CHAPTER - IV

METHODOLOGY

I. MEASURE OF ACHIEVEMENT
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CHAPTER IV

METHODOLOGY

This chapter deals with the measure of achievement, schedule on social transformation, participation of the neo-literates in continuing education centres activities selection of the respondents, collection of data and analysis of data.

The testing of the hypotheses framed in the previous chapter requires measuring reading, writing and numeracy skills of the neo-literates and measure of social transformation. Personal information sheet was used to know the gender, age, caste, etc., of the respondents.

I. MEASURE OF ACHIEVEMENT

For the purpose of the present study, a test that can measure the achievement of neo-literates was necessary. Measuring achievement of neo-literates means, estimating the level of attainment in reading, writing and numeracy skills (3 R's). An adult who has successfully completed the course in an adult education centre should have achieved basic skills of reading, writing and arithmetic to the extent of fulfilling the norms of literacy and numeracy stipulated by National Literacy Mission.

Keeping the norms in view, the functionaries in the field of adult education seemed to have developed achievement tests in their own way to measure the final outcome of adult education programme. Examination of some of the tests developed in various projects in Andhra Pradesh to test the achievement of neo-literates revealed that they were based more or less on
common sense. This necessitated the investigator to plan and develop an achievement test suitable for testing the achievement of the sample of the present study. The following procedure was followed to develop the test.

1. To start with, the source of the test items and the nature of the test were thought of. The Government of Andhra Pradesh has published three primers in regional language (Telugu) for use in adult education projects of the state. These were taken as the source material for testing the knowledge of neo-literates.

2. The comprehensive idea about the achievement of neo-literates can be possible only when the achievement is measured in all the three areas viz., reading ability, writing ability and numeracy skill. Hence, an achievement test developed was used in all these three areas.

As per the NLM norms, to declare a person as literate he / she has to obtain 50 per cent of marks in each of the three components and 70 per cent as an aggregate. The above criteria was adopted to arrive at literacy attainment rate among the sample of the neo-literates in continuing education centres.

Keeping in view the above facts and based on the National Literacy Mission norms, the investigator has developed 3 sub-tests in literacy viz., reading, writing and arithmetic. In the absence of a suitable achievement test for tribal learners the investigator developed an achievement test consisting of reading, writing and arithmetic test for the purpose of the study.

(i) **Reading Test**

Reading test is intended to identify the level of reading abilities and proficiency achieved by the participants of the programme. Items for the reading test were drawn from the primers and post-literacy materials used in the
scheduled tribe centres. The reading test has 3 units: (a) identification of the picture and the slogan, (b) comprehension passage, (c) loud reading and comprehension passage. The above items were decided after taking the opinion of preraks, mandal literacy organizers and experts in the field. The details of the reading test are as follows:

(a) Identification of Picture and Slogan

(b) Comprehension Passage

A single passage describing a match factory, consisting of 18 words and 3 sentences was given. The sample of learners were supposed to read the passage and answer two questions on the passage.

(c) Loud Reading and Comprehension

A passage consisting 26 words and 6 sentences on self-help groups was given. It was a major item for loud reading of a passage. Neo-literates were classified, in loud reading, into three categories i.e., good, average and poor. Marks given were 8, 4 and 2 respectively. Four questions were given on the passage. The intention behind giving the passage is to test the neo-literates capacity to read and understand the given passage.

The preliminary form of the reading test, thus finalised was administered to the sample of 100 neo-literates in continuing education centres individually. The data thus obtained was analysed to find out the differences and discrimination level. As suggested by Garrot (1979), all the items showing discrimination values of 0.30, and above and difficulty values between 0.40 and 0.60 are considered for inclusion in the final form and the rest are ignored.

The final form of the Reading Test with 3 units and scoring of the test is detailed below:
### Scoring Procedure

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Marks for each item</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit No. I Identification of the picture and a slogan (3 + 3)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Unit No. II Comprehension passage (3 + 3)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Unit No. III Loud reading and comprehension passage (8 + 20)</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

(ii) **Development of Writing Sub-test**

A review of the written tests developed by different investigators shows that a comprehensive written test will have 3 sub-tests:

(a) **Neo-literate Background Information**

Unit-I is related to the writing of neo-literate's name, father's/husband's name, occupation, prerak's name and address. Five marks are allocated to the item.

(b) **Identifying the picture and Writing a Sentence**

Unit-II, four pictures were given. The neo-literate was expected to identify the pictures and write a sentence on each one of them. Two and half marks were allocated to each picture. Thus, the neo-literate can score totally 10 marks in this section.
(c) Writing a Letter

Unit-III is related to the writing of a representation by the neo-literate to the District Collector informing about a community problem and requesting him to solve it. Seven marks were allocated to writing address and 8 were allocated to the content, the total marks being 15.

