

Concurrent Validity of the Scholastic Aptitude Test Administered as a part of College Entrance Examination in Ethiopia

Asnakew Tagelle and Kassahun Habtamu*

Abstract: The objective of this study was to investigate the relation between scores in scholastic aptitude test (SAT) and achievement tests of the College Entrance Examinations in Ethiopia. That is to assess the concurrent validity of the SAT administered as a part of College Entrance Examination in Ethiopia. The subjects of the study who were randomly selected were 158 preparatory origin students assigned in the Addis Ababa University (Main campus) during the 2003/2004 academic year. The subjects' scores in aptitude, Maths, English and Social Science tests were collected from the office of the registrar. Pearson product moment correlation, t-test, multiple regression and analysis of variance were used to analyze the data. Analysis of the data revealed that the achievement and the scholastic aptitude test scores have statistically significant relationship. Scores in the English test contributed more weight than Maths and Social Science test scores. The achievement test scores together can predict the scholastic attitude test scores significantly.

Introduction

The Ethiopian School Leaving Certificate Examination (ESLCE) was used as a sole criterion for admission to higher education institutions since 2003. This examination was an achievement test having dual purposes (measuring past learned material and predicting future performance). However, research findings in the area indicated that ESLCE has not been well serving its purpose of predicting performance in colleges and universities (Tibebe, 1992; Laekemariam, 1994; Merhatibeb, 1993; kebede 1991).

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and admission of students to higher education. Once students have secured admission to a college, their ESLCE achievement tends to have no appreciable role in determining their college performance. Laekemariam (1994), conducting a study on the effect of ESLCE on students' attrition rate in Wondogenet College of Forestry, reached the same conclusion. According to this researcher, ESLCE has not been in a position to be used in selecting capable students for higher education. The cause of higher attrition in the college seemed to be in the exclusive use of ESLCE as the only admission requirement.

The above and many other researchers who did research on ESLCE recommended strongly the inclusion of aptitude tests as admission criteria to colleges and universities. Tibebe, (1992), indicating the weakness of ESLCE to predict future performance, recommended that scholastic aptitude tests may be better if it is used as College Entrance Examination. Kebede (1991), on his part, recommended to consider high school grade point average and scholastic aptitude test (SAT) scores for admission and placement of students in to higher institutions. Lakew as cited in Kebede (1991), also indicated that aptitude test results are better predictors of college success than ESLCE results. On the other hand, Laekemariam (1994) suggested to combine results secured from an Entrance Examination (pre-college Examination) including the SAT and high school performance as supplementary screening instruments in addition to the ESLCE.

In connection with the use of an aptitude test, the new Education and Training Policy states that:

continuous assessment in academic and practical subjects, including aptitude tests, will be conducted to ascertain the formation of all round profile of students at all levels (Education and Training Policy, 1994:26).

It may be because of the recommendations of the said and other researchers and the stipulation of the policy that the scholastic aptitude test (SAT) was introduced as a part of an entrance examination of higher education in the 2002/2003 academic year. It

is therefore the right time now to do research on the validity of this SAT that is administered as a part of the higher education Entrance Examination. More precisely, the purpose of this study, is to assess the concurrent validity of the SAT. To this end, the following leading questions were formulated.

- Is there a significant relationship between the SAT and the achievement test scores of the Ethiopia Higher Education Entrance Examinations?
- With which achievement test scores (English, Mathematics or Social science) is the SAT highly and least correlated?
- Can achievement test scores predict students' scores on the SAT?

Methodology

Sampling: The target population of the study was preparatory origin students assigned in Addis Ababa University (Main campus) during the 2003/2004 academic year. Of all these students, 158 were selected using systematic random sampling. This sampling strategy was used as we got the students' name list from the registrar office of the Addis Ababa University.

Data Gathering Procedures

Students' documents found in the registrar were used as source of data. The subjects' scores in Aptitude, Maths, English and Social Science were collected from the office of the registrar.

Data Analysis

To analyze and interpret the collected data, both descriptive and inferential statistics were used. To see whether or not there was interrelationship among aptitude and achievement test scores, Pearson product moment correlation was used. To find out whether the relationship is significant or not, t- test was employed. To investigate as to how scholastic aptitude test scores are related with

achievement test scores, multiple correlation coefficient was employed.

To check whether achievement test scores can predict scholastic aptitude test scores or not, multiple regression was used. To see whether or not the prediction is significant, analysis of variance was employed.

Table 1: Intercorrelation Matrix Between the Achievement Test and Scholastic Aptitude Test Scores

	X ₁	X ₂	X ₃	Y
X ₁	-			
X ₂	0.266*	-		
X ₃	0.501*	0.443*	-	
Y	0.726*	0.356*	0.491*	

P<0.01

Results

The result of the study are presented in three tables and described. From the intercorrelation matrix depicted in Table I, we can understand that all the considered variables are related positively with each other. All the relationships are statistically significant (at $p < 0.01$ and $N = 158$). If an individual gets good score in one of the tests, it is likely to get good score in the other tests. Though all the relationships are statistically significant, English scores (X_1) are highly related with Scholastic Aptitude test scores (y) than the Mathematics and the Social Science test scores (X_2 and X_3) respectively.

Table 2: Multiple Regression Coefficients for Predicting Aptitude Test Scores from Achievement Test Score

Predictor variables	B- weights	$R^2 = 0.564$
English (x_1)	0.633	
Mas (X_2)	0.138	
Social science (X_3)	0.113	

P<0.01

According to the result displayed in table- II, English scores (X_1) contributed more weight to predict scholastic aptitude test scores than the other two (Mathematics and Social science) test scores. The multiple correlation coefficient indicated that the achievement test scores together accounted around 56.4% of the variance in scholastic aptitude test scores.

The multiple regression showed a significant result in predicting aptitude test scores from achievement test scores. That is the B-weights in predicting scholastic aptitude test scores from achievement test scores (English, Maths and Social Science) are different from zero in the population.

Table 3: Summary of ANOVA for Multiple Regression of Predicting Aptitude Test Scores from Achievement Test Scores

Source	SS	DF	MS	F
Multiple regression	9484.895	3	3161.632	66.4*
Residual	7332.295	154	47.612	
Total	16817.19	157		

$P < 0.01$; df= degrees of freedom; Ms= Mean of square

Discussion

The major purpose of this study was to investigate the relationship between achievement test scores (English, Maths and Social Science) and Scholastic Aptitude test scores. Accordingly, the following results were obtained.

- All the achievement test scores considered in the study were found to correlate positively and significantly.;
- The achievement test scores together accounted for around 56.4% of the variance in Scholastic Aptitude test scores;
- The regression analysis indicated that English scores contributed more weight and Social Science scores contributed less weight to predict Scholastic Aptitude test score, and

- Achievement test scores together can predict aptitude test scores significantly.

The results obtained in this study have general consistency with the ideas of professionals and previous research results in the area. With regard to the relationship between achievement test scores and Scholastic Aptitude test scores, Mehrens and Lehman (1991) have pointed out that achievement and aptitude tests are the same in that both measure acquired behavior than innate behavior. So, as aptitude and achievement tests have similarities, it is likely that they correlate with each other. Research results in our context have also indicated strong correlation between achievement and aptitude test scores (Tibebe, 1992; Kebede, 1991; Laekemariam, 1994).

As Scholastic Aptitude tests are important predictors of future achievement, it is not surprising to find a result that achievement tests can predict strongly Scholastic Aptitude test scores. Those who are good at achievement tests are likely to be good at Scholastic Aptitude tests. In relation to this Gronlund (1976) has said that the primary aim of an achievement test is to measure what a pupil has learned, since past performance is the best predictor of future performance, it can also be used to predict future performance including performance in Scholastic Aptitude tests. Empirical studies have also confirmed the same conclusion (Tibebe, 1992; Kebede, 1991; Lackemariam, 1994). Generally speaking, if one variable is the predictor of the other variable, then the reverse is also true. So, it is logical to find that achievement test scores can predict Scholastic Aptitude test scores.

To sum up, the results of this study indicated that the college entrance exams administered in Ethiopia are very much related to each other. So, they have concurrent validity.

Conclusion

The study recommended that students who take entrance examinations need to be aware that good preparation for the achievement tests (English, Maths and Social Science) can bring

about good preparation for the SAT as the two are related significantly. Potential researchers in the area should also do further research giving emphasis on predictive, content and construct validity of the College Entrance Examinations, specially the SAT.

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