Predictive Validity of the Ethiopian Higher Education Entrance Qualification Examination: the Case of the College of Education

A Thesis Submitted to the School of Graduate Studies in Partial Fulfillment of the Requirements for the Degree of Master of Arts in Measurement and Evaluation

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July, 2007
Addis Ababa

Acknowledgement

I would like to thank my advisor, Dr. Ayele Meshesha, for his constructive comments and useful suggestions.

I avail this opportunity to express my sincere love, thanks and appreciation to my wife Asmarech Desyibelew, who encouraged me to pursue my further study for MA and for her unreserved effort in encouraging and supporting me morally and financially.

I would like to thank also Endaweke Abebe for his significant contribution in the process of final editing of this work.

Finally, I am very glad to remind my brothers: Bimerew, Enawgaw, and Melese for their continuous advice to complete my work successfully.

Dedication

This piece of work is dedicated to my elder brother, Ato Semahagn Kumilachew, whom I lost before some years ago, whose wise advice and brotherhood affectionate brought me up and made me most of what I am today.

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Acronyms and Abbreviations

ACT	American College Test
CEEB	College Entrance Examination Board
DAT	Differential Aptitude Tests
CGPA	Cumulative Grade Point Average
EHEEQE	Ethiopian Higher Education Entrance Qualification Examination
EGSECE	Ethiopian General Secondary Education Certificate Examination
E.Lan. and & Lit.	Ethiopian Languages and Literature
ESLCE	Ethiopian School Leaving Certification Examination
FPC	Freshman Program Completed
GPA	Grade Point Average
HSG-	High School Grades
MOE	Ministry of Education
NOE	National Organization for Examinations
PPC	Preparatory Program Completed
SAT	Scholastic Aptitude Test
SAT I	Aptitude Test (it is the same as SAT)
SAT II	Achievement Test
SAT-M	Scholastic Aptitude Test Mathematics
SAT-V	Scholastic Aptitude Test Verbal
SGPA	Semester Grade Point Average
SPSS	Statistical Package for Social Science
SSAT	Special Scholastic Aptitude Tests
UC	University of California

Abstract

This paper examines the predictive validity of the EHEEQE to the College performance of students of the College of Education of Addis Ababa University during three consecutive years of first entrants of preparatory origin students in 2003/04 academic year. The main purpose of the study was to see whether each entrance examination score is related to College GPA starting from first year up to the end of undergraduate work. The data of 453 students of ten departments of the College of Education has been collected and analyzed. The study totally depended on document analyses. Pearson Product Moment Correlation Coefficient was the Statistical Method to obtain the necessary results (Hinkle et. al, 1994). The result revealed that EHEEQE test scores have positive and significant relationship to College GPA in many departments of the College of Education with some exceptions. According to the result, there was negative relationship between Mathematics test score and College GPA in the Departments of Physics, Physical Education and Sport, and History. There was also negative relationship between English test scores and College GPA for the Department of Physics. From the entrance examination, Mathematics test score has relatively low relationship to College performance in most of the Departments of the College of Education. The relationship between EHEEQE and College GPA was high in the Department of Chemistry throughout undergraduate learning. For the relationship between Social Studies test scores and College GPA, r values decrease whiles the year level increases and vise versa. On the contrary, the values of r increase in the later years of College work for the relationship between General Science and College GPA. From the individual predictor variables, English test scores and Social Studies test scores contribute better in the variation of Y_1 S_1 College GPA than others. Fore instance, English test score (X_3) accounted for 36.9% ($F_{(1, 31)} = 18.14$, $P<0.05$) of the variation in College performance for the Department of Chemistry. When Mathematics test score(X_2) is added to this model, the variation in College GPA increases to 49.0% ($F_{(1, 30)} = 14\ 425$, $p< 0.05$). Implications for the results have been discussed and some valuable recommendations have been forwarded for the improvement of the quality of EHEEQE.

