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RESEARCH PAPER

Construction of Achievement Test in English

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Key words: *Achievement test, difficulty value, discriminating power, distractor analysis, reliability, validity etc.*

Abstract

The study was carried out to construct a valid and reliable test in English for secondary school students. The investigator conducted a study to construct and standardize the achievement test in English for class IX by following steps. Initially seventy-five items were framed on selected topics of English textbook and grammar. A blue-print was prepared for the achievement test in the light of certain objectives. Individual try-out of the first draft was done on six students. Discussions with the subject experts were held and the test was modified accordingly. The second draft with sixty-six items was administered on 20 students. Then the Item difficulty (DV) and Item Discrimination (DP) were determined by adopting Kelley's (1939) method. On the basis of Item difficulty, item discrimination and also distractor analysis, the test was again modified and finally 50 items were retained in the achievement test. The reliability and validity of the test was also administered.

Introduction

Achievement tests are administered most frequently in language programmes than any other kind of test. Achievement tests assess what the students have achieved from their courses within a period of time and provide some information with regard to their current level of progress or whether they are ready for subsequent stages of learning. In the view of Gronlund, "An achievement test is designed to measure students' grasp of knowledge or his proficiency in certain skills. It aids both the teacher and the students in assessing learning readiness, monitoring learning processes, diagnosing learning difficulties and evaluating learning outcomes."

According to Linderman (1967) academic achievement tests are of three types:

- ❖ Teacher made Test

- ❖ Standardized Test
- ❖ Performance Test

Teacher made test is the test made by teacher for local use. This test is prepared only to measure the achievement of specific instructional objectives related to particular unit of work. These are constructed by teachers for using largely within their classrooms.

The Standardized test constructed by the test specialists are standardized in the sense that they have been administered and scored under standard and uniform testing conditions so that the results obtained from different samples may legitimately be compared. Items in standardized tests are fixed and not modifiable. Therefore a standardized test is a test that has standard procedures for administration, scoring and interpretations.

Performance tests are those tests that require the examiners to perform a task rather than answer some questions. Such tests prohibit the use of language in items.

Planning of the Test

Planning is essential not only in teaching but in all spheres of life. Planning stage of the test tries to answer:

- ❖ To whom, the test was to be administered?
- ❖ What was to be measured?
- ❖ When the measurement was to take place?
- ❖ How the measurement was to take place?

These questions are important to answer, but too often they are not answered prior to item writing phase.

Objectives of Constructing Achievement Test

The objectives are quite important as they help us to decide where to start from & where to end the programme. After the instructions, the learner will be able to:

1. Comprehend the passage in English language.
2. Find the gist of the passage.
3. Enrichment of vocabulary.
4. Appreciate and enjoy the literary genre-poem.
5. Recite the poem effectively with proper rhythm and intonation.

6. Understand the main characters of the lesson.
7. Understand the value of time.
8. Develop knowledge and understanding of grammar.
9. Acquire competence in different linguistic functions.
10. Apply grammatical rules while writing.
11. Familiar with modals and its use.
12. Correct usage of determiners in sentences.
13. Familiar with prepositions and its appropriate use.
14. To differentiate between coordinate and subordinate conjunctions' use.
15. Correct usage of non-finite in English.
16. Understand that verb change form depending on their relationship to time.
17. Be familiar with clauses.
18. Remove confusion in the minds of the students regarding parts of speech.

Preparation of Test Items

The items were written in view of objectives and content to be tested. Seventy- Five items were included in the first draft of test covering the entire content and objectives.

- While constructing the items, it was ensured that no objective remains untested.
- Language of the test items was understandable and unambiguous.
- It was also ensured that the instructions were clear or not.
- The test items were arranged properly and assembled into the test.
- The number of items was more than required finally.
- Irrelevant clauses were avoided.
- Adjectives like always, never, sometimes were avoided.
- The arrangement of test items was based on the finding of Sax and Cromack (1966) who recommended the item arrangement in order of ascending difficulty. Easy items were given a place in the beginning and difficult items towards the end.