A model test paper was submitted to a panel of 5 subject experts for their comments and suggestions were incorporated. Then the test was administered to continuing education centre 60 neo-literates individually. The data thus obtained were analysed to find out the difficulty and discrimination levels of each of the items included in the test paper. Items showing discrimination value of 0.30 and above and difficulty values between 0.40 and 0.60 were included in the final form.

The final form of the writing test was represented by units consisting of neo-literate background information, identification of the picture and writing a sentence and writing a memorandum. The scoring procedure for the writing sub-test, in brief, is as follows:

**Scoring Procedure**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Marks for each Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit No. I</td>
<td>Neo-literate background information</td>
<td>5</td>
</tr>
<tr>
<td>Unit No. II</td>
<td>Identifying the picture and writing a sentence</td>
<td>10</td>
</tr>
<tr>
<td>Unit No. III</td>
<td>Writing a memorandum / letter</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>
### Development of Arithmetic Sub-test

Before developing the numeracy test, available arithmetic tests developed in various projects were examined. Arithmetic test usually contained additions, subtractions, multiplications, divisions and problems of any one or a combination of the above. In addition, the arithmetic tests also consisted of transfiguring the numbers given in the form of words into numerals. The investigator consulted the experts about the possible items to be incorporated in the test and their suggestions were followed.

The investigator pooled all the possible items discussions with field staff and experts and designed the described below:

1. **Fill-in the Missing Number**
2. **Additions**: Arithmetic operation involving addition of 1, 2, 3 and 4-digit numbers in 2 and 3 rows of 6 items.
3. **Subtraction**: Arithmetic operation involving subtraction of 2, 3 and 4-digit numbers of 5 items.
4. **Depicted time**: Identification of depicted time.
5. **Multiplication**: Arithmetic operations involving multiplication of 2, 3 and 4-digit numbers with single and double digit numbers of 4 items.
6. **Division**: Arithmetic operations involving division of 2, 3 and 4-digit numbers with single and double digit numbers of 4 items.

Six problems involving simple arithmetic operations, namely fill-in the missing numbers, additions, subtraction, depicted time and multiplication were submitted to a panel of 5 experts and their suggestions were incorporated.
Validity and Reliability

The test developed for measuring a particular aspect will be considered appropriate only when its validity is true. The achievement test in 3 R's, developed on the lines described above, possesses satisfactory validity with reference to the content validity. The achievement test is appended. The test rest method was followed for establishing reliability and the total test was administered to a sample of 100 learners with a gap of 3 weeks. The correlation to efficient obtained was 0.89 which is significant at 0.01 level. The achievement test is appended.

II. MEASURE OF ATTITUDE

A measure that can rate attitude of adult learners towards adult education was needed for the purpose of the present investigation. From the review of literature (vide Chapter 2) it is clear that there were no suitable standardised tests to measure the attitude of adult learners towards adult education. In view of this, the investigator had to develop an attitude measure to suit the purpose of the present study.

Various methods were followed in attitude measurement like Thurstone method, Likert method, Semantic differential and so on. In the context of the present investigation, development of attitude measure based on Likert method of attitude scale construction was considered more appropriate. The Likert method was preferred over the other methods due to certain advantages namely: (a) the scale construction procedure was easier and simpler, (b) the technique was claimed to provide more information about subjects attitude since the responses would be given to each of the many items and (c) the method was relatively more reliable, valid and better understood.
For the preparation of the preliminary form first, the nature and scope of the statements that were to be included in the proposed attitude scale were examined in the light of the operational definition of the concept 'Attitude towards adult education'. All the favourable or unfavourable statements that were suggested to indicate the attitude of the adult learners on various aspects of adult education were pooled together from the available literature. The statements were further supplemented by interviewing various field functionaries and community representatives chosen randomly from the district.

They were asked to list either favourable or unfavourable statements that were supposed to indicate attitude towards adult education. The statements thus obtained were subjected to scrutiny and relevant ones were chosen and added to the list. After this, in order to avoid ambiguity and overlapping, all the statements together were reviewed and rewritten.

The preliminary form, thus prepared, consisted of 35 statements of which 18 were supposed to represent positive attitude and the remaining 17 statements negative attitude towards adult education. This was presented to a panel of 5 experts (in the field with academic background) with a request to suggest improvements wherever necessary. The suggestions of the experts were carried out. In all, 30 statements remained in preliminary form of which fifty per cent were supposed to represent negative attitude towards adult education and the rest positive attitude.