CHAPTER I

1. Introduction

1.1 Background of the Problem

The structure of Ethiopian education was 6-2-4 during about nearly the fall of Dergue regime. This structure was described as follows: Six years of primary, two years of junior secondary and four years of secondary education program.

Starting from 1991, the structure has been set as 8-2-2 (Ministry of Education, 1994). Generally, this structure has been divided into two stages having two cycles in each stage. The first stage has eight years of primary education level. This stage is also divided into two cycles (4-4).

After completing primary education, students are expected to join the second stage of the first cycle with two years of program as general secondary education (grade 9 and 10). It is equivalent to the previous secondary education program (9-12). At grade 10, students are expected to take the national examination called the Ethiopian General Secondary Education Certificate Examination (EGSECE). Students are expected to join either the preparatory program or to the Technical and Vocational Education and Training (TVET).

Those who have joined the preparatory program (the second cycle of the second stage), are supposed to spend two years in school for preparation for higher education and are expected to take the entrance examination

called the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE).

The two years of the preparatory program is equivalent to the first year of the higher education program of the previous education system. In order to join higher education, the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE), the Ethiopian General Secondary Education Certificate Examination (EGSECE), and transcript of the preparatory classes are criteria to enable students to join higher education. From these, the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE) is one of the major criteria. This examination has served as the selection and placement of students to higher education and to different fields of study, respectively.

It is true that tests cannot demonstrate the over all student characteristics. Previous grades and test scores are not the sole admission criteria. This is because tests do not measure motivation, study habit, personal, and professional goals, and so on (Sedlacek, 1998). It seems therefore that tests have no much weight to serve as criteria; nevertheless, there is no better choice other than tests to see the past, present, and future performance of students with their limitations.

There were some critics regarding to the purposes of tests that either they serve as placement or selection of students to join higher education. However, in either case, testing for college entrance would still be useful. Under an open admissions policy one would need tests to assist placement decisions (Mehrens and Lehmann, 1975). According to this view, the purposes of the tests seem for placement rather than selection. Nevertheless, in our (Ethiopian) context where there are several

After the introduction of the New Education and Training Policy, the College Entrance Examination has been constructed and administered for students to join Colleges and Universities from preparatory classes. This examination has been divided into four parts: Scholastic Aptitude Test (SAT), English, Mathematics (for both Social Sciences and Natural Sciences) and Social Studies for Social Science/General Sciences for Natural Science students. These tests can be again classified into two general parts: Scholastic Aptitude Test (SAT) and Achievement Tests.

As many scholars agree, the Scholastic Aptitude Tests are somewhat better than achievement tests to predict College performance. For example, Aggarwal (1994), Lindgren and Sufer (1985) have claimed that Scholastic Aptitude Tests tell us something about the future and achievement tests try to answer for the question of what has been achieved.

In relation to prediction not only the SAT, Achievement Tests also have contributed much to predict future performance of students. Mehrens and Lehmann (1975) have tried to oppose those who used SAT for prediction and Achievement Tests for past learning in that one would never administer a test solely to measure past learning. We always want to use tests to help us in making decisions. Decision-making involves prediction. Thus, either explicitly or implicitly, achievement tests as well as aptitude tests have been used to make decisions.

Aptitude tests do not directly measure future accomplishment. They make no such claim. Tests measure present performance and based on

In Ethiopia, after 2003, entrance examination have been started to administer as scholastic aptitude test and achievement tests (English, Mathematics, and General Sciences/ Social Studies) for the students of preparatory classes to join Colleges and Universities. This study therefore focuses not only on the SAT in particular but also on the overall part of the tests of the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE) to see the predictive validity of each type of score in particular and in combination.

In relation to the name given to the entrance examination of Ethiopia, before a year the name of the entrance examination was the Ethiopian Higher Education Entrance Certification Examination (EHEECE) and now with some modification the name has been changed to the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE) and the researcher has preferred to take EHEEQE for this study.