Individual Try Out of the Test

Seventy-Five items were included in the first draft of test. The test was given to six students: two above intelligent, two averages and two below average intelligent. The time taken by the students and problems faced while giving test were noted.

Selection of Items on the Basis of Responses

The answers of the students were evaluated with the help of Z-scores. With the experts of English language, many discussions were held on the basis of performance of the test. Also discussions were held with students' individually. In the light of the views of the experts, the achievement test was reviewed properly. After the discussion the investigator dropped 26 items and 17 new items were added. A few were modified and finally the second draft of the achievement test contained 66 items.

Second Draft of the Test (Small Group Try Out) The second test was administered on 20 students of 9th of Government High School, Bhagsar, Punjab those had already covered the content on which test was made.

Analysis of the Test

Item analysis is a technique through which those items which are valid and suited to the purpose are selected and the other ones are either modified or eliminated to suit the purpose. Item analysis provides important information with regard to the quality of a written test administered to examinees. There are three assessment devices used to analyze the items of the achievement test constructed by the investigator.

- 1) Item Difficulty
- 2) Item Discrimination
- 3) Distractor Analysis

These three devices can be described as following:

1) **Item Difficulty** is an index which represents proportion of students who got the item right and shows how easy or difficult an item was for the test takers. It is calculated as: the number of scorers given the answer correct divided by total number of test takers in upper and lower groups.

2) **Item Discrimination** indices distinguish between how top scorers and low scorers perform on each item. Item discrimination is calculated by

Top (correct) - Low (correct) divided by 1/2N (half the number of top plus low scores).

3) **Distractor Analysis** is a procedure related to only multiple choice formats. The purpose of distractor analysis is to investigate the distractors that are functioning well as they should do and that are not.

For the present study, item analysis was carried out in accordance with Kelly's (1939) method. Kelley showed that by taking upper and lower groups of 27% each of total group, one could say with greatest confidence that those in the upper group were superior in ability than those in lower group. So a group of upper 27% and lower 27% was taken as measured by achievement test. For calculating the Difficulty Value (D.V.) and Discriminating Power (D.P.) of items , the following formulae were used:

$$D.V. = \frac{Ru + Rl}{Nu + Nl}$$

$$D.P. = \frac{Ru - Rl}{N/2}$$

Ru= Number of correct answer in upper group

Rl= Number of correct answer in lower group

Nu= Number of examinees in upper group

Nl= Number of examinees in lower group

N= Size of total sample

The upper and lower groups were formed as follows:

1. All the students' responses were noted in descending order according to total marks obtained.
2. The first 27 % cases formed the upper group and the last 27% formed the lower group.

Table No.1

Difficulty Value (D.V.) of the Test Items

Sr.No.	Difficulty Value	Frequency	Item No.	Remarks
1.	Above 0.8	3	6,43,61	Rejected
2.	Between 0.2 to 0.8	60	1,2,3,4,5,7,8,9,11,12,13,14,15,17,18,19,20,21,22,23,24,25,26,27,28,30,31,32,33,34,35,36,37,38,39,40,41,42,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,62,63,64,65,66	Accepted
3.	Below 0.2	3	10,16,29	Rejected

Table No.2

Discriminating Power (D.P.) of the Test Items

Sr.No.	Discriminating Power	Frequency	Item No.	Remarks
1.	Above 0.8	----	-----	Rejected
2.	Between 0.15 to 0.8	53	1,2,3,4,5,7,8,11,12,13,15,16,17,18,19,20,21,22,23,24,26,28,30,31,32,33,34,35,36,37,38,40,41,42,44,45,46,48,49,50,52,53,54,55,56,57,58,60,61,62,64,65,66	Accepted
3.	Below 0.15	13	6,9,10,14,25,27,29,39,43,47,51,59,63	Rejected

Final Draft of the Test

The achievement test was finally prepared on the basis of item analysis for difficulty value and discriminating power in second draft of achievement test. Only those items which had item difficulty value ranging from 0.20 to 0.80, were retained. If the difficulty value is higher than 0.80, the item is too easy, if the difficulty value is lower than 0.20 then the item is probably too difficult to attempt. Such items were rejected.

