Chapter - 5
CHAPTER V

CONSTRUCTION AND STANDARDIZATION OF TESTS

5.1 Introduction

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References
5.1 Introduction

In the last chapter of planning and procedure, it has been envisaged the use of metalinguistic ability tests, reading achievement test and conservation test.

The conservation test has been selected from the Piagetian tasks measuring conservation ability. So it is not to be constructed anew by the investigator.

The present chapter deals with the construction of metalinguistic ability test and the reading achievement test for the children of first grade.

The details of metalinguistic ability has been discussed in the second chapter so it is not necessary to treat the different metalinguistic skills here. The five different tests to be constructed for the purpose of the present research are

1. Phonological Awareness Test (PAT)
2. Word Awareness Test (WAT)
3. Syntactic Awareness Test (SAT)
4. Pragmatic Awareness Test (PRAT)
5. Reading Achievement Test (RAT)
5.2 Some Specific Considerations for Test-maker

The above tests are to be constructed for the first grade children who are genuine nonreaders when they first enter the school. Therefore any test of whatever nature must be an oral test.

Secondly, these children are at preoperational stage, therefore their thinking would always be ego-oriented. Therefore they would think and express themselves, keeping themselves in the centre. Hence the test items should not be of a free-response nature but they should be of a multiple choice type. Again the choices should not be more because their memory is too short.

Sometimes it happens that a single and lonely child will not speak with a stranger. When in groups of 2-4 children they respond very nicely. Although these tests are strictly individual tests some sort of flexibility while working with small children is to be exercised in order to get most out of them. Hence the play-way items in the test itself and same attitude of the tester with the child is necessary. With this much discussion regarding testing, the contents of each test would be considered.
5.3 **Nature of the Test Items**

There are certain tasks to measure metalinguistic skills. These items were collected by observing the children, consulting the teachers of pre-primary schools, and the parents. Different items were constructed in greater number than were actually required in the tests. For metalinguistic tests, each test required 22 items of different nature; so in such cases more than 40 items were prepared. After this step, the pilot testing was resorted to.

5.4 **Administration of the Test**

(i) **Pilot Study**

Before the actual tryout, it was thought worthwhile to conduct a pilot study to remove the ambiguities in the items or to weed out the irrelevant items.

In the four subtests of metalinguistic ability and the Reading Achievement Test, items with wide range of difficulty were retained. Suitable instructions with examples were framed. Frank and Candid opinions about the typed drafts were sought from the knowledgeable persons of
child psychology. As a result of this, false assumptions, slips and oversights were corrected. The items in the tests were arranged in the descending order of difficulty based on the observations during the preliminary tryouts.

A few further modifications were made in the light of the pilot study. The test was administered to a sample selected for tryout testing.

5.4.1 Sample for Tryout Testing

Ten schools of pre-primary schools managed by Ahmedabad Municipality and the private trusts were selected at random. As the investigator needed 110 scripts in the test for item analysis, she took 130 from the K.G.2 grade of the schools to keep enough margin for discarding incomplete answer sheets. She assured herself that the children were all genuine nonreaders.

Tryout is considered to be an essential step in the process of test construction and standardization. It has certain objectives to fulfill such as:

- to identify weak or defective items;
- to determine the difficulty value of each item in order to arrange them according to their values;
to determine the discriminative value of each item in order that all selected items may contribute to the main purpose of final test;

- to find out the appropriate time limits that would be required to administer the final form of the test;

- to study the efficacy of the instructions to be given to examinees and the examiners.

The sample for tryout should be representative of the population to whom the final form is to be administered. The tests are to be used by the pupils of different areas of Ahmedabad city; hence for each school 12 pupils were randomly selected from primary schools.

There was no time limit for taking the tryout test, as it is essential at the tryout stage to get data for each item. So every care and caution was exercised to get the fullest co-operation from the pupils as well as the supervising staff. The time limit, therefore, was set quite generously to allow all the children to answer every item in the tests. All the subtests were given orally and individually. An answersheet for each child was prepared by the interviewers.

The scoring was done with the help of the scoring keys prepared by the investigator for each subject. Each
correct answer was given a weightage, while the incorrect response was given a zero mark.

5.5 Item Analysis

After all the answer scripts were scored, the next step was to select valid items to be included in the final test.

While scoring, those children who had given responses for all items were considered while those who had given no responses to some items were excluded. To get valid items, the technique of item analysis was used.

Item analysis of the test gives two test parameters: difficulty value and discriminating value, as suggested by Davis.¹

Many techniques have been developed to show the degree to which an item is effective in discriminating between high and low ability pupils on either the total score of the test or some other external criterion. A method most widely used by test makers is to set up extreme groups in computing the parameters of the item difficulty and discrimination.
For the present test, the total score of each on the test has been used to set up extreme groups. In other words, the T.L. Kelley's method of 27% has been adopted which is based on forming two extreme groups on the basis of total score on the test itself.\(^2\)

In the present case, many pupils have not completed the entire test. Therefore the researcher had resorted to bigger samples so that adequate number could be available for item analysis. At the time of administration, it was complained by the teachers and principals of the schools that many pupils did not understand the directions of the questions. Hence it was decided to go for more pupils than the actual requirement of the number as suggested by Kelley.