1.2 Statement of the Problem

According to the New Education and Training Policy, the National Organization for Examination (NOE) started to prepare the higher education entrance examination in 2002/2003. Since this examination begins to serve as selection criteria to join higher education and is expected to serve, as predictor of College performance of students, the conductor of this research believes that the Ethiopian Higher Education Entrance Qualification Examination (EHEEQE) seem to be checked and revised to give an insight for its weakness in order to enhance its quality. For this reason, the researcher is interested to check the predictive validity of the EHEEQE.

In relation to the predictive validity of the entrance examination in the preceding years of undergraduate programs, scholars have tried to see how it predicts in the first, second, third, and fourth years of the same batch of College students. The National Center for Fair and Open Testing (2001) has tried to examine the predictive validity of College Admission Test, especially the SAT, beyond the freshman year. However, as mentioned earlier, there is the assumption that prediction of Aptitude Test is not good beyond the freshman year. In the second year and beyond, course work becomes more closely tied to the students' major field of study and more dissimilar to the over all mix of courses given for freshman students (Langmuir, and Bowers, 1967; Sedlacek, 1998).

In Ethiopian context, although students are fresh for the university, they are considered as second year students for the program of study because they have already taken basic freshman courses when they were in the preparatory classes. After they join higher education, they begin to learn their own major courses in their own departments that they are assigned to. We therefore, treat the predictive validity of the EHEEQE in terms of the performance of College students starting from first year to the end of undergraduate learning.

The following are basic questions of the study:

- Do the EHEEQEs predict significantly the academic performance of students in the undergraduate program of the College of Education at the AAU?
- What part(s) of the EHEEQE is/are the best predictor of college performance?
- Is there gender difference for the predictive validity of EHEEQE?

1.3. Objectives of the Study

1.3.1. General Objective

The over all objective of this study is to investigate the predictive validity of the Ethiopian Higher Education Entrance Qualification Examination on the academic performance of students of the College of Education. It is focused on the same batch of the first entrants of the College of Education of the preparatory origin students in all six semesters of the undergraduate program in the year 2003/04, 2004/05, and 2005/06.

1.3.2. Specific Objectives

More specifically this study is set out to:

1 Check the relationship between the EHEEQE and students' three years College performances as shown by their CGPA.

2 Identify the best predictor of performance of the EHEEQE.

3 Examine if there is gender difference in the predictive validity of EHEEQE.

1.4 Significance of the Study

The significance of the study is based on the following rationale:

1. In order to improve the quality of the examination, it may provide information for NOE and MOE regarding the exam.

2. It may also serves as a springboard for further study in the area.

1.5 Delimitation of the Study

The study is delimited to the College of Education at the Addis Ababa University. The College of Education at the Addis Ababa University has been selected as a sample area, because the researcher believes that he can get data easily as he is the student of the College of Education. Ten departments have been selected from the College and they have been treated independently. It will be vast and more complicated to take the whole cases of the Addis Ababa University for the study.

The researcher is especially delimited to see the predictive validity of 2002/03 of the EHEEQE for three years College performance of students. Moreover, he tries to identify the best predictor of the tests from the Ethiopian Higher Education Entrance Qualification Examination scores of students for 2003/04, 2004/05, and 2005/06 of College GPA.

1.6 Operational Definition of Terms

Achievement Tests: - It refers to the part of the Higher Education Entrance Qualification Examination without the Scholastic Aptitude Tests.

Predictive Validity: - It is the type of validity that examines the relationship between the predictor (the EHEEQE) and the criterion (College Grade Point Average) in order to investigate the quality of the Ethiopian Higher Education Entrance Quantification Examination.

Scholastic Aptitude Test (SAT):- It refers to the part of the Ethiopian Higher Education Entrance Qualification Examination designed to measures the verbal and numerical ability of students of preparatory classes.

