knowing when not to use vision; knowing what helps or hinders visual function; and understanding the causes of "visual discomfort" related to having low vision. The components of vision utilization test are listed below:

- house keeping
- bathing
- washing
- toilet behaviour
- personal grooming
- culture specific skills
- money identification skill
- purchase of consumer goods

House keeping, bathing, washing, toilet behaviour, personal grooming, culture specific skills, money identification skill and purchase of consumer goods, all together are called life skills.

- floor pattern
  Floor pattern means the floor pattern which provides adequate contrast conducive for walking.

- illumination at home
  Level of lighting is the meaning of illumination.
• **awareness over vision utilization**
  Knowledge over vision, when to use vision, when not, limitations in perception of distant objects, glare effect, etc., constitute the component ‘awareness over vision utilization’.

• **fluency in mobility**
  Level of fluency is the meaning of this skill.

• **identification of environmental cues**
  Identification of street sign boards, identification of banks, hospitals with help of environmental landmarks is the meaning of this skill.

• **identification of bus**
  At what distance from bus and the low vision person can identify bus number is the intended meaning of this skill.

• **identification of objects at home**
  Identification of switch board, contrast between doors and walls are the meaning of this skill.

a) **Development of Tool**

  The tool consisted of 21 items. The rating was made on the basis of performance for following the six major components covering the areas of assessment listed above.
i) Independence in daily living skills
ii) Independence in orientation and mobility skills
iii) Independence in reading
iv) Independence in print writing, and
v) Independence in identifying environmental cues

b) Expert opinion

Experts opinion were obtained as stated in the previous components such vision stimulation and visual efficiency.

c) Scoring procedure

The tool consisted of 15 items. Scoring pattern was adopted like the ones similar to other components - vision stimulation and visual efficiency. The maximum possible score was 45 and minimum 15.

3.4 TOOLS FOR FINAL STUDY

Besides the above three assessment tools, the investigator also developed an observation schedule to observe the skills of children with low vision in using their residual vision in these visual efficiency tasks. In order to gather information on the current status of education of low vision children in Tamil Nadu, the investigator developed a detailed interview schedule which is given as annexure 1. The interview schedule was used with Teacher Educators, Headmasters of Schools
for the Blind, Administrators of Integrated Education Programme, Resource Teachers, Special Teachers, Parents and low vision children.

3.5 SAMPLES FOR THE STUDY

3.5.1 Sample for Main Study:

Stratified random sampling technique was employed in this study. To identify the vision stimulation of the low vision children under the age 8, a total number of 40 children consisting of 10 male, 10 female from Schools for the Blind and Integrated Education Programmes were selected respectively. For Visual Efficiency a total number of 100 low vision children consisting of 50 male and 50 female from Schools for the Blind and Integrated Education Programmes were selected respectively. For Vision Utilization a total number of 100 low vision children including 50 male and 50 female from Schools for the Blind and Integrated Education Programmes were selected respectively. The range of visual acuity of all the samples selected for the study was between 3/60 to 6/60, and thus a total of sample of 440 constituted the sample of the study as detailed under. It is noted here that the same sample was not used for all the three tasks. The purpose of selecting independent sample for each activity was to avoid influence of one task on the other during the process of testing to document the
results. Moreover, the tasks were administered to low vision children of different age groups.

**Table 3.1 : Sample Distribution for the study**

<table>
<thead>
<tr>
<th>Type of Programme</th>
<th>Vision Stimulation</th>
<th>Visual Efficiency</th>
<th>Vision Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Schools for the Blind</td>
<td>10</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Integrated Education Programmes</td>
<td>10</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
</tbody>
</table>

Total = 440

**Graph 1 : Sample Distribution for the study**

Sample for the Quantitative Analysis is presented graphically as follows:
3.5.2 Sample for Qualitative Analysis:

The sample for interview to study the status of educational services for low vision children is as follows:

Table 3.2: Sample Distribution for Qualitative Study

<table>
<thead>
<tr>
<th>Qualitative Analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Teacher Preparation Institutions</td>
<td>3</td>
</tr>
<tr>
<td>b) Administrators from Integrated Education programmes</td>
<td>18</td>
</tr>
<tr>
<td>c) Resource Teachers / Special Teachers</td>
<td>60 (30 from Schools for Blind, 30 from Integrated Education Programme)</td>
</tr>
<tr>
<td>d) Resource Teachers / Care Takers / Wardens</td>
<td>18</td>
</tr>
<tr>
<td>e) Parents of low vision children</td>
<td>60 (30 Parents of Day Scholars, 15 Parents of Hostellers, 15 Parents of Low vision children who are studying in Schools for the Blind)</td>
</tr>
<tr>
<td>f) Low vision children</td>
<td>Many low vision children were also observed in their learning environments to document their performances in visual efficiency tasks.</td>
</tr>
</tbody>
</table>
3.6 HYPOTHESES OF THE STUDY

Hypotheses of the study are listed as follows:

i) There is no significant difference in the performance between the children with low vision of Integrated Education Programme (IEP) and Schools for the Blind in their vision stimulation skills.

ii) There is no significant difference in the performance between the children with low vision of visual acuity 3/60 and 4/60 from IEP.
and 3/60 and 4/60 from Schools for Blind in their vision stimulation skills.

iii) There is no significant difference in the performance between the children with low vision of visual acuity 5/60 and 6/60 from IEP and 5/60 and 6/60 from Schools for the Blind in their vision stimulation skills.

iv) There is no significant difference in the performance between the boys with low vision of IEP and boys with low vision of Schools for the Blind in their vision stimulation skills.

v) There is no significant difference in the performance between the girls with low vision of IEP and girls with low vision of Schools for the Blind in their vision stimulation skills.

vi) There is no significant difference in the performance between the children of low vision of age group of 5 and 6 of IEP and that of Schools of Blind in their visual stimulation skills.

vii) There is no significant difference in the performance between the children of low vision of age of 7 of IEP and that of Schools of Blind in their visual stimulation skills.

viii) There is no significant difference in the performance between the children with low vision of Integrated Education Programme (IEP) and Schools for the Blind in their visual efficiency skills.
ix) There is no significant difference in the performance between the children with low vision of visual acuity 3/60 and 4/60 from IEP and 3/60 and 4/60 from Schools for Blind in their visual efficiency skills.

x) There is no significant difference in the performance between the children with low vision of visual acuity 5/60 and 6/60 from IEP and 5/60 and 6/60 from Schools for the Blind in their visual efficiency skills.

xi) There is no significant difference in the performance between the boys with low vision of IEP and boys with low vision of Schools for the Blind in their visual efficiency skills.

xii) There is no significant difference in the performance between the girls with low vision of IEP and girls with low vision of Schools for the Blind in their visual efficiency skills.

xiii) There is no significant difference in the performance between the children of low vision of age group of less than nine of IEP and that of Schools of Blind in their visual efficiency skills.

xiv) There is no significant difference in the performance between the children of low vision of age group of greater than nine of IEP and that of Schools of Blind in their visual efficiency skills.
xv) There is no significant difference in the performance between the children with low vision of Integrated Education Programme (IEP) and Schools for the Blind in their vision utilization skills.

xvi) There is no significant difference in the performance between the children with low vision of vision acuity 3/60 and 4/60 from IEP and 3/60 and 4/60 from Schools for Blind in their vision utilization skills.

xvii) There is no significant difference in the performance between the children with low vision of vision acuity 5/60 and 6/60 from IEP and 5/60 and 6/60 from Schools for the Blind in their vision utilization skills.

xviii) There is no significant difference in the performance between the boys with low vision of IEP and boys with low vision of Schools for the Blind in their vision utilization skills.

xix) There is no significant difference in the performance between the girls with low vision of IEP and girls with low vision of Schools for the Blind in their vision utilization skills.

xx) There is no significant difference in the performance between the children of low vision of age group of 13 -15 of IEP and that of Schools of Blind in their visual utilization skills.
There is no significant difference in the performance between the children of low vision of age group of 16 and above of IEP and that of Schools of Blind in their visual stimulation skills.

