

Construction and Validation of an English Grammar Achievement Test (EGAT) for Secondary School Students: An Indian Perspective

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Abstract

English language plays a vital role for career, higher education and employment, especially in society like India which has once been under the colonial rule. The need of learning English, therefore, calls for effective teaching strategies to be employed at the school level itself for enhancement of learning. To measure the progress of learners, their learning requires to be evaluated by the teachers. So, a systematic process showcasing the construction and validation of an achievement test in English Grammar was aimed at, to measure accurately, the progress of learning that occurred in the classroom, based on which further changes in teaching learning patterns can be incorporated, to improve the teaching and learning process by the teachers. The reliability of the test was '0.7' with test-retest method and content validity was adopted as it is a grammar achievement test.

Keywords: achievement, construction, effective, English and validation

Introduction

English being the language of the British has been the official language of communication within India and also a medium to connect India to the entire world. Since the British rule, it had been a part and parcel of the curriculum of the Indian education system. Even now very few institutions, be it University, college or school can say that the entire family of that institution can excel in well structured spoken and written English. In such a situation, the need to teach grammatically correct English right from childhood in schools become an important task for the English language teachers of today.

It has been observed that the students find English literature more alluring than grammar because grammar is all about syntax and rigid scientific approach. Seldom they realize that literature, in later stages of life might help a few but grammar and functional English would aid them in their progress in any field of work. English being a global language therefore steps up as a necessity to be taught in schools in a functional way to get rid of the boredom it often invites. To know the impact of those functional ways standardized or validated achievement tests become necessary.

The need for achievement test steps up to meet the goal of evaluation. Without measuring accurately the progress of the child's learning in classroom, the successive measures in regard to the change, modification or continuation of a particular method or teaching style can't be comprehended. The term evaluation and assessment is often used interchangeably and the importance of assessment 'for' learning and the assessment 'of' learning, has been a buzzing trend in the current scenario of education in India. The former checks the present status of the child in terms of knowledge in any particular area and the subsequent measures to be taken, whereas the latter checks the progress of the child after the measures were taken. Even the Position paper of National Middle

School Association refers to ongoing assessment and measurement of learning as one of its characteristics for the comprehension of the focus of successful middle level education.

This assessment 'for' learning and 'of' learning is not just meant for the learners' improvement but primarily, improvement in the style and methods of teaching too. This paves way towards reflection 'for' teaching and reflection 'on' teaching, where reflection 'for' teaching guides the teacher to plan and personalize the instructional methods or teaching style based on the present learning outcome exhibited by the students, and reflection 'on' teaching speaks about modification in approaches and methods adopted by the teacher to enhance the learning outcome.

The importance of assessment and evaluation through the beneficial lens of both teaching and learning was realized and therefore, a test to measure the achievement was aimed to be constructed and validated. The subject chosen was English for its need and importance for secondary school students in the Indian educational scenario.

Need for construction and validation of the achievement test in English in Indian School System

The test was constructed keeping in mind the objectives of teaching based on some domains of bloom's taxonomy; knowledge, application, analysis and creation. The investigator before constructing the test went through the syllabus of the Eighth standard Central Board of Secondary Education, India, spoke with certain school teachers of English language and concluded that there was a need to construct and validate an achievement test, as the teachers frame the questions based on the Question and Answer' or 'Practice section' in the book, without following the basic teaching objectives. Therefore, a framework to be followed by Teachers of English Language (Grammar) has been dealt in detail with illustrations from the English Grammar Achievement test (EGAT) constructed and validated by the researcher, which can also be used for the target group of students, it is meant.

Methodology

The study adopted both the inductive and empirical method towards construction of the test as it ensures the internal consistency of the items and the ability to accurately predict the achievement of the students, respectively.

At first, a well knit and systematic procedure was followed for the construction and standardization of the achievement test. The units which were basic as well as crucial for the students to acquire the language naturally and functionally, were identified and items were framed as multiple choice questions, arrange sentence in order, match the following and fill in the blanks from cue given within brackets.

Steps adopted for construction and validation of the achievement test in English Grammar

The following steps were followed for construction and standardization of the achievement test:

- Identification of core contents
- Planning of the test
- Preparation of the test
- Administration of the test
- Item analysis
- Standardization: Establishing reliability and validity of the test

Identification of core contents

At first, contents of English grammar from the syllabus of the board concerned were identified, which were highly related to the basic spoken English needed by any person to speak meaning-

fully, sensibly and effortlessly. The contents identified were: Preposition, Verbs, Adjectives, Adverbs, Vocabulary, Pronunciation, Phrases and Miscellenous (measuring the analytical and understanding ability of the ones taking the test).