CHAPTER II

2. Review of the Related Literature

The Ethiopian Higher Education Entrance Qualification Examination is the focus of this study. This chapter of the study will review the related literatures with sub-topics of *Higher Education Admission Tests, Aptitude Tests, Achievement Tests, Aptitude and Achievement Tests, Predictive Validity of the College Entrance Examination.*

2.1 Higher Education Admission Tests

Higher education admission tests are tests, which serve to admit students from high school to higher education level. According to Bowls (1963) the admission process is a function of the relationship between secondary and higher education.

When we come to the Ethiopian education system, before 2003/04, the Ethiopian School Leaving Certification Examination (ESLCE) had been used as an entrance mechanism to higher education. Then the new Education and Training Policy has started to develop and administer an entrance examination which is different from the ESLCE, with the name of Ethiopia Higher Education Entrance Qualification Examination (EHEEQE) since 2003/04. The two forms of examinations (ESLCE and EHEEQE) differ in the process of filtration to bring students to higher education. This means students are expected to take Ethiopian General Secondary Education Certificate Examination (EGSECE) as a national examination before they take EHEEQE, but this is not true in case of ESLCE.

Higher education admission tests have been considered as external tests. When we say external tests, they are prepared by committees or other organizations which are external to the school. Tests given by such organizations are based on the accepted school curriculum (Bowls, 1963).

In Ethiopia, there are organizations like the National Organization for Examination and Institute of Educational Research of the Addis Ababa University that take the responsibility to prepare admission tests. In relation to Higher education admission tests, the Ethiopian School Leaving Certificate Examination (ESLCE) and the current Ethiopian Higher Education Entrance Examination (EHEEQE) can be mentioned as higher education admission tests.

Tests have been developed and administered by various agencies for widely different purposes with the common goal of seeking to measure a high school student's basic aptitude and preparedness for College. Selection and placement have been mentioned as the main purposes of tests (Eckland, 1982).

In relation to the selection purpose, tests will have a role to select the able students for College admission. There were different opinions regarding selection. On one side, according to an Open Admission Policy, all students who graduate from secondary education can join to higher education or every high school graduate has the right to attend College. On the other side, in quota system, a chance has been given to the minority and to the disadvantaged groups to join Colleges (Bowls, 1963).

There was also another argument that selection is determined fundamentally by the number of vacancies rather than by the students' ability to perform satisfactorily for the program of higher education.

Therefore, every student has not been selected though they could perform the desired result in higher education (Ibid).

In relation to placement decision, tests will serve to assign students to different areas or fields of study. However in this type of decision students' interest may not be considered. Because, most of the time the interest of students and the demand of the faculty or the department and the nation in wide become imbalance. In this case, either student would enforce to be assigned without their interest or the test score would serve to assign students to different fields of study (Pitch, 1953).

Regarding to admission tests, Thorndike and Hagen (1955) describe especially when admission is selective; a certain type of academic test is frequently required as one item of information. When we come to the purposes of the tests as placement decision, it is based on prior achievement in the specific subject or upon a specific prognostic test. Nevertheless, when neither of these is available, academic aptitude tests will have a significant role to assign individuals to different fields of study.

When we come to the format of admission tests, they were prepared and administered in the form of essay examination when they are designed for the first time (Angoff, and Dyer, 1971; Eckland, 1982; and Pitch, 1953).

In America, for example, around 1900, the College Entrance Examination Board (CEEB) was Essay Types of Examination and was prepared in nine subjects (English, French, German, Latin, Greek, History, Mathematics, Chemistry and Physics). At that time, the main issue that the Board has been raised about the test was its uniformity. The CEEB established the beginning of a system of syllabi or "Course requirements" on which

Schools and Colleges could agree, and which might form the basis of a system of examinations offering the uniformity that was highly needed. That means the examination would be uniform in subject matter and uniformly administered at the same times, but held in many places to meet the convenience of the students and they would be uniformly graded (Angoff, and Dyer, 1971).

