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CHAPTER-IV
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4.1 INTRODUCTION:

Planning is an essential step in the process of research. In other words planning is a mapping strategy. The activities related to design in research are comparable to those of the architect in designing an intricate structure. As the architect does his designing before construction activities gets undergo so should the researcher do his designing before he gets his project undergo.

Due to unavailability, it is essential to construct and standardize Intelligence Test for the present study. The present investigation includes the following two parts.

(1) Construction and Standardization of an Intelligence Test for the upper primary school students of Gujarat State.

(2) Related studies in intelligence for the upper primary school students in relation to certain variables.

4.2 CONSTRUCTION AND STANDARDIZATION OF INTELLIGENCE TEST

The first part of the study has been divided into the two sections:
4.2.1 Plan and Procedure of the test:

The present study needs great care, right from the planning to the work of complete standardization. To start with construction of I.Q. test, the most important work on the part of investigator will be to decide the parts and ability components of I.Q. test. The parts and ability components decided by the investigator are as follows:

1. Verbal Part
   1.1. Verbal ability
       - Ability to select word having antonym when words are given.
   1.2. Reasoning ability
       - Ability to select an analogous word by comparing the relationship of a given words
   1.3. Numerical ability
       - Ability to select a missing number from number series which is given.
       - Ability to solve mathematical problems

2. Non Verbal Part
   2.1. Reasoning ability
       - Concepts involving counting of divided figures & its number.
       - Concept involving the counting of geometrical figures in a given complex figure.
- Concept involving searching an image of an object as seen in mirror for given object.
- Concept involving choosing the part to complete the figure.

For the construction of reliable and valid tool, the following process has been adopt.

4.2.1.1 Construction of the items for Intelligence test:

A pool of items will be prepared in verbal form based on different components and sub components for the manuscript try out. It will be given to judges (experts) and a small group of upper primary school students. After rejection & due modification, items will be selected for pre pilot form of the test.

Then it will be administer on upper primary school students to whom a full instructions, proper directions and enough time will be given to complete all the items. The approximate time limit will also be noted. The analysis of the items of the pre-pilot form will be made and items will be selected for the pilot form of the intelligence test. A few words in some of the items may be modified in accordance with the students’ reactions.

The pilot form of the test will be administered to 370 upper primary school students of Gujarat state. Then the completely filled answer booklets will be selected for item analysis and it will be scored.
All the items are multiple-choice items, each of them having four distracters in answer booklets. Then difficulty value and discriminative index and distracter analysis will be applied to scored answer booklets. Item analysis will be done and difficulty value and discriminative index will be computed for each item. The items whose discriminative index found to be 0.20 to 0.80 and difficulty values found to be 0.20 to 1.00 will be finally selected. The distracter analysis between students of upper group & lower group will be carried out.

Then the final form of the test, consisting of enough space to mark the response of each item will be printed.

4.2.1.2 Final run of the test, Establishment of Norms, Reliability and Validity of the test:

The total number of the students studying in std V<sup>th</sup>, VI<sup>th</sup> and VII<sup>th</sup> of the upper primary school students of Gujarat state will be the population for the final administration of the Intelligence test. Out of which 4500 upper primary school students will be selected from all districts of Gujarat state as a sample. Hence about 1,000 copies of test booklet and 4500 answer sheets will be printed and administered on upper primary school students of Gujarat state.

The random sampling method will be applied to select the sample.
The norms established for the present test are as follows:

(1) Gender Norms
(2) Area Norms
(3) Grade Norms
(4) Computation of PR’s
(5) Deviation IQs

The detailed calculation of norms will be described in chapter V.

The reliability of the test will be calculated by the following methods.

(1) Test -Retest method
(2) Split half method

Validity of the Intelligence test will be estimated by the following method.

(1) Congruent Validity
(2) Testing of validity from the marks obtained in first test.

The reliability and validity estimate will be discussed in detail in chapter-V

4.3 RESEARCH METHOD:

In deciding of research method the investigator has to take into consideration several factors like availability of students on different time, nature of objectives etc. The investigator has selected the descriptive survey method to test the hypotheses.
4.4 POPULATION:

A population is any group of individuals that have one or more characteristics in common, that are of interest of the researcher. For the present study, the upper primary school students of Gujarat state in academic year 2009-10 will be the population.

4.5 SELECTION OF SAMPLE:

The selection of the sample is important part in the research study. A sample is said to be representative of a population or universe when it has approximately the same characteristics as the population relevant to the research in equities. A selection of a sample depends on the population. The real worth of the sample lies in its accuracy and representativeness.

In the present study the random sampling method will be adopted. According to this method of sampling, it was decided to administer Intelligence test practically in all parts of Gujarat state.

The schools will be selected from all the 25 districts of Gujarat state. The total no. of students studying in the upper primary schools will be collected from the District Education Offices (D.E.O) of Gujarat state. Approximately 10% of the total population will be considered in the sample.

4.6 RESEARCH TOOLS:

The selection of an appropriate tool for measuring intelligence independent variable is one of the most critical components of the
research process. The following tools will be used in the present study.

(i) Intelligence Test

(ii) Emotional Intelligence scale

(iii) Socio-Economic status scale.

(i) Intelligence Test:

The test will be developed by the investigator to measure the intelligence of upper primary school students. It will be standardized on upper primary school students of Gujarat state. The detailed description of construction and standardization of IQ.test is given in chapter V.

(ii) Emotional Intelligence scale:

EI scale constructed and standardized by Dr.S.K.Shah will be used. It has sixty one statements. It was standardized on upper primary school students of Gujarat state. Reliability index of the test varies from 0.84 to 0.88 and validity index is 0.75.

(iii) Socio-Economic status scale:

The scale was constructed and standardized by Dr.Pallavi P.Patel. The scale was standardized on a sample selected from various districts of Gujarat. The reliability of scale is 0.85 validity is 0.88.
4.7 DATA COLLECTION:

Intelligence test constructed and standardized by the investigator will be used for data collection. The investigator will request principals of the selected schools in the sample of different districts for their cooperation.

4.8 TECHNIQUES FOR DATA ANALYSIS:

The study is undertaken to construct and standardize Intelligence test to measure the Intelligence of upper primary school students in relation to gender, area, age, S.E.S, and Emotional Intelligence.

The investigator will use mean, median, S.D, ‘t’ test and correlation as the statistical techniques for data analysis in the study.

4.9 STUDIES OF INTELLIGENCE WITH REFERENCE TO CERTAIN VARIABLES:

The present investigator has also planned related studies of independent variables viz. gender, area, age, S.E.S, and Emotional Intelligence on Intelligence scores of the upper primary school students of Gujarat state.

4.10 CONCLUSION:

This chapter discussed in detail about the research methodology of the research study. The next chapter describes about the construction & standardization of Intelligence test.