Planning of the Test

To perform anything with brevity and accuracy, planning becomes an essential tread for the teacher. The structure of the test, the forms in which the contents will be manifested, the weightage to be given to each content, the time to be allotted, the number of questions to be asked, all comes under the umbrella term of planning. Careul planning was carried out for all the above mentioned segments.

- The objectives of the test were based on the domains of bloom's taxonomy; knowledge, understanding, application, analysis and creation focusing on the CBSE syllabus as per the following table:

Table 1. Objective Wise Analysis

Sl. No.	Objectives	Marks	Weightage(%)	Total No. Of Questions
1	Knowledge	12	32	12
2	Understanding	7	20	7
3	Application	10	28	10
4	Analysis	5	14	5
5	Creation	2	6	2
	Total	36	100	36

- The contents of the test were weighed in terms of percentage as per the following table:

Table 2. Content Wise Analysis

Contents of the test	Marks	Weightage (%)	Total No. Of Questions
Prepositions	6	17	6
Verbs	6	14	6
Adjective/Adverb	5	14	5
Vocabulary	6	17	6
Phrases	5	14	5
Pronunciation	6	17	6
Miscellenous(analytical)	2	7	2
Total	36	100	36

- The structure and form of the test was multiple choice, arrange the sentence in order, match the following and fill in the blanks which suggests a particular answer to avoid any kind of ambiguity as per the following table:

Table 3. Question Type Wise Analysis

Sl. No.	Type of Question	Marks	Percentage	Total No. Of Questions
1	Multiple Choice	10	28	10
2	Arrange the sentence in order	2	6	2

Sl. No.	Type of Question	Marks	Percentage	Total No. Of Questions
3	Match the following	5	13	5
4	Fill in the blanks	19	53	19
	Total	36	100	36

- The time allotted was 45 minutes for a test of total 36 marks.
- The blue print of the first draft of the achievement test based on bloom's taxonomy was framed as given below:

Table 4. Blue print of the achievement test

Content & Objectives	Knowledge	Understanding	Application	Analysis	Creation
Prepositions	5 (a), 5(b), 5(f)	5(c),5(d),5(e)			
Verbs		4 (4), 4(5), 4(6)	4(1), 4(2), 4(3)		
Adj/Advb	8(a), 8(b), 8(c)		8 (d), 8(e)		
Vocabulary	1(a),1(b), 1(c),1(d), 1(e)			2(2)	
Phrases	2(3)		6(a), 6(b)		7(a), 7(b)
Pronunciation			3(a),3(b), 3(c)	3(d),3(e),2(1)	
Misc.		2(4)		2(5)	
Total	12	7	10	5	2
Weightage (%)	32	20	28	14	6

Preparation of the test

The items of the test were prepared based on the three layers: *item writing, approval and editing.*

The test items were first written down based on the weightage given to each domain and following the blue print framed according to bloom's taxonomy. Items of similarity were grouped and multiple pattern of items were followed, like fill in the blanks, arrange sentence in order, multiple choice and match the following. A total of 36 items with its multiple options were written. The preliminary draft was shown to the subject experts of the department for approval and then based on their opinion all the items were kept.

Administration of the test

First try out

After finalizing the test was administered on forty students at first to judge the difficulty level of the test and also the language used. It was found to be acceptable except for one item which was then deleted. Therefore the items kept for final try out were 35. The distribution of items according to the unit of item is given in Table 5.

Final try out

The test was administered one hundred and forty 8th Standard students who has already completed learning those particular units and domains. Time and protocol of the exam environment were maintained and then the answer sheets were collected. The answer sheets were scored based on the scoring key adopted. 1 mark was allotted for every correct answer and the incorrect ones were marked 0.

Table 5. Distribution of items after first try out

Unit	Knowledge	Understanding	Application	Analysis	Creation
Preposition	3	3			
Verbs		3	3		
Adj/Advb.	3		2		
Vocabulary	5			1	
Phrases			2		2
Pronunciation			3	3	
Misc.		1		1	
Total	11	7	10	5	2

Item Analysis

Item analysis is a statistical technique which is in general perceived as helping to select or omit items from the test. But basically it helps one to bring out the best items therefore improving the level of the items and the test.

Arranging the answer sheets in a descending order

All the hundred and forty answer sheets were arranged in descending order based on the score obtained by the students.