In Great Britain starting from 1903, the essay type examination was prepared with the Joint Matriculation Board (Pitch, 1953). But there were three standardization problems (Pitch 1953).

> *(1) How to insure agreement in assessment as between examiners who mark scripts on the same question paper. (2) How to insure stability of demands in a subject over the years. (3) How to insure equality of reward as between subject and subject particularly when candidates who offer different combinations of subjects in the same examination are to be closely compared (p.134).*

This implies that since examiners subjected to review and possibly to modification, the problem of standardization has been occurred. We can understand from the above indentation that the Board was thinking, and making effort about the tests preparation and admission uniformly, and standardization.

Different Organizations and Committees have been formed in order to design, prepare, administer and score the higher education admission tests. These Organizations and Committees have the overall responsibility when the tests have been prepared for different purposes (Eckland, 1982; Coffman, 1971; Angoff and Dyer, 1971).
With the finding of the Organizations and Boards, different standardized

aptitude and achievement tests were prepared and published for the purpose of higher education admissions. The following section will discuss different forms or types of tests.

2.1.1. Scholastic Aptitude Tests

The word aptitude has been derived from the word *optos*, which means *fitted for.* There are around eight definitions to Aptitude with different scholars. From these Traxler (Cite in Aggarwal 1994) defines Aptitude as follows: "aptitude is a present condition which is indicative of an individual's potentialities for the future" (p.292).

According to Thorndike and Hagen (1955, p.296) "aptitude test is a test that serve as a predictor of some future performance."

Mehrens and Lehmann (1975) identify the difference between Aptitude and Intelligence. The distinction depends on different bases that whether the measure we obtain has been considered general measure. If so, the test is frequently called an *intelligence test.* If the test measures multiple or specific factors, then it was termed as an *aptitude test.* The other distinction between the meanings of the two terms has historical basis. During the time intelligence tests were first being developed, psychological thought of intelligence has considered as being an innate characteristic not subject to change. To avoid the implication of innateness, many test takers prefer to use the term A*ptitude.*

Ability tests were not only good predictors of who will do well or poorly in College, but they also were important predictors of who goes to College, who goes where, and who drops out or graduate from College (Eckland, 1982).

Eckland and Alexander (Cited in Eckland 1982) have summarized 30 studies to come out of the National Longitudinal Study (NLS) reported that ability was not only a powerful predictor of who went to College immediately after high school but also delayed entrants, as well as of who attended full or part-time. In terms of the amount of learning time that students with high aptitude require less learning time than those with low aptitude (DeCecco, 1968).

Frandsen (1961) describes the characteristics of Aptitude in relation to interest by giving an example: the student of high aptitude and low interest in Physical Science may earn an "A" grade in a required course in Chemistry. Another student may earn "C" despite a high interest in Science grade because of his/her relatively low aptitude. From this, we can understand that regardless of other factors aptitude has a significant role in achieving a given learning tasks.

Scholastic Aptitude Test is one of the tests that are used to see the student's academic potentiality for future learning (Kolesnik, 1963; Mehrens, 1976). On the other hand, Aggarwal (1994) describes Scholastic Aptitude Test as a faire measure of abilities in reading, writing, speaking, problem solving, rapidity in comprehending study materials, etc.

Still in a different explanation, the Scholastic Aptitude Test (SAT) is a measure of basic reasoning abilities in two areas: Verbal and Mathematical tests (Donlon, and Angoff, 1971).

Regarding the preparation of Scholastic Aptitude Test, in America, for example, the College Entrance Examination Board (CEEB) has appointed a Committee. The Committee produced a manual on what they called the Scholastic Aptitude Test (SAT) explicitly distinguishing it from tests of

achievement in School subjects but disclaiming any intention to measure *general intelligence* or general mental alertness (Angoff, and Dyer, 1971).