Item difficulty indices range from +1 to -1, with positive 1 showing a perfect discrimination between top and low scores, with minus 1 showing wrong discrimination and I.D. indices zero show no discrimination . The items which ranged from 0.15 to 0.80 on the discriminating power were retained. On the basis of this criterion, the items at Sr. no. 6,9,10,14,16,25,27,29,39, 43, 47, 49,51,59,61 and 63 were rejected from the achievement test and remaining 50 items were retained. So it can be said to be a normal achievement test.

Analysis of distractor does not require application of any complex formula. It is the examination of the alternatives selected by both groups. The item analysis makes it obvious how the distractors work. Ordinarily any distractor to be called a good distractor must be answered by more examinees in lower group. But if distractor is answered by more

examinees of the higher group, than the examinees of the lower group, the distractor is regarded to be of poor form.

The investigator found six items of the test were chosen by none of the examinees of either the upper group or the lower group. Then the investigator modified them to suit the purpose.

**Table No.3
Domain Wise Classification of Final Draft of the Test (Textbook)**

Topic	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Reading Skills- Unseen Comprehension (Prose)	-	1	-	2	-	-
Reading Skills- Unseen Comprehension (Poetry)	-	3	-	-	-	-
Reading Skills- Unseen Comprehension (Prose)	2	3	-	2	-	-
Plants Also Breathe And Feel	1	-	-	-	-	-
The Postmaster	1	-	-	-	-	-
Journey by Night	1	-	-	-	-	-
Budgeting Your Time	-	-	-	-	-	2
The Bishop's Candlesticks	-	-	-	-	-	-
The Discovery of Moon	-	-	-	-	-	-
God Sees the Truth, But Waits	-	-	-	-	-	-
Three Great Indians	1	-	-	-	-	-
Sympathy	-	-	-	-	-	-
The Death of Abhimanyu	1	-	1	-	-	-
A Ballad of Father Gilligan	1	-	-	-	-	-
The Magic Violin	-	-	1	-	-	-
Wishes Come True	1	-	-	-	-	-
My Father and I	-	-	1	-	-	-
Total	9	7	3	4	-	2

Table No.4

Domain Wise Classification of Final Draft of the Test (Grammar)

Topic	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Modals	-	-	-	-	3	1
Determiners	-	1	1	-	1	-
Prepositions	-	-	-	-	1	2
Conjunctions	-	-	1	2	1	-
Clauses	-	2	-	-	-	-
Tenses	2	-	3	-	-	-
Non-Finite	2	-	-	1	-	1
Total	4	3	5	3	6	4

Establishing Reliability and Validity

Reliability of the Test: The test-retest method was used to calculate reliability. The test was administered to the 40 students of IX class of Government Senior Secondary School, Khuban. After the gap of a month the test was again administered to the same group. The co-efficient of reliability was found to be 98%.

Validity of the Test: Validity of test means whether the test actually measures for what it is prepared for. In the present study, firstly a blue print was prepared and then a test was developed to match the blue print. The responses of the questionnaire were validated against competencies. Content validity was found by relating each item carefully against the competencies. To confirm content validity, the test items along with a list of competencies to be developed in the learners were given a panel of six subject experts. The panel observed each item carefully against the competencies to be developed out of these items. All those items for which there was complete agreement among the experts were kept. The content validity was ascertained by preparing a blue print of the test items indicating the weightage given for the objectives and competencies reflected by these items.

Conclusion

The study was carried out to construct and produce a valid and reliable achievement test in English mainly for teachers and students. The test should be used to assess senior secondary school students' achievement in English when they have covered the selected content of their curriculum. The difficulty value, discriminating power and distractor analysis was done thoroughly. Also the constructed achievement test has high validity and reliability.

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