Difficulty value

Frank S. Freeman said, "Difficulty value of an item may be defined as the proportion of certain sample of subjects who actually know the answer of an item." In other words, it is the percentage of students who has answered the question correctly (also denoted by p-value). It ranges from 0% to 100% and a difficulty value above .90 is considered to be extremely easy and anything below .20 is extremely difficult, therefore in both cases the item cannot be retained. Optimum difficulty level is 0.50 and mostly items with moderate difficulty value is preferred; not too easy and not too difficult. The formula for calculating item difficulty is,

$$dv = \frac{Ru + Rl}{Nu + Nl}$$

Where,

Ru= The number of high scorers who marked the item correct

Rl= The number of low scorers who marked the item correct

Nu= The total number of high scorers

Nl= The total number of low scorers

dv=Difficulty value

The difficulty index was maintained using the Henning (1987) guidelines as follows,

Table 6. Difficulty index range

Highly difficult	Moderate	Easy
≤0.33	0.34-0.66	≥0.67

Discriminative power

Discriminative power of an item indicates to what extent the item possesses the particular trait or quality or achievement that is to be measured (Suruchi & Rana, 2014). The discriminative power of the item is calculated by the formula,

$$Dp = \frac{Nu - Nl}{N/2}$$

Where,

Dp= Discriminative power

Nu= Number of students in the higher group who answered the item correctly

Nl=Number of students in the lower group who answered the item correctly

N= Total number of students

The criteria and guidelines for setting the categories of the discriminative indices has been given by Ebel in 1979. The following table shows the categorization,

Table 7. Discriminative index range

Discriminative Power	Description
.40 and above	The item functions satisfactorily
.30 to .39	Little or no revision required
.20 to .29	Marginal and needs revision
0.19 and less	To be eliminated or completely revised

The items of the test were selected and rejected based on the difficulty value and the discriminative power.

Standardization of the achievement test

The standardization of the achievement test is reached through the establishment of reliability and validity. Therefore after the final draft was prepared with 32 items selected, reliability and validity were established.

Table 8. Distribution of items after final try out

Unit	Knowledge	Understanding	Application	Analysis	Creation
Preposition	3	3			
Verbs		2	3		
Adj/Advb.	3		2		
Vocabulary	4			1	
Phrases			2		2
Pronunciation			2	3	
Misc.		1		1	
Total	10	6	9	5	2
Wightage (%)	31.25	18.75	28.125	15.625	6.25

Reliability of the test

The reliability of the test means to see the consistency in the results or measurement of observations. Therefore it means that how far the results are consistent for each individual from one administration of an instrument to another and one set of items to another. The selected items were administered to a group of students and the reliability was established through test-retest method with r value 0.7.

Validity of the test

Validity refers to the accuracy with which the test is prepared, to measure what it is supposed to measure (Best & Kahn, 2006). There are different methods of estimating validity such as face va-

lidity, content validity, construct validity, predictive validity and concurrent validity. As the achievement test is in English content validity was opted.

The content validity is concerned with the relevance of the contents of the items, individually and as a whole. Expert judgements were taken into consideration who compared the items of the test to the content and also the objectives. The subject experts agreed with the items, language, scoring pattern and time. Therefore content validity was established.

Results

After establishing the reliability and validity of the achievement test, a standardized test for measuring the achievement in English Grammar of Secondary School students was set with 32 test items that mirror the selected five domains of Bloom's Taxonomy: *Knowledge, Understanding, Application, Analysis and Creation*. This test can be used by any teacher in English to assess the performance in English Grammar of Secondary School students.

Discussion

An achievement test is expected to measure the learning outcome of the students to help the teacher or educator monitor the progress of the learner and provide an ongoing feedback. *Learner's Evaluation, E-Gyankosh* (Raj, A.D, 2018) has laid down the purpose of using standardized achievement test keeping in mind the deviation that is witnessed often while assessing the learners of any standard in schools. A standardized achievement language test implies emphasis on improvement of grammatical skills which involve all the domains of Bloom's Taxonomy. This paper has selected five domains based on the syllabus of the 8th standard students of CBSE Board, India and delineated the test items separately under those domains, providing an accurate prediction of achievement in English Grammar, instead of clubbing the domains under the term 'skill', as was seen in a research study by *Sharma, H.L & Poonam* (2017). Moreover, the goal behind using Bloom's taxonomy is to facilitate higher-order thought in the students by encouraging lower-level cognitive skill like *Knowledge*, at first. This standardized test takes in account the level of the learners and accordingly distributes the weightage to each domain of learning where knowledge, lowest-order thought skill (Cummins, K., 2019) gets 31.25% weightage and application along with other higher-order thought skills secures 67.75% weightage.

Conclusion

Assessing a student's learning is essential for a teacher not just to score him or her in relation to others as in norm referenced or based on certain criterion but also to reflect on and modify their teaching style and methods. Accurate assessment will lead towards effective instructional methods and teaching style. Error-free assessment can be achieved in a systematic way only through tests which are reliable and valid, devoid of any ambiguity. Therefore, the purpose of effective and fruitful teaching and learning leads towards successful construction and validation of a test that could measure the learning outcome appropriately. The English Grammar Achievement Test (EGAT) developed can serve the purpose and deter the usage of achievement tests by language teachers which doesn't follow the systematic format discussed.

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