

Psychometric Exploration of Congruence between Examinee Ambition and Performance in the Scholastic Achievement Test (SAT) In Uasin Gishu County, Kenya

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Abstract: - According to Kenya's Institute of Policy Analysis and Research (2008), there is poor management of national examinations. Cases of cheating in national examinations due to poor management of the processes- where leaked papers give some students and schools an unfair advantage over others – have become commonplace. Yet, placement to university is based on national exams. Developed countries use aptitude tests to make placement decisions. Such tests may be proposed for adoption in Kenya but only after establishing their relevance. The purpose of the study was to determine the possible relevance of such tests and in this particular study the researcher sought to find out whether the test taker's ambition (for higher education) was significantly related to his/her performance in the Scholastic achievement test among Kenyan students. The null hypothesis HO: There is no significant relationship between the examinee's ambitions for higher education and performance in the Scholastic Achievement Test was tested. The study adopted the Ex-post facto research design. The target population comprised all the 2469 form four students in the twenty four (24) secondary schools in Eldoret town from which eight (8) schools were sampled using the stratified random sampling technique and a sample of 240 students was selected purposively from the eight (8) schools. The data was collected using a past Scholastic Achievement Test. The study data was analysed using ANOVA and it was conducted using SPSS 17 version 22 with the level of significance being $\alpha = 0.05$. The Null hypothesis was rejected implying that there is a significant relationship between the examinee's ambition for higher education and their performance in the Scholastic achievement test. Those with high ambition possess a high academic aptitude as indicated by their SAT scores. The implication of the results is that the SAT is unlikely to identify an examinee as having an aptitude for higher education and yet the individual has no ambition or interest in the same. Concerning the examinee ambition therefore, the study recommends that the test of aptitude be considered for adoption because it can be useful in Kenya in placing students who are keen to study further and who would not drop out due to lack of interest.

Keywords: Congruence, SAT, Examinee ambition

I. INTRODUCTION

Admission to Kenyan Universities is based on the candidate's scores or grades obtained in the Kenya Certificate of Secondary Examination (KCSE). This means

that an essential ingredient for making “functional decisions” has been lacking from the placement formula (Institute of Policy Analysis and Research, 2008). Cases of examinations related crimes, leakage of national examinations papers coupled with other “regular” examinations irregularities (for instance cheating in KCSE) implies that the use of KCSE examinations results as a decision making criterion in placing the students into various courses and universities may not be a tenable practice today.

According to Kenya's Institute of Policy Analysis and Research (2008), there is poor management of national examinations. Cases of cheating in national examinations due to poor management of the processes- where leaked papers give some students and schools an unfair advantage over others – have become commonplace. This has gone on for many years without the Kenya National Examinations Council (KNEC) sealing the loopholes. The scandal of 40,000 candidates who received the wrong results for the 2007 examinations has not been addressed. In 2008, some students became violent when they were prevented from seeking to obtain district “mock” examination papers in advance to enhance their grades. It has been alleged that the KNEC has been using “mock” examination results to moderate KCSE grades for students in some schools (IPAR, 2008).

In the case of admission to public universities, candidates are admitted close to 1 year after their KCSE examinations. This is not a tenable practice. According to Nitko (2004), a student's specific past examinations (close to 1 year before admission to university) is not very helpful in establishing expectations for learning new material whenever the student must face these conditions:

- 1) Learning to perform in ways that are quite different from those learned in the past,
- (2) The students past performance has been erratic, for example, due to examinations irregularities or circumstances before and during the KCSE examinations, such as the candidates' health,
- (3) Previous test scores or school grades are known to be unreliable or invalid, for example a s a result of a mix up of examination results such as that which happened in KNEC in

2007, or (4)The student’s records of past performance are not available.

This implies that decisions to place students in universities on the basis of KCSE results for exams sat over a year before placement is very faulty. There is need to come up with a way of testing the candidates’ abilities after KCSE and before admission to universities for different courses. Again, the same marks from KCSE may not be valid because memorization, cramming, cheating and/or other examinations irregularities are in abundance (IPAR Report, 2008). Memorization (which is inappropriate) therefore accounts for a large proportion of the scores students obtain in KCSE whose results are used by The Kenya Universities and Colleges Central Placement Services as the sole criterion for selecting students for university education.

The unreliability of the KCSE in educational decision making is evidenced by the number of students who fail to succeed in the various “superior” courses to which they were placed on the basis of their superior grades and /or marks at KCSE (IPAR, 2008). Again, students who did not perform well in the KCSE examinations due to health or socio-economic conditions are condemned to “inferior” courses or denied admission to universities. The KCSE therefore becomes a stumbling block to university education for such candidates. At the same time, the candidates admitted to universities to pursue various courses could have obtained good marks in K.C.S.E due to cheating, guessing or as a result of halo effect.