The first College Board Scholastic Aptitude Test (SAT) of nine subjects, which had a multiple-choice for its most part, was administrated on June 23, 1926 for 8,040 candidates. Dr.Brigham (Cited in Angoff and Dyer 1971) suggests that it has become necessarily to divide the SAT into two separate sections: measuring Verbal Aptitude and measuring Mathematical Aptitude. According to this scholar the division was made to identify the differences of Verbal and Mathematical Aptitudes of candidates in accordance with the nature of each College to which the candidates need to apply.

There are different views on the predictive ability of SAT. In this regard, according to Donlon and Angoff (1971) SAT was basic instrument, providing effective discrimination over most of the range of academic ability of College students. In addition to the contribution as supplementary measures, the inclusion of the SAT has helped to predict College grades. On the other hand, the American Testing Service (1995) has considered the SAT's ability to predict performance in College as only a little better than chance. Unlike the view of the American Testing Services, there is no other alternative better than SAT to predict ability.

In relation to the relevance of the SAT, it has been used for selection of able students to the next level and prediction of future performance. However, some scholars forward their doubt whether the use of SAT has become applicable in practice (Katzman and Schaffer, 1995; Schaeffer, 1995; Jencks, 1995; and Atkinson, 2001). Especially, Atkinson (2001) says that SAT should be standardized and he proposed three principles to admit students to higher education or college:

and give additional tests with the SAT to minimize those errors rather than make the SAT invalid.

When we check the quality of the SAT whether it can predict College performance effectively or not, we probably face some problems for different factors which we cannot control (extraneous factors) that affect the value of Correlation Coefficient. In relation to this, Donlon and Angoff (1971) suggest that the SAT's simple (zero order) Correlation with College performance was by itself not a sufficient indicator of the predictive ability of the SAT.

On the other hand, Scholastic Aptitude Tests are free from cultural and educational influence and which therefore supposedly measure innate ability more closely and aptitude tests are most useful in predicting future school success. The phrase *scholastic aptitude test* is the most honest and descriptive than other tests (Mehrens, and Lehmann, 1975).

According to Camara (Cited in Donlon and Angoff 1971) Scholastic Aptitude Test has dual purpose, evaluate past success and predict future performance of the individual. The test is referred to as an achievement test when it is used primarily to examine a person's success in past study and an aptitude test when it is used to forecast his/her success in some future course or assignment.

Bengham (Cited in Aggarwal 1994) said that past and present behavior is a symptomatic of future potential. Therefore, SAT has a significant role in all directions of the past, present, and future performance of the individual.

In addition to this, SAT is the best admission test. Because, it represents a standardized measure of the same mental task that has expressed on a common scale for all students than the high school records (Donlon, and Angoff, 1971).

2.1.2. Achievement Tests of Higher Education Entrance Examination

As a higher education entrance examination, Achievement Test has developed for establishing a common set of College entrance examinations to substitute different sets of examinations required by individual Colleges (Eckland, 1982). According to Thorndike and Hagen (1955), at a higher level, Achievement Tests have been produced to provide a basis for advanced placement and a minimal competence as a basic outcome of schooling.

Tests were not equivalent from year to year and therefore a student's examination grade depends on the condition of the year, in which the examination has been prepared, and on the person who happened to read the paper and assigned the grade, rather simply on the quality of the student's answers. The test was a serious of essay question (Coffman, 1971).

Godshalk and Coffman (Cited in Coffman 1971) said that an English composition test made up of a single short essay have been read independently by three different ratters, and to keep the validity and reliability of such tests, two objective sections have been included. As of the academic year 1968-69, 15 Achievement Tests have been offered as part of the regular College Board Achievement Testing program. These tests included English Composition, Literature American History and

World Culture, French, German, Latin, Spanish, Russian, Biology, Chemistry, Physics, Mathematics level I, Mathematics level II (Coffman, 1971).

