construction and development of a test of english knowledge and comprehension at the higher secondary level

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Introduction

It is observed in an earlier study (Chatterjee, 1967) that at the school level a measure of English knowledge and comprehension has higher validity in predicting academic success than the tests measuring numerical, verbal or abstract reasoning.   At the college level also it is observed that a measure of English comprehension can more successfully predict the performance in courses like Science (Chatterjee) and Medicine (Harper, 1962) than tests measuring knowledge in Physics, Chemistry and Mathematics. In foreign countries also, research studies indicate (Buros, 1965) that English knowledge and comprehension tests are usually efficient predictors of academic success.

From a study of the literature as presented in the Mental Measurement year book and elsewhere it appears that though there are many published tests in this field yet with respect to validity and other information relating to these tests much is left to be desired. Hence, it was felt worthwhile to develop and standardise a test measuring knowledge and comprehension of English at the Higher Secondary level.   It is hoped that such a test can be utilised by different college authorities at the time of admission to professional or general courses, as part of a selection test battery.

Construction & Revision of the test

To start with the experimental version of the test was constructed

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with 77 items forming two separately timed parts. Part-I was measuring English Knowledge and it covered English Usage, Word Meaning, Grammar and Spelling ; Part-II was designed for measuring Comprehension of English. This part i.e., Part-II, was further subdivided into two sections. In the first section the students were asked to arrange the sentences and obtain a meaningful paragraph ; in the second section there were several passages which the candidates had to read carefully and then to answer the questions based on these passages. All the answers were to be recorded on a separate answer sheet. It might be mentioned here that most of the items included in this experimental version of the test had been used in different context and the items had been found to be useful earlier. This version of the test was administered on a group of class XI students reading in four different Higher Secondary Schools at Calcutta. There were about 250 students in this group. On the basis of the data thus collected an item analysis was conducted. The test was revised by eliminating the poor items identified on the basis of item analysis values. Next the items retained in the test was rearranged on the basis of the obtained difficulty values i.e., the easier items were kept at the beginning while the more difficult ones were placed towards the end. This revised version of the test consists of 67 items of which 29 are in Part-I and 38 are in Part-II. The total time limit for Part-I is 20 minutes while for Part-II it is 70 minutes.

Analysis of Data Collected on the Final Version of the Test

(a) **Preliminary Analysis** : The revised version of the test was again administered upon 291 students reading in class XI at five different Higher Secondary schools at Calcutta. The students were classified according to the stream of study i.e., Science, Commerce and Humanities. The means and the standard deviations were separately calculated for these groups and the obtained values are presented in table-1.

TABLE 1

Means and standard deviations of the two parts of the English Knowledge & Comprehension Test separately for the different streams of Higher Secondary Course

STREAMS	Part-I (Full Marks=29)		Part-II (Full Marks=38)	
	Mean	S.D.	Mean	S.D.
Science (N=133)	18.27	4.11	15.94	4.97
Humanities (N=84)	15.26	3.86	13.14	2.74
Commerce (N=33)	14.72	3.65	14.16	4.39

It can be observed from the figures in table-1 that the mean values obtained for the Science group were higher than the corresponding values in the other two groups. The differences in the mean values were tested for significance by the usual t-test, and it was observed that the t values were significant at the 5% level at least. This may be due to the fact that generally good students are allowed to take up the Science course in the school. The Commerce and the Humanities groups, however, did not vary significantly with respect to any one of the two parts.

The test was also administered on a group of first year college students in two colleges at Calcutta. Of these two colleges one was an English medium institution. So data from these two colleges were treated separately. The means and the standard deviations obtained from these groups are presented in table-2.

<div align="center">TABLE 2</div>

Means & standard deviations of the two parts of the English Knowledge & Comprehension Test separately for the First Year students of two colleges at Calcutta

COLLEGE	Part-I (Full Marks=29)		Part-II (Full Marks=38)	
	Mean	S.D.	Mean	S.D.
College A (N=77)	11.03	2.61	11.65	4.11
*College B (N=113)	20.59	1.18	28.68	4.58

* In College B English is the medium of instruction.

From the figures presented in table-2 it is obvious that the standard of English Knowledge and Comprehension of the students reading in college B was very high in comparison to that of the students reading in college A and hence further comparison was not done.

Correlation between the two parts

The correlations between the two parts of the test were calculated in different occasions using different sets of data. The obtained values are presented in table-3.

<div align="center">TABLE 3</div>

The correlation between Part-I and Part-II of the Test

School Students			College Students	
Science	Hum.	Commerce	College B	College A
.40**	.00	.34	.65**	.28*
(N=133)	(N=83)	(N=33)	(N=133)	(N=77)

The correlation between the two parts were not very high though significant in most of the cases except for college A. Hence, it may be concluded that the two parts are not just duplicating each other.

Reliability

Reliability of the two parts of the test was separately estimated by using K. R.—formula-21 for different groups. The estimated values varied from group to group and the maximum value was .81 while the minimum value was .53. As KR-21 gives the lower bound estimate, the obtained reliability was considered satisfactory.

Validity

When the final form of the test was ready for use after the development of norms for different groups* it was necessary to know about its predictive ability with respect to different criteria. The immediately available criteria were the school and the college examination marks for these students, and though the reliability of the marks based on essay type of examination is questionable, yet in the absence of any better criterion this had to be used. Marks obtained in the school or college examinations by the students tested earlier were collected and the product-moment correlation of the two part scores of this test with these school and college examination marks were calculated. So far it is possible to report the following validity coefficients which are presented in table-4.

In another study (Saha, 1967) with the Comprehension part of the test the validity coefficients presented in table-5 were obtained with the school examination marks as the criterion.

It may be observed from the values presented in tables 4 and 5 that the validity coefficients for the two parts of the test varied widely from one instance to another. It is also known from experience that validity of a test varies widely from institution to institution and even within the same institution, it varies from year to year. Hence, the obtained results are regarded as quite satisfactoy.

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* Norms for different groups are not presented here as it would take considerable amount of space. Interested persons may go through the manual of the test (4) where these are presented.

results are in the expected direction and the few low values obtained in some of the cases do not speak against the validity of the particular test used.

TABLE 4

The correlations of the two parts of the English Knowledge and Comprehension Test with school examination marks (Class X Annual Examination and College Examination Marks

Study A	Part-I	Part-II
(Criterion=Grand Total Marks in school examination).		
(i) Science Group (N=120)	.44**	.89**
(ii) Humanities Group (N=83)	.50**	.70**
(iii) Commerce Group (V=23)	.56**	.38
Study B	**Part-I**	**Part-II**
(Criterion=Grand Total Marks in the school examination)		
(i) Science Group (N=133)	.29**	.19*
(ii) Humanities Group (N=84)	.20	.22*
(iii) Commerce Group (N=33)	—.07	.00
(Criterion=Total Marks in the School examination in English)		
(i) Science Group (N=133)	.44**	.14
(ii) Humanities Group (N=84)	.22*	.45**
(iii) Commerce Group (N=33)	—.09	.05
Study C	**Part-I**	**Part-II**
(Criterion=Total Marks in the College examination)		
Arts (N=13) .40		.42
(i) College A Commerce (N=42) .38*		.22
Pass Course (N=30) .45**		.10
(ii) College B English Hons. (N=17) .19		.31
Hons. in other Subjects (N=57) .40**		.37**

* & ** indicate significant at the 5% and 1% levels respectively.

TABLE 5

The correlation of Part-II of the English Knowledge and Comprehension Test with the school examination marks

Criterion	Science (N=235)	Humanities (N=240)	Commerce (N=79
School Examination marks in English	.29**	.45**	.13
Grand Total of School Examination Marks	.01	.23**	.24*

* & ** indicate significant at the 5% and 1% levels respectively.

Regression Analysis

Next step was to find out a linear combination of the scores in the two parts of the test which would have maximum correlation with the academic achievement of the students. The criteria of academic achievement used here however were the school or the college examination marks as done earlier.

Now for the school students only Science and humanities groups were considered as the validity coefficients of the two parts were not significantly different from zero in the Commerce group. The regression equations obtained with (a) score in English (b) total score in all subjects as dependent variables are presented in table 6 (calculation done on the basis of the earlier validity study data).

Discussion

It is however observed that in most of the cases the multiple correlations were singnificant at the 1% level i.e., the test had quite high predictive validity even when the grand total marks was taken as the criterion. In study B where both the marks in English and the grand total marks were separately considered, it was observed that the degree of correlation of the test was higher with the marks in English than with the grand total marks. But it is clear from this study that at the shool level the score on English Know. & Comprehension Test was a good predictor of overall academic success. At the college level, of course, the criterion used was the marks in English. In three out of four groups studied the obtained multiple R was significant. But the magnitude of the correlations was on

TABLE 6

The regression coefficients of the two parts of the English Knowledge & Comprehension Test with (a) English marks and (b) Grand total marks in School and College examinations as dependent variables in different studies

Study A

Regression Coefficient	Grand total=dependent variable		
	Science Group	Humanities Group	Commerce Group
b_1	7.48	16.08	4.92
b_2	11.60	3.42	.09
a	217.92	151.44	298.85
Multiple R	.57**	.94**	.56**
Number of cases	112	81	22

Study B

Regression Coefficient	English Marks= dependent variables		Grand total marks= dependent variable	
	Science Group	Humanities Group	Science Group	Humanities Group
b_1	1.65	.59	5.64	3.75
b_2	—.88	1.45	1.68	6.02
a	49.62	35.08	317.82	258.50
Multiple R	.46**	.51**	.30**	.30**
Number of cases	133	84	133	84

Study C

Regression Coefficient	Marks in English=dependent variable			
	College B			College A
	Pass course	English Honours	Hons. in other Subjects	Commerce Group
b_1	1.69	3.26	1.22	0.69
b_2	0.10	2.61	.42	1.20
a	—7.90	54.54	2.04	—3.45
Multiple R	.46**	.33	.47**	.41**
Number of cases	30	17	57	42

the average lower than that obtained with the school group.   Summarising the result obtained in the three studies however it can be safely concluded that this test had high predictive value and can be used profitably in selection or other situations.

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