The preliminary form of the attitude measure thus formulated was administered to 50 adult learners (chosen randomly) from the CE centres of the district. The preliminary form was administered to the learners in order to examine whether the statements were easily understood by the learners and to know whether they possessed clarity or not. In the light of experience gained improvements were carried out in the statements wherever necessary. In doing
so, assistance was taken from the three university level teachers (who served as panel experts for the scrutiny of the statements in the preliminary form). Then, the positive and negative statements were mixed together with the help of random numbers. While doing this, the sequence of the statements was maintained as far as possible (the assistance of the university level teachers was taken here also). After this, the preliminary form of the attitude scale was subjected to standardisation.

**Rating Procedure for the Statements**

Before taking up standardisation, the way the adult learners of the sample have to rate each statement in the final form was also determined. In doing so, the background of the subjects of the sample and the opinion of the experts (who assisted in the scrutiny of the statements of the preliminary form) were kept in view. It was thought appropriate to consider the rating that would be as simple as possible in order to help the adult learners indicate their rating with ease. The numerical rating scale consisting of 5 descriptive cues, viz., Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree, was chosen considering it as appropriate one for the sample. The adult learners were supposed to agree with any of the above alternative cues provided against each statement to indicate the intensity of their attitude towards adult education.

**Procedure of Standardization**

The purpose of the present attitude test was to measure the quantum of positive or negative attitude possessed by the adult learners towards adult education. In view of this, adult learners who had just completed the course representing the neo-literates were considered as appropriate sample for standardisation of the measure. Hence, a sample of 100 learners were chosen randomly from different adult education centres of scheduled tribe centres. The
measure was administered to each of the adult learners of the sample individually by the investigator. The instructions relating to the method of indicating responses to the statements in the measure were first read out to the subjects.

**Scoring of the Statements**

For the purpose of scoring of the statements, numerical values were assigned to the five categories of responses (ratings) against each statement. The following numerical values were assigned to the ratings of positive / negative statements in the scale.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Nature of Response</th>
<th>Numerical Value assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive Statement</td>
</tr>
<tr>
<td>1.</td>
<td>Strongly Agree</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>3.</td>
<td>Undecided</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>5.</td>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
</tbody>
</table>

**Selection of the Statements**

The 't' test values for each of the statements of the measure were calculated to find out the discrimination power and usefulness of the statements chosen. Statements that had calculated 't' value equal to or greater than 1.96 were selected for inclusion in the final form. All the other statements with 't' value less than 1.96 were discarded. As per this procedure, 5 statements were discarded. Of these 25 statements, 13 statements were positive attitude indicators and the remaining 12 negative attitude indicators.
Reliability of the Measure

An attitude test developed to measure the attitude of specific group of individuals representing specific category will be sound on establishment of its reliability. In order to find the effectiveness of the attitude measure developed, its test-retest reliability was examined by obtaining ratings for the measure with an interval of two weeks between the first and second administration of the measure to the same set of 100 adult learners. The correlation co-efficient between the ratings was 0.845 which was significant at 0.01 level. Hence, the measure may be considered as having high reliability.

Validity of the Scale

Validity is another criteria considered to estimate the appropriateness of any measure developed to examine a particular aspect of an individual's attitude. The attitude measure of the present study developed on the lines described above indicated satisfying content validity, item (statement) validity and intrinsic validity. The details relating to them were as described below:

Content Validity

Content validity refers to the establishment and evaluation of the significance of the test items individually and as a whole. Every item should be a sampling of that aspect which the test purports to measure. In addition, items should collectively constitute a representative sample of the variable that is measured.

As already described, items for the measure were collected from different sources viz., review of literature, adult education project officers, mandal literacy organisers, preraks, adult learners and community
representatives. In addition, it was also supplemented by interviewing selected learners and experts to make sure that all possible items were covered. Thus, it can be reasonably assumed that the attitude scale developed possesses satisfactory content validity.

Item Validity

Item validity stresses the number of discriminations of the desired sort that the item is capable of making. It stresses the extent to which the item predicts segregation of respondents into those with high versus low criterion scores. The discriminative power of each of the items of the present measure was established by calculating their 't' values as illustrated under the heading, 'selection of statements'. Thus, the items chosen for the measure were found to be satisfactorily valid.

Intrinsic Validity

According to Guilford (1954), intrinsic validity indicates the degree to which the test measures what it purports to measure. This in other words means verification of how well the obtained scores measure the test true score component. Intrinsic validity of a test is expressed in terms of square root its reliability value. Thus, the intrinsic validity of the attitude measure developed was $\sqrt{0.845} = 0.91$ which can be assumed as highly satisfactory intrinsic validity. The final form of attitude scale is appended.