In relation to correlation and prediction of the achievement tests, we cannot set one definite standard. It depends on the context in which it has been found. Each of the test in achievement test series was a one-hour examination, designed to assess the achievement of large number of candidates who were differ widely in their level of achievement and who were applying to colleges that differ markedly in their requirements for admission(Coffman, 1971).

The primary purpose of a College Board Achievement Test is to indicate relatively the achievement of the candidates. This means that the purpose of a test is to differentiate among candidates and to realize who have learned the most and who have learned the least. In such kinds of test, very easy or very difficult items do not contribute to this purpose (Angoff, and Dyer, 1971). In this regard Coffman (1971) says also that an item can not discriminate if it is too easy or too difficult, because it was ambiguous or otherwise improperly written, or it did not belong in the content universe for the test. Therefore, to keep their quality, test items have to be written, reviewed, pre-tested and revised to be included in a new form of a test (Coffman, 1971; Mehrens, and Lehmann, 1984).

Special studies were carried out occasionally to determine the relationship of each Achievement Test with the SAT, and periodic adjustment was made in the scaling to bring the scaling system upto date (Schrader, 1971.

Most colleges in America permitted students to choose at least two of the tests which in turn brings complicated the validation of the tests against

same extent as the achievement tests did when the SAT is entered first (Coffman, 1971).

From 1997-2000, UC researchers, Geiser and Studley (2002) have analyzed the records of almost 78,000 freshmen who had been entered to the UC over the past four years. Researchers conclude that the achievement tests were in fact a better predictor of College grades than the SAT. High School Grades (HSG) plus SAT II account for about 21% of the explained variance in first year College grades, when the SAT I was added to high school grade and the SAT II it increases to 21.1 percent, a trivial increment.

The predictive validity of the SAT II is much less affected by differences in socioeconomic backgrounds than is the SAT I. After controlling for family income and parents education, the predictive power of the SAT II was undiminished, whereas the relationship between SAT I scores and UC freshman grades virtually disappeared. In addition to this, achievement tests were superior to aptitude tests in identifying high potential students in low performing schools (Atkinson, 2001).

The important difference between the SAT and the Achievement Tests was that there was minimal dependence on school curriculum. Achievement Tests typically seek to reflect some fairly well defined and recent educational program, the SAT has intended to go into the broadest sources of education, beyond any academic curriculum (Donlon, and Angoff, 1971).

The Scholastic Aptitude Test was designed with a specific purpose in mind to identify those individuals who, regardless of the subjects they might have studied in secondary school, possess the general academic skills necessary for successful College work. In contrast, the College

as EHEEQE are somewhat similar to the American College Test as mentioned above that American Achievement Tests have also included: Mathematics, English, Social studies, and General science (Hikim, and Price, 1976; and Zemerman, and Michael, 1967).

2.2. Validation

2.2.1. What is Validity?

Mehrens, (1984, p.288) has mentioned Validity as *truthfulness.*
According to Messick (Cited in Mehrens 1984, p.288) "validity is the overall degree of justification of test interpretation and use."

The correlation between predictor variables such as high school grades, admission test scores and some criterion of College achievement reveals validity study. They typically measure the predictive validity of two or more predictor variables, separately and in the weighted combination for the criterion variables of College performance (Eckland, 1982).

The American Psychological Association (Cited in Mehrens 1984) has delimited three kinds of validity i.e. content validity, construct validity and criterion related validity or predictive validity.

Criterion related validity (predictive validity) studies for the relationship between the tests scores (predictors) such as SAT and some external measures (criterion) such as College Grade Point Average (GPA) (Mehrens, 1984).

2.2.2. Predictive Validity of Higher Education Admission Tests

If higher achiever students joined higher education, it was supposed to be higher achiever in Colleges and Universities and vise versa. With this fact in mind, tests which are served as entrance examination to higher education are used to select the able students for higher level learning. They are also taken as a means to reflect the effect for College performance. This is in short the issue of predication. Nevertheless, according to the literatures, this quality is not true for ESLCE in Ethiopia.