3.7 SCHEME OF ANALYSIS

The investigator employed correlational analysis techniques to analyse the data obtained from low vision children. The details of analysis are enumerated below.

3.7.1 Vision Stimulation

Correlational study was undertaken to analyse the performance in the components of vision stimulation between the low vision children of integrated education programmes and schools for the blind. The following components were taken into account for correlational analysis:

1. Object perception
   i) Perception of similarity
   ii) Perception of dissimilarity
   iii) Recognition of Tamil letters
   iv) Perception of facial expression

2. Perception of form

3. Spatial perception
4. Mobility Perception
   i) Speed
   ii) Direction
   iii) Hand eye coordination
   iv) Mobility
   v) Perception of posture and gait

5. Colour perception

3.7.2 Visual Efficiency

Correlational study was undertaken to analyse performance in components of vision stimulation between low vision children of integrated education programmes and schools for the blind. The following components were taken into account.

- Visual attention
- Maintenance of gaze
- Shift gaze
- Far fixation
- Near fixation
- Adjusting head movement
- Eccentric vision
- Peripheral vision
- Visual fusion – Reading letters
• Visual fusion - adjusting postural activities
• Visual tracking - horizontal tracking
• Visual tracking – vertical tracking
• Visual tracking – circular tracking
• Visual memory – systematic scanning
• Visual memory – likeness and difference
• Visual discrimination – likeness and difference
• Visual discrimination – from gross to fine
• Visual discrimination – concrete to abstract
• Visual figure discrimination – letters
• Visual ground discrimination – visual figure discrimination
• Visual ground discrimination – visual ground discrimination
• Object permanence
• Print reading (eye-hand coordination)
• Eye preference (eye-hand coordination)
• Eye foot coordination (mobility)
• Eye-foot coordination (glare)
• Eye-foot coordination (floor pattern)

3.7.3 Vision Utilization

Correlational study was undertaken to analyse performance in components of vision utilization between low vision children of
integrated education programmes and schools for the blind. The following components were taken into account for correlational analysis:

- House keeping
- Bathing
- Washing
- Toilet behaviour
- Personal grooming
- Culture specific skills
- Money identification skill
- Purchase of consumer goods
- Floor pattern
- Illumination at home
- Awareness over vision utilization
- Fluency in mobility
- Identification of environmental cues
- Identification of bus

3.8 QUALITATIVE ANALYSIS

Qualitative Analysis was attempted by using an interview schedule regarding low vision Education, which included the following:
i) Teacher Educators
ii) Administrators
iii) Head masters of Schools for Blind
iv) Resource Teachers
v) Special Teacher of School for Blind
vi) Care takers / Warden
vii) Parents of visually impaired / low vision students
viii) Low vision children

3.9 PRE TRY-OUT

The following was the sample for pre try-out study:

Table 3.3 : Pre try-out Study

<table>
<thead>
<tr>
<th>Type of Programme</th>
<th>Components</th>
<th>Vision Stimulation</th>
<th>Visual Efficiency</th>
<th>Vision Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Schools for Blind</td>
<td></td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Integrated Education</td>
<td></td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Programmes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Total = 60

The samples were selected through stratified sampling procedure as stated above.
3.10 PILOT STUDY

For the assessment of the performance of low vision children in vision stimulation, the samples selected for pilot study were five male and female for representing schools for blind and integrated education programmes respectively. Ten male and five female were selected respectively from schools for Blind and integrated education programmes for assessment of visual efficiency tasks and the same pattern was followed in the case of vision utilization.

<table>
<thead>
<tr>
<th>Type of Programme</th>
<th>Vision Stimulation</th>
<th>Visual Efficiency</th>
<th>Vision Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Schools for Blind</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Integrated Education</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Programmes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>

Total = 100
3.11 VARIABLES OF THE STUDY

Mode of programme, degree of blindness, gender and age were taken as the independent variables and the performance was the dependant variable for vision stimulation, visual efficiency and vision utilization.

3.12 ESTABLISHING RELIABILITY AND VALIDITY

The tool employed in this study must exhibit reliability and validity. This procedure consumed considerable of time. The process employed by the investigator in establishing reliability are as follows:

3.12.1 Reliability

After conducting the pilot test, certain items of the test were modified and investigator established reliability and validity in order to finalise the tools for the study. The process involved in establishing reliability and validity is described as follows:

- The Split-Half Method

The most widely used procedure for estimating reliability from a single testing divides a particular test into two presumably equivalent halves. The test is divided into two halves only for the purpose of scoring and not for administration. It means that a single test is given at a single sitting and with a single time limit. However, two separate
scores are derived – one by scoring one half and the other by scoring the other half. The correlation between these two sets of scores provides a measure of the accuracy with which the test is measuring the individual. A sensible procedure generally used for splitting the test into two halves is the odd – even split techniques. The odd numbered items, 1, 3, 5, 7, etc., and the even numbered items, 2, 4, 6, 8 etc., form two different items for scoring.

The computed correlation, in this technique, is between two half - length tests. This value is not directly applicable to the full – length test which is the actual instrument prepared for use. Hence Spearman Brown Prophecy Formula is used to estimate the reliability of the full length test from the self correlation of the half – tests.

\[
\frac{2r_{11}}{1 + r_{11}} \]

\(r_{11}\) = reliability coefficients for the full length test

\(r_{1/2,1/2}\) = reliability coefficient of the half test found experimentally.

(Spearman Brown prophecy Formula for estimating reliability from two comparable halves of a test)
Table 3.5: Reliability scores obtained by the use of split-half method are as follows:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Components</th>
<th>Reliability Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vision stimulation</td>
<td>0.5346</td>
</tr>
<tr>
<td>2</td>
<td>Visual efficiency</td>
<td>0.7042</td>
</tr>
<tr>
<td>3</td>
<td>Vision utilization</td>
<td>0.5444</td>
</tr>
</tbody>
</table>

Considering the fact that the responses of children with low vision to visual efficiency tasks vary due to many personal and environmental factors, the above reliability coefficients of the tool are considered significant.

3.12.2 Validity

Validity of a test or evaluation device can be defined as the degree to which the test measures what it is intended to measure. Validity is a relative term and has reference to a particular purpose of situation.

The following were the types of validity applied to construct the tool:

i) content validity

ii) face validity

iii) construct validity
3.12.2 Content Validity of Test Items:

Content validity is evaluated by showing how well the content of the samples, the class of situation or subject matter about which conclusions are to be drawn. It is based on a comparison of the analysis of the test content with the analysis of the course content and the instructional objectives. It is seen as to how well the former represents the latter, the analysis is done essentially through logical, rational and judgemental process. That is why, sometimes the content validity may be referred to as rational or logical validity. Content validity is important primarily for measures of achievements.

The test items were constructed against logically arranged observable skills in vision stimulation, visual efficiency and vision utilization areas. The investigator first arranged widely accepted logically arranged skills in each area.

3.12.3 Face validity

Face validity has something to do with the mere appearance of a test. A test is said to have face validity when by appearance it “looks like” measuring what it is meant to measure. The appearance of reasonableness is spoken of as “face validity”. The tools of the study indicated that the test items covered were all the necessary items and as they evinced interest in the research. Thus the investigator ensured face validity.
3.12.4 Construct validity

The term "construct" is used in psychology to refer to something that is not observable but is literally "constructed" by the investigator to summarise or account for the regularities or relationships that he observes in behaviour. Evidence of construct validity is partly rational and partly empirical and judgement and evidence join together in the validation procedure. The investigator demonstrated the test items and the procedure of measuring a particular skill before the Juries/experts. The items are constructed in such a way that the test measures what it intended to measure. The Juries/experts gave consent to those items as valid. The rigorous process used in the study and selection of the right 'constructs' for the tools ensure the construct validity of the test.

3.14 ANALYSIS AND INTERPRETATION OF DATA

Correlational analysis and qualitative analysis were carried out to analyse the performance of low vision children in vision stimulation, visual efficiency and vision utilization. Qualitative analysis were used for analyzing the data collected from teacher educators, headmasters for school for blind, administrators of integrated education programmes, resource teachers, special teachers and parents. The detailed analysis is presented in chapter IV.