III. SCHEDULE ON SOCIAL TRANSFORMATION

For the purpose of the present study, a measure to assess social transformation was desired. In the absence of a standardized tool the investigator developed a measure of social transformation for which the panel
of experts (5 experts at university level and 5 experts having adequate experience in ICDS, DRDA and adult education projects) have suggested for the development of a questionnaire. To start with, the investigator has contacted 20 senior citizens, and 40 members who were active in organizing programmes for scheduled castes and 40 neo-literates who have become literate through adult and continuing education programmes. Questions about the nature of social transformation, areas, methods and key aspects relating to social transformation were discussed with the above groups.

Apart from the observation and contacts with a cross section of the community about social transformation, the help of review of related literature, discussion with government and voluntary, agencies was also considered in gathering the items for the tool of social transformation. The items gathered from various sources were pooled together. As far as possible, the ambiguous, repetitive and irrelevant items were deleted.

A preliminary form was prepared consisting of 100 items. This was presented to the panel of experts (5 experts at university level and 5 experts having adequate experience in ICDS, DRDA and adult education projects) to suggest modifications and additions wherever necessary. The following suggestions were offered by the experts.

1. The aspects of social transformation should be considered from the viewpoint of Anantapur district (study area) but not state, national and global levels.

2. The items should be relevant from the scheduled castes point of view and participation in adult education and continuing education activities (neo-literates).
3. The questions should be simple and in an understandable manner. Technical terms should not be used as far as possible.

4. Questions should be written separately for each area i.e., education, social, economic, health, political and legal aspects for eliciting information area-wise. In the case of shortage of relevant items one or two areas may be clubbed.

5. Each area can have 15-20 items and the total items should not exceed 70-80 in order have crispness and suitability to the sample.

The suggestions of the experts were duly carried out and 90 items remained in the preliminary form. The form was administered to 50 scheduled caste neo-literates in order to know the suitability in terms of the language and presentation.

Pilot Study

A tool on social transformation was prepared with 90 items and a pilot study was conducted on a sample of 100 scheduled caste neo-literates. The responses were tabulated and analysed.

Reliability

For the purpose of establishing reliability for the measure of social transformation test retest method was adopted. For the purpose of establishing the reliability, the measure of social transformation was administered with a gap of two weeks to the same 100 scheduled caste neo-literates. The correlation co-efficient between ratings was 0.65 which is highly reliable. The final form of the measure is appended.
Validity

Though there are various methods of establishing the validity of a measuring instrument, the content validity and intrinsic validity were established for the measure of social transformation.

Content Validity

As the items were collected from the field level experiences, contacting the review of related literature interaction with senior citizens ICDS, DRDA officials and adult education functionaries, members of voluntary agencies, post-literacy and continuing education materials – a representative sample of items were there in the measure. Hence, it can be stated that the tool possesses content validity.

Intrinsic Validity

Intrinsic validity is stated how well the obtained scores measure the test's true scores component. This validity is given by the square root of the proportion of true variance i.e., the square root of its reliability. The intrinsic validity of the measure of the social transformation is, therefore, \( \sqrt{0.65} = 0.81 \).

IV. UNIVERSE AND SAMPLE

The universe of the sample constitutes the neo-literates of continuing education centres in the selected four mandals of Anantapur district (Kawbader, Bommandal, Dharmavaram and Rayadurg) comes to 4800. Out of it, the investigator has selected 5% which is 240 by following multi-stage random sampling.
Anantapur district is one of the four districts of Rayalaseema region. It consists of three revenue divisions (Anantapur, Dharamavaram and Penukonda). At the first stage one revenue division was randomly selected (Dharmavaram). It consists of 17 mandals. At the second stage four mandals (two rural and two urban) were randomly selected. At the third stage from each mandal 2 panchyats were randomly selected. At the fourth stage, a sample of 30 Scheduled Castes participating in continuing education centres was randomly selected. Thus, the total sample of study consists of \((1 \times 4 \times 2 \times 30) = 240\) members.

V. COLLECTION OF DATA

The data required for the study were collected from the scheduled caste learners by contacting them individually at the centres. Necessary rapport was established before collecting the data from them. The help of the Prerak was sought by the investigator in administering the tools. The measures were administered to the learners in two sessions. In the first session, achievement test was administered. During the second session, schedule on social transformation was administered. It took approximately two hours for the completion of all the tools by each neo-literate. Personal data relating to the learner's name, gender, age, occupation, marital status, income, locality, number of educated members in the family, duration after becoming literate, participation in SHGs, Social position, Participation in CEC activities, use of literacy skills in daily life, attitude towards development, etc., was collected by utilizing the personal data sheet. Thus, the final data relating to study were collected.
VI. ANALYSIS OF DATA

The data collected were analysed by using relevant statistical techniques like 't' test, 'F' test and Chi square. The multiple correlation ‘R’ was calculated by carrying out stepwise regression analysis.

In the next chapter, results and discussion are presented.