In relation to the predictive validity of many specific tests, and objectives of scoring procedures, no one well grounded expert can tell us that tests are the most fair and biased-free of any procedures for assessing mental abilities. Tests by themselves are not harmful, but the way in which their results have been measured may be potentially harmful (Cauley, et. al. 1997). Therefore, tests are the best alternatives and we have to accept their role with their weaknesses for there is no perfect test (Atkinson, 2001; Cauley, et. al. 1997).

Tests themselves are not valid or invalid. Instead, we validate it to a group of individuals and correlating their scores with those attained, on a second measure, called the criterion. The validity of the SAT for example has demonstrated by the substantial coefficient of correlation (characteristically about +0.50) obtained repeatedly (Crow, L.D and Crow, A 1958).

While some tests may accurately predict future performance of groups, critics of testing argued that they were often inaccurate predictors of individual performance (Cauley, et. al. 1997).

students to see the quality of the predictors. But some of the researchers have tried to use first year and fourth year Cumulative GPA as a criterion. From this, Distefano and Rice (1966) have used first year and fourth year GPA to see the predictive validity of Verbal, Quantitative and Total scores. And with Pearson Moment Correlation Coefficient the result was 0.48, 0.16, and 0.48 for Verbal, Quantitative and Total, respectively for first year GPA. Verbal and Total were significant at 0.01 levels. And for the fourth year GPAs, the correlation coefficient was 0.68, 0.38, and 0.61 for Verbal, Quantitative, and Total, respectively. Although the correlations were all significantly different, the Verbal scale was the best predictor of fourth year Grade Point Average (Ibid).

In another finding neither the first year grade nor the fourth year Cumulative GPA was an adequate indicator of academic performance through four years of College work (Sedlacek, 1989; Young, 1990).

According to Sedlacek (1998); Meagher, et. al, (2006); and Schaeffer, (1995), the ability of standardized test scores to predict grades decreases after the first, second and subsequent years of College performance. Guinier (1995) has found that SAT predicted 14 percent of the variance between the first year grades. It did a little better (15 percent) for second year.

The admission office of CEEB has proposed that the predictive validity of the tests has to be studied in every three years (Young, 1990; Geiser, and Studley, 2002; and Sedlacek, 1998). But on the contrary of the advice of the testing companies, many institutions do not conduct this research.

According to the National Center for Fair and Open Testing (2001), that the SAT has been designed only for predicting first Year College grades. It has no validity to predict grades beyond the first year, graduation rates,

pursuit of a graduate degree, or for placement or advising purposes. However, the reason has not indicated why it has not been designed to predict beyond first year College grades.

Others, on the contrary of the above idea, suggest that validity can be seen beyond the first year College grades of students (Sedlacek, 1998; Young, 1990; and Distefano, and Rice, 1966).

In relation to gender differences in achievement Bowers (Cited in Paraskevopoulos and Robinson 1970) said that when males were better in Science related subjects, females were better in Languages and History. In addition to this males were better in Numerical Ability and females were better in verbal reasoning. It was expected, therefore that there would be differences in different admission test scores and College performance for males and females (Paraskevopoulos, and Robinson, 1970; Chandler, and Fremer, 1971).

We can classify the scholars' idea into three about gender differences for College admission tests. The first group of scholars has said that College Admission Tests predicted better for males than females (Breland, and others, 1994, McCormic, and Pressley, 1997). The second group has said that College Admission Tests predicted College performance for females than males (Chandler, and Fremer, 1971; Fleming, and Garka, 1998; and Michael, and Jones, 1963). And the third group of scholars has said that there was no significant difference in predicting College performance for male and female students (Jiang, and Leonard, 1999). These researchers further explain that in most researches, results indicated that the reason for male being better than female students for the predictive validity of College Admission Tests is because of sample selection bias.

According to the New Education and Training Policy, the Ethiopia Higher Education Entