



Construction and Standardization of an Achievement test in Mathematics for class VIII students

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INTRODUCTION

Education at different levels or stages is geared to different aims but no one can deny the fact that achievements of the students continue to be main concern and most important goal of education at all stages. Achievement means the extent to which the learner is profiting from instructions in a given area of learning i.e. it is the extent to which a skill or knowledge has been acquired by a person from the training imparted to him. To check the achievement of the students, various tests are used by the teachers and education administrators. A test of educational achievement is one designed to measure knowledge, understanding or skills in a specified subject or group of subjects. A test might be restricted to a single subject or for a group of subjects.

Academic achievement may be defined as competence of students shown in the school subjects for which they have taken instructions. It refers to the pupils' knowledge, attainment and skills developed in the school subjects and is assessed by the authorities with the help of achievement tests in the form of examinations. These tests measure the attainment or accomplishment of an individual in a particular or some branches of knowledge.

It is the grim reality that majority of students do not show satisfactory academic results as are expected from them. Some socio-psychological factors may be associated with this. However, in order to find out socio-psychological correlates of educational achievement, the researcher is first required to have a good measure of scholastic achievement. There is universal agreement the psychologists that marks obtained by the students in essay type of examination are not a dependable measure of scholastic achievement

Terms used

Achievement

Education plays significant role in the building up of the society. Achievement has been considered as an important factor in life. Academic records speak for the individual. The index of success and work a child in particular class in his achievement which he requires during his various experiences in classroom.

Singh (2002)

Defined achievement as accomplished of specified, objectives, past performance and what analysis individual or organization has accomplished in the past contrast with ability which refers to what analysis or organization can do now in the present or in future.”

Webster’s Dictionary (2002)

Indicate achievement means to bring to a successful or performance” In short, academic achievement refers to the degree or level of success of that of proficiency attained in some specific area concerning scholastic or academic work. In general, it refers to the scores obtained in annual examination. The following is the summary of the research entitled, construction and standardized achievement test in social studies for VIII standard.

STATEMENT OF THE PROBLEM

“Construction and Standardization of an Achievement test in Mathematics for class VIII students.”

OBJECTIVE

SPECIFIC OBJECTIVE

To Construct and standardize an objective type Achievement test in Mathematics for class VIII students.

GENERAL OBJECTIVES

1) To acquaint the teachers with the technique of new types of tests and constructing objective type tests.

- 2) To serve as a reliable, valid and useful tools in the hands of Mathematics teachers to assess the progress of their pupils in a proper way.
- 3) To measure VIII class students Achievement in Mathematics and to know their level.
- 4) To measure Achievement in Mathematics for detecting weak students for providing extra coaching and remedial work.
- 5) To compare student's Achievement in Mathematics studying the same curriculum.
- 6) To measure VIII class student's Achievement in Mathematics for the purpose of educational and vocational guidance.

POPULATION OF THE STUDY

All the students of Fatehabad District, affiliated with Haryana school education board studying in 8th class was the population of the study.

SAMPLE OF THE STUDY

For tryout purpose, sample of 100 students was taken from different schools of Distt. Fatehabad affiliated to Haryana School Education Board. For final testing, a sample of another 100 students was drawn from Distt. Fatehabad. For fixing the time of the final test, test was administrated to 10 students. Selection was done in a random manner. The nature of sampling was purposive.

SAMPLING TECHNIQUE

The researcher used the simple random sampling for this research.

METHODOLOGY

Random sampling was used to collect data for standardizing the achievement test. Only those students were selected who were promoted to 8th Class after passing 7th class examination. All selected schools were belonged to Haryana School Education Board.

PROCEDURE

A through study of syllabus with consultation of Mathematics teachers was done. For tryout purpose, 100 items were constructed. The test was administrated to the 100 students. After scoring all the papers, item analysis was done and the difficulty values are calculated. The desirable difficulty value set for selection was between 40% and 60%. The discriminating power of 31 items, which were

retained on the basis of difficulty value, was calculated. Items with negative difference and discriminating power less than 0.18 were rejected. Thus 69 items were left out for the final test. Final form of test was given to 10 students for setting the time limit. Average time taken by them was 20 minutes. Then the final form of test was administrated to 100 students and then the scoring of the test was done to make norms.

Pilot Form

The pilot form of the achievement test on mathematics for standard VIII was prepared from text books of H.S.E.B. 100 multiple choice questions on Arithmetic, Algebra, Geometry was prepared. Each item was allotted to one mark. This test was administered on 100 students of 8th standard from four schools of Fatehabad which belongs to H.S.E.B.

Item Analysis

Discrimination index calculated using the formula,

$$DI = \frac{U-L}{N/2}$$

Where D.I. = Discriminatory index

U= the number of students in upper group who response correctly.

L= the number of students in the lower group who response correctly.

N= the total numbers of students.

Items with discriminating index of 0.18 were selected. Item difficulty was computed using the formula.

$$I.D = \frac{U+L+M}{N/2}$$

I.D = Item difficulty

U = the number of students in the upper group who responded correctly.

L = the number of students in the lower group who responded correctly.

M = the number of students in the middle group who responded correctly.

N = the total numbers of students.

Item with difficulty level was between 40-60 % were chosen.

FINAL FORM

31 items were eventually chosen for the final form, which were administered on 100 students from various schools of Fatehabad. These are Hindi Medium as well as English Medium Schools following the H.S.E.B curriculum. Instructions were given to students before the test to be started. The tests were then scored, each correct response obtaining a mark.

RELIABILITY

Reliability of the test was calculated by Split - half method. The co – efficient of reliability calculated by Spearman Brown Formula came out to be 0.75 which makes the test fairly reliable.

VALIDITY

The validity of the test was calculated by comparing the test marks with school marks. The empirical validity co – efficient of correlation calculated between test scores and school marks came out to be 0.43 which is highly significant (Garret P-201, Table – 25).

STATISTICAL TECHNIQUE

The Statistical Techniques of Mean and S.D of total sample, Boys and Girls was Calculated for this Research.

Mean- The mean for a distribution is the sum of scores divided by the numbers of score.

Standard Deviation- In statistics and probability theory, the standard deviation measures the amount of variation or dispersion from the average. It is the most stable measure of dispersion. It is denoted by Greek letter (Sigma).

SUGGESTIONS FOR FURTHER RESEARCH

- 1) Achievements tests in other school subjects for students of this part of the country can be prepared and standardized.
- 2) Achievement tests for other classes can also be prepared and standardized.
- 3) The test prepared in present study may further be improved.