The psychometric tests, especially the Scholastic Achievement Test, have the potential of addressing more adequately the problems discussed in the foregoing (NACAC, 2008). However, until the psychometric tests have been understood through a detailed analysis, their value will continue to be unknown in Kenya. The study as part of determining the possible relevance of such tests sought to find out whether the test duration had a significant effect on the candidate’s performance in the Scholastic achievement test among Kenyan students.

Purpose of the study

The purpose of the study was to determine the possible relevance of such tests and in this particular study the researcher sought to find out whether there was a significant relationship between the examinee’s ambitions for higher education and performance in the Scholastic Achievement Test among Kenyan students.

Study hypothesis

HO: There is no significant relationship between the examinee’s ambitions for higher education and performance in the Scholastic Achievement Test

II. THE STUDY DESIGN

The study adopted the Ex-post facto research design which is also known as the causal-comparative design. According to Kothari (2004) the design allowed the researcher to collect

data about one or more variables from one study subject and compare that data. In this design, the independent variable(s) is or are not available for manipulation by the researcher.

Study population

The study was conducted in secondary schools in Eldoret Municipality of Uasin Gishu County of Rift Valley, Kenya. The accessible population of the study was all the Form 4 students in the 24 secondary schools in Eldoret town, who numbered 2469. The form four students were considered based on the assumption was that they would be the ones expected to take aptitude tests such as the Scholastic Achievement Test when seeking admission to Universities abroad after their sitting their Kenya Certificate of Secondary Examinations (KCSE).

Sample and Sampling method

According to Kothari (2004), sampling involves selecting some elements of a population, having similar features to the underlying population, as representative of the total population so as to make certain observations of elements and make conclusions regarding the entire population. Mugenda and Mugenda (1999) argue that the main factor that researchers should consider in determining a study sample size is the homogeneity of the population from which the sample is drawn (as well as sample homogeneity) together with the need to keep it manageable enough.

A total of eight (8) secondary schools in Eldoret town participated in the study, which included two (2) girls’ schools, two (2) boy’s school, four (4) co-educational. The use of different types of schools were adopted so as to provide a representative sample of the school population from Eldoret town. This number of schools represented 33.3 % of the population of schools in the municipality. The eight (8) schools were selected from the 24 schools using the stratified random sampling technique. The researcher used stratified random sampling at a second level in order to ensure that a school is selected from at least each of the three categories, that is: National, County and District schools. A sample of 240 form four students was selected from the eight (8) sampled schools for participation in the testing exercise using the Scholastic Achievement Test. Nitko (2004) recommends small samples for such detailed analyses of aptitude tests. The researcher selected 30 students from each sampled schools using purposive sampling. To avoid selecting students with the same level of academic ability, the researcher selected the top fifteen (15) and bottom fifteen (15) in each school. The sample comprised 120 female and 120 male students.

Data collection Instrument

The study data was collected using a sample Scholastic Achievement Test. The Scholastic Achievement Test is a standardized test that is published and is used for purposes of screening students for placement in Universities in USA. The SAT consists of three major sections: Critical Reading, Mathematics, and Writing. Each section receives a score on

the scale of 200–800. All scores are multiples of 10. Total scores are calculated by adding up scores of the three sections. Each major section is divided into three parts. There are 10 sub-sections, including an additional 25-minute experimental or "equating" section that may be in any of the three major sections. The experimental section is used to normalize questions for future administrations of the SAT and does not count toward the final score. The test contains 3 hours and 45 minutes of actual timed sections, although most administrations, including orientation, distribution of materials, and completion of the biographical sections, run about 4 hours (10–25 minutes per sub-section) long.

Data collection Procedure

The psychological test was administered to the sample in a strict environment to avoid cross-fertilization of ideas and responses. Research assistants from a research consultancy firm known as Millennium Research Consultants were used, together with teachers in the participating schools in order to avoid "stranger-effect." The assistants were trained on the instructions as well as the SAT administration guidelines. The researcher was present during the entire test period in all the schools. The students were given answer booklets which had serial numbers. They were required to write using biro pens. The Scholastic Achievement Test being an aptitude test was administered in the morning because it is taxing mentally. The research assistants, teachers and the researcher invigilated the test to prevent cheating. The scoring of the test was done according to the test publisher's specifications.