The incompleted answersheets have been ignored. The one hundred completed booklets were then arranged in descending order of scores. After this arrangement, 27% of booklets from the top and 27% from the bottom - that is, 54 booklets from both the ends - were taken up for item analysis. The middle 46% were not taken into account.

The next step was to find out the number of pupils answering each item correctly from the upper 27% of the group and the lower 27% of the group. The analysis of
items was carried out in this way. The discriminative power of the items was read directly from the Flanagan table, a table of the values of the product moment coefficient of correlation in Normal Bivariate population corresponding to the given proportion of success.\textsuperscript{3}

This method of determining the discriminative power of test item is widely used in the critical analysis of the test items for standardized test.

**Difficulty Index**

The difficulty of a test item is usually expressed in terms of the number of percentage of pupils answering the item difficulty. The test as a whole should have about 50% difficulty for the average pupils. Therefore, the items should not be so easy as to be passed by every pupil of the group. The item should not be so difficult that none can pass from the group. Because neither of these extreme cases makes the item contribute to the discrimination which the test is to make between individuals.

The difficulty values of the items of the present tests were determined by using the data obtained from 27% upper and 27% lower group.\textsuperscript{4} For this, the percentage of pupils answering the items from the upper and lower group
were added and the sum was divided by two. This could be expressed as under:

\[
\text{Difficulty Index} = \frac{\% \text{ U.G.} + \% \text{ L.G.}}{2}
\]

In this way the difficulty index of each item was computed. The relevant data regarding difficulty and discriminating values for all items of sub-tests of the pilot study administered to the pupils are given in the following tables subject-wise:
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Difficulty Value</th>
<th>Discriminating Value</th>
<th>Selected/Rejected</th>
<th>Rank</th>
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Out of 45 test items of PAT, 22 items have been selected and they have been arranged in ascending order of difficulty values. The final PAT has the following parametric values given in Table 5.2.

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<th>Sr. No.</th>
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Table 5.2: Final Test of Phonological Awareness - Their Difficulty Value and Discriminating Index

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Table 5.3: Difficulty and Discriminating Values of Word Awareness Test (WAT)

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Out of 45 test items of WAT, only 22 items have been selected and arranged according to their difficulty values in ascending order, which is given in Table 5.4.
Table 5.4: Final Test of Word Awareness Test (WAT) - Their Difficulty Values and Discriminating Index.

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Table 5.5: Difficulty and Discriminating Values of Syntactic Awareness Test (SAT)

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Out of 44 test items, only 22 items have been included in the final SAT. The test items have been arranged in order of increasing difficulty which has been given in Table 5.6.
Table 5.6: Final Test of Syntactic Awareness Test - Their Difficulty Values and Discriminating Index

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Table 5.7: Difficulty and Discriminating Values of Pragmatic Awareness Test (PrAT)

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Out of 43 items, 22 items have been selected in the final PrAT. The test items have been arranged in the ascending order of difficulty values, given in Table 5.8.
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Table 5.9: Difficulty and Discriminating Values of Reading Achievement Test

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</table>
Out of 41 items, only 16 items have been selected and arranged according to their increasing order of difficulty, which have been given in Table 5.10.
One passage of a story has been selected with the consultation of the teachers of preprimary schools and this was to be read by the children at the end of the first grade. The pupils were asked to recall the story and the probing questions were asked. The questions have not been prepared.

Table 5.10: Final Test of Reading Achievement Test - Their Difficulty Values and Discriminating Index

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The following Table 5.11 reveals the number of test items included in the tryout and their rejection.

### Table 5.11: Number of Test Items of the Tryout Tests and Selected Items

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<td>3.</td>
<td>SAT</td>
<td>44</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>4.</td>
<td>PrAT</td>
<td>43</td>
<td>22</td>
<td>21</td>
</tr>
<tr>
<td>5.</td>
<td>RAT</td>
<td>41</td>
<td>16</td>
<td>25</td>
</tr>
</tbody>
</table>

#### 5.5.1 Criteria for Selecting an Item

The following criteria was adopted for selecting an item for the final tests:

1. An item to be included in the final form of the test must have its discrimination power between .20 to .80.

2. An item to be included must have its difficulty index between 20 and 80.

In practice, those items which possessed the above two criteria had been selected.
Tests | Coefficients of Reliability
---|---
(1) Phonological Awareness Test (PAT) | 0.88
(2) Word Awareness Test (WAT) | 0.90
(3) Syntactic Awareness Test (SAT) | 0.72
(4) Pragmatic Awareness Test (PrAT) | 0.71
(5) Reading Achievement Test (RAT) | 0.63

All the above coefficients of reliability were found to be adequate for the purpose of the present research.

5.7 Estimation of Validity

All the four tests of metalinguistic ability have been prepared after the consultation with teachers, linguists and psychologists. Thereafter the components of different tests were determined. Therefore, the validity was taken for granted for these tests for the present investigation.

5.8 Why No Norms?

The present investigation was limited to K.G. 1 grade only. Again metalinguistic ability was studied as an exploratory study because the investigator wanted to know whether conservation had anything to do with metalinguistic ability.
The major concern of the thesis was to know the impact of metalinguistic ability upon reading comprehension of the first grade children. The investigator used metalinguistic ability as a classification variable rather than a continuous variable. Moreover, the theoretical range of these tests were from 0-22, but actually the range was between 4-19. Because of less variability of scores it was found very difficult for establishing norms for sex. Hence no attempt was made for standardization.
References:


