A Qualitative Analysis of State Level Tests of National Talent Search Examination

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Abstract

National Talent Search Examination scholarship is a most coveted scholarship scheme in the country. It operated at class VIII level and 1000 talented students selected through the National Talent Search Examination are awarded the scholarship till their end of the studies. Since the selection procedure follows a two stage procedure in which the first stage is conducted by states, it was felt necessary to assess the quality of their tests. Because from some states, very few or no candidate figure in the final selection. This paper presents the analysis of state level National Talent Search tests used for nominating students for the national level examination.

Introduction

National Talent Search Scheme is a flagship programme of the NCERT. It started in 1963 as National Science Talent Search with the purpose of identifying and nurturing the talented students. Over the last four and a half decades the scheme underwent a number of changes. It started with 10 scholarships and presently 1000 scholarships are awarded to talented students throughout the country. The scheme started with the identification of talent for pursuing courses in basic sciences only. Then with the introduction of 10+2+3 pattern of education it was no longer confined to only science but was extended to social sciences, engineering and medicine also. It was renamed as National Talent Search Scheme. For a long time the scheme operated at Class X level but since 2007 this scheme has been shifted to Class VIII. The scholarships are given

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from Class IX till Ph.D. level in Social Sciences, Sciences and till second degree level in professional courses like Engineering, Medicine, Management, Law, etc.

The NTS Scheme follows a two stage selection procedure. The first stage is conducted by states/UTs and the second stage is conducted by NCERT. The written examination at both the stages comprises two tests – Mental Ability Test (MAT) and Scholastic Aptitude Test (SAT). Each state prepares its own tests and selects a stipulated number of candidates for the national level examination to be conducted for 4000 students by the NCERT. About 1500 students who qualify the National level written examination are called for face-to-face interview. The final award is made on the basis of composite scores obtained in MAT, SAT and the interview.

Need of Analysis

For the first stage of NTS selection, the States and Union Territories have been entrusted with the responsibility of conducting the first tier screening examination called the State Level National Talent Search Examination. Each state/UT conducts its own examination and prepares its own tests comprising MAT and SAT. It has been observed that the tests set by some of the States/UTs are not up to the standard. In the final selection of NTS, candidates from some states do not figure as compared to the states where large number of students are selected. It was; therefore, felt that it would be pertinent to study the quality of NTS tests conducted at first stage so that the feedback could be given to each state/UT regarding the quality of their NTS tests. The feedback may help the states/UTs to improve their tests and it will also help the NCERT to organise the training programmes for those states where tests are comparatively of poorer quality and require improvement.

Objective

The objective of the study is:

- To analyse the MAT and SAT tests of first level examination carried out by different states/UTs.

Methods of Analysis

The State Level NTS examination was held on 17 November 2008 in Nagaland, Mizoram, Meghalaya and Arunachal Pradesh and on 18 November 2007 in all the other States/UTs. The tests of SAT and MAT were acquired from each state. A performa for evaluation of tests was prepared as an in-house activity. It was proposed to analyse the tests of SAT and MAT in workshop mode by inviting experts. Therefore, the experts were identified and invited for all the subjects covered in SAT in a workshop organised from 26 to 30 May, 2008 and for MAT in another workshop organised from 14th to 18 July, 2008. This way the tests of 30 states/UTs were analysed for their strengths and weaknesses.

Conceptual Framework

The analysis of the tests is a post examination activity. The purpose is to re-examine the tests and marking scheme to see if something is amiss so that the tests may be improved in future. The shortcomings in the NTS tests may be of various kinds and may occur at numerous points. Some of the expected shortcomings are as following:

- the SAT might have more memory based questions and lack the questions testing higher order mental abilities like critical thinking, problem solving, application, etc.
- the weightages to different units and contents might not be balanced.
- the Multiple Choice Questions might be of the simple MCQ variety.
- the questions might be mostly text based.
- the language of the questions-ambiguous.
- instructions might be vague, inappropriate and inadequate.
- options in MCQ questions might not plausible or can be rejected outright by the students.
- difficulty level of the test might be too low.
- in MAT the questions might not test Mental Ability but General Knowledge.
- there might be too many questions of the same variety in MAT test leading to the practice effect.