Data Analysis methods

The study data was analyzed using regression analysis, presenting results for ANOVA. Descriptive methods were also applied. All analysis was conducted using SPSS 17 version 22. The level of significance adopted by the study was $\alpha = 0.05$

III. STUDY RESULTS

The relationship between examinee's ambition for higher education and performance in the SAT

The scholastic achievement test is expected to help educational decision makers predict the examinees' success in colleges and universities, thereby rendering itself for use in decision making. It was important therefore to find out whether those examinees who had high scores in the SAT (high academic aptitude for college education) also had high ambition for higher education. The examinees indicated in their personal information questionnaire whether they would like to proceed to university for bachelor's degree education and beyond (high ambition), go to college for certificate or diploma (average ambition) or did not intent to study further after form four (low ambition). These were taken as levels of the independent variable. The distribution of means of SAT scores by family area of residence is shown on table 4.39 below. The influence of this independent variable on performance in the SAT was analyzed. The following null hypothesis was tested:

HO: There is no significant relationship between the Examinee's ambitions for higher education and performance in the Scholastic achievement test.

Table 1: The distribution of performance or scores in the SAT by examinee's ambition

Examinee's ambition	Performance in the SAT		
	n	Mean	SD
High (wishes to go to university)	153	1404.58	196.39
Average (wishes to go to college only)	61	1228.85	183.96
Low (no intent for further studies)	26	1039.85	152.16
Total	240	1320.40	225.14

Table 1 above shows that most of the examinees (153) have high ambitions in education while only 26 examinees indicated that they have low ambition for higher education. The table also shows that those who had high ambition in education had high scores in the SAT (their mean of 1404.58 was the highest of all the three groups). Those who had low

ambition for higher education had the lowest SAT scores (their SAT mean score was 1039.85). To test whether the above relationship between the SAT mean scores were significantly related to the examinee's ambition, a one-way analysis of variance (ANOVA) was conducted. Table 2 shows the results of the analysis.

Table 2: One way analysis of variance for examinee's ambition and performance in the SAT

Source of variation	SS	df	MS	Fob	Fcrit
Between groups	3641954	2	1820976.76	50.94*	50.94*
Within groups	8472014	237	35746.90		
Total	12113968	239			

*Significant at $\alpha = .05$

The results in table 2 indicate an F observed of 50.94 which was statistically significant at .05 level of significance. A critical value of F (3.0) was obtained from the statistical tables for the F distribution. Since $F_{ob} = 50.94 > F_{crit} (2, 237, .05) = 3.0$, we reject H_0 implying that there is a significant relationship between the examinee's ambition for higher education and their performance in the Scholastic achievement test. Those with high ambition possess a high academic aptitude as indicated by their SAT scores.

Conclusion on the relationship between examinee's ambition for higher education and performance in the SAT

This study investigated the relationship between the examinees' ambition for higher education performance in the Scholastic Achievement Test. Data analysis and interpretation of the examinees' responses and SAT performance revealed that the examinees' ambition for higher education is significantly related to their performance in the SAT. The observation was that the examinees those who high ambition in education had had high scores in the SAT while those who had low ambition for higher education had the lowest SAT scores. Those who have ambition for higher education also tended to have interest in the same as well as an aptitude for higher education. The above findings are consistent with those obtained by the American National Association for College Admission and Counseling in 2008.

IV. THE WAY FORWARD

The implication of the results is that the SAT is unlikely to identify an examinee as having an aptitude for higher education and yet the individual has no ambition or interest in the same. Concerning the examinee ambition therefore, the study recommends that the test of aptitude be considered for adoption because it can be useful in Kenya in placing students who are keen to study further and who would not drop out due to lack of interest.

REFERENCES

- [1]. Allen worth, E., Macarena, C. & Steve, P. (2008). *From High School to the Future: ACT Preparation – Too Much, Too Late*. Chicago: University of Chicago Press.
- [2]. Institute of Policy Analysis and Research (2008). *Radical Reforms for Kenya's Education Sector: Implementing Policies Responsive to Vision 2030*. Nairobi: Government Printers.
- [3]. Kothari, C. R. (2004). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Publishers Ltd.
- [4]. Messick, S. & Ann, J. (1981). *Time and Method in Coaching for the SAT*. Princeton: Educational Testing Service.
- [5]. Mugenda, O.M. & Mugenda, A.G. (1999). *Research Methods: Qualitative and Quantitative Approaches*. Nairobi: Acts Press.
- [6]. National Association for College Admission Counseling. (1995). *Recommendations of the Commission on the Role of Standardized Testing in College Admission*. New York: Author.
- [7]. National Association for College Admission Counseling. (2008). *NACAC Commission on the Use of Standardized Tests: ACT's Response and Recommendations Regarding the Critical Issue Areas Identified by the Commission*. New York: Author.
- [8]. Nitko, A. J. (2004). *Educational Assessment of Students* (3rd ed.) New Jersey: Merrill Prentice-Hall.
- [9]. Slack, W. V. & Douglas, P. (1980). The Scholastic Aptitude Test: A Critical Appraisal. *Harvard Educational Review*, 50(2), 154-175.