SYNOPSIS

Introduction

Intelligence is not a unitary entity but it includes in itself a large number of mental abilities. The power to solve the problems of life is one such mental ability. The solution of almost any problem requires the making of decisions and a choice among alternatives.

If the problem-solving ability can be correctly measured at a comparatively young age, it will help the individuals to develop themselves on proper lines. Well-developed individuals who are capable of facing and tackling the realities of practical life with confidence will be a valuable asset for society.

It would greatly help the young students and the society, if an effective measuring instrument to gauge this ability is available. The present work is an attempt in this direction, viz, to construct the test of problem-solving ability of Gujarati children.

Problem

The present investigation is an attempt to solve the problem of developing a test of problem solving
ability for primary grade students of Gujarat. This test is intended to measure the individual's mental ability to face the problems in various walks of life in Gujarat.

Methodology

Psychometric and Statistical methods were mainly used for developing this test.

Item Pool

The problem solving ability may be tested in a large number of areas based on the situations in school, home, sports ground etc. The areas to be covered were first determined, with the help of the following:

1) The Experts' opinion
2) Literature already available
3) Discussion with school teachers.

After the determination of the areas, the items to cover these areas were prepared. Experts were consulted regarding the content, language, face validity and structure of each item. A group of students was asked to answer those items with a view to find and remove the ambiguity or bias, if any, in each item.
Preliminary Try-Out

A form of the test comprising of 198 items was prepared. This form was administered to about 20 students of both the sexes from grades I to IV.

The personal experience gained by the author during the administration of the test, reactions and responses of the candidates and the scores obtained were used to prepare the first preliminary form. It was also decided at this stage to confine the investigation from grades III to VII instead of from grades I to IV.

Subsequent Try-Outs

The first preliminary form consisting of 93 items was administered to 60 students of both the sexes. All the items were analysed regarding their (i) difficulty, (ii) discrimination, (iii) internal consistency, and (iv) sex-bias.

On the basis of this analysis, the second preliminary form containing 112 items was prepared and administered to 60 students of both the sexes. Again the item analysis was done to ascertain the difficulty, discrimination, internal consistency and the sex-bias.
The cluster analysis was carried out to trace the existence of factors, if any.

Final Form

This item analysis data was used to prepare the final form of the test consisting of 100 items in all, subdivided into 7 sub-tests. A complete lay-out of the test was prepared, wherein the simple and clear instructions were given and sample illustrative items were included. This form was administered to 100 students of both the sexes.

Scoring

Each item gets a score of either 1 or 0 thus making the possible range of scores from minimum 0 to maximum 100.

Reliability

The methods used to determine the reliability of the test were: (i) split-half methods, (ii) The \( K - R \) formula 20, 21 and Tucker's modified \( K - R \) formula, (iii) Hoyt's formula based on the analysis of variance and (iv) test-retest methods.
Validity

For the purpose of validation, the scores obtained on the total test were compared and correlated with the scores on some standardised tests. The performance of students in their last examination in schools also was correlated with their performance in the present test.

Norms

The test is administered to 1010 students of both the sexes. This group of 1010 students includes those from rural and urban areas, and also from low, middle, and high income groups. The type of norms to be used is Percentile Ranks.

Factor analysis is carried out with a view to determine and locate the factors. The results are interpreted.