While analysing the tests one must know the parameters, which make a test a good test. Over the years with experience in the Department of Educational Measurement and Evaluation, the following parameters have been identified as indicators of a good test. These parameters have been used in a number of studies undertaken to analyse question papers of various Boards of School Education like Central Board of

Secondary Education, Punjab School Education Board, etc.

Mental Processes

The basic purpose of the tests used for identifying talent is to test whether a student is capable of carrying out higher order mental processes like problem solving, critical thinking, analysis, interpretation, logical reasoning, identifying relationships, discriminating, classifying, applying, inferring, judging and predicting. While analysing the tests one should see whether the test contains the questions which test these abilities in appropriate proportion.

Forms of Questions

In SAT and MAT only multiple choice questions are in use. However, these may also be of different varieties where the task is presented to the students not in a simple one sentence stems/statements/questions but in a variety of ways like matching two or three variables, reasoning and assertion type, true or false statements, sequence of statements or processes, passage based questions, interpretation of data given in a chart/graph/map, etc. Such variety of MCQs presents a better opportunity for testing higher mental processes than a simple MCQ. Therefore, a judicious use of these different varieties of MCQs will have to be made while setting questions for SAT.

Difficulty Level

While writing a question the question setter should be conscious of the difficulty level of the question in relation to the ability of the pupil for whom the

question is meant. The difficulty level of the questions usually depends upon the complexity of mental processes involved and the area of content to be tested and the time available to answer it. For a test meant for talent search the questions need to be of higher difficulty level so that they may be correctly attempted by those who are actually talented.

Instructions

A test should have appropriate instructions at two levels.

(1) General instructions that are given in the beginning of the test.

(2) Specific instructions that are given with the group of questions.

The instructions should be such that they should be clear and easily understandable to the candidates.

Language

The language of the questions should be clear, precise and unambiguous. Use of unfamiliar and difficult terminology may be avoided so that the comprehension of the questions itself may not become a problem for the students. A question should be so worded that by and large all students make the same meaning out of it.

Scoring Key

While analysing a multiple choice test scoring key is of paramount importance. There are many chances that the key questions might go wrong. A key therefore is to be prepared with utmost care.

In the light of the above mentioned parameters the SAT and MAT tests for state level NTS Examination held in 2007

were analysed. The analysis proformas were developed separately for SAT and MAT, keeping in view the different nature of these two tests.

Major Findings

The major findings are given under two separate headings namely findings based on the analysis of Scholastic Aptitude Tests (SAT) and findings based on the analysis of Mental Ability Tests (MAT).

Findings Based on the Analysis of Mental Ability Tests (MAT)

- Generally the MAT of different states consisting of items which were of low difficulty level especially the Chandigarh, Bihar and Jammu & Kashmir State tests, were found to be quite easy.

- Types of items were very limited. The major chunk of items was series, analogy and odd-man out.

- A lot of items were found to have semantic content and were not properly worded. Such items should be avoided in a mental ability test.

- A common shortcoming with the test papers was lack of proper editing as many mistakes were found in the test papers.

- In some of the tests, instructions were not very clear-a set pattern of instructions could be followed.

- There was a heavy concentration of same type of items. Various types of items should be there, so that the child does not acquire practice effect.

- Items were not properly sequenced. In some cases similar type of items were not grouped together and were scattered all over the test paper.
- Directions were not clear for paper folding and punching items in Haryana test.
- Interesting and innovative items were non-existent.
- Arunachal Pradesh and Jammu & Kashmir states test papers were too easy; very few types of items were used.
- Karnataka test was quite balanced; Orissa state test was also quite good.

Findings Based on the Analysis of Scholastic Aptitude Tests (SAT)

Mathematics

- In most of the states/UTs, there were 20 questions in Mathematics. However, in Orissa and Pondicherry, there were only 18 questions. In Andaman & Nicobar there were 30 questions and in Gujarat there were 35 questions.
- Most of the questions were found to be quite simple in all the states/ UTs. Only a few questions were of higher mental ability.
- It was found that most of the states/UTs tests limited content and limited number of item types. In some tests, ambiguous instructions were noticed.

Science

- A number of questions had spelling mistakes and editing errors.
- The questions did not cover the domain of topics adequately.

- In some of the state tests clues were found in the stem and in some cases the language used conveyed ambiguous meanings. Uses of obsolete terms (big brain and small brain in Biology) were some glaring mistakes.
- Most of the state tests did not use italics for scientific names.
- General instructions were found to be adequate.
- All questions were simple MCQs and there was no other variety.
- The difficulty level of the tests was low from the point of view of talent identification.

Social Science

The social science component of the SAT has questions in three areas – History, Geography and Civics.

- West Bengal test had no questions on Civics.
- Adequate precaution was not taken in some states to prepare History questions as was evident from missing A.D./B.C. after the given year.
- In some questions there was more than one answer.
- Some questions had spelling mistakes which changed the meaning of the question.
- Largely simple MCQs were used. Other varieties of MCQs were not found to be common in the state tests.
- Most of the questions in social science were based on memory/ recall.
- In some questions mistakes were found like:

(a) In Civics 'Constitutional Committee' is used in place of 'Constituent Assembly'.

(b) In a Geography question 'world's largest sweetest lake' is used for 'world's largest fresh water lake'.

- In some questions 'none of the above' and 'all of the above' was used as alternatives, which should be avoided.

In summary, it was found that most of the States/UTs had items testing general knowledge, limited content, limited number of item types, ambiguous instructions, poor editing and multiple correct answers to the items.

Suggestions for MAT

- The MAT paper should consist of items which have a high difficulty level in order to adequately discriminate the talented candidates from not so talented.
- A large variety of items may be used. No single type should be used for more than 5 items as it leads to practice effect and does not serve any purpose.
- Items which test general knowledge or the language ability should be avoided as they do not belong to a Mental Ability Category. Questions based on Arithmetic, Geometry and Algebra should also be avoided.
- Ensure that each item has only one correct answer even if you apply different logics/criteria.
- The proof reading should be very thorough to ensure that the test paper is free of spelling, grammatical or other type of mistakes.

- The figures should be drawn properly as the correct answer depends on the shape, size and the quality of the figures.
- Different items can be introduced – data interpretation, tables, exploration, generalisation, etc.
- Language based tests are difficult to translate into several languages so every care must be taken while translating.
- Get into touch with Indian Institute of Managements (IIMs) and have an interaction with their faculty about the type of tests.
- Standardised instructions should be used by the states.
- States should do item analysis.
- 15 to 20 types of items should be there in each test.
- Rationale should be available along with the key.

Suggestions for SAT

In view of the findings regarding the Scholastic Aptitude Tests of different states, the following suggestions may be made in order to improve the quality of tests across the states/UTs.

- Care should be taken to include questions testing Higher Mental Abilities like reasoning, problem solving, critical thinking, analysis, application, etc., and no questions should be there which test simple recall of information, especially because the test is meant for identifying talented students.
- Special care should be taken to edit the tests well so that there is no error of any kind in the test. The

editing will include the language aspect as well as the content aspect of the questions along with their spelling and punctuation.

- Instead of using just simple Multiple Choice Questions like matching, True/False, arrange the sequence and questions based on a given passage may be used.

Conclusion

From the analysis of state level tests of National Talent Search Examination it may be concluded that there is a lot of scope for in improving the state level NTS tests. If the states take better care in preparing their tests, better students would be identified which in long run would help the country in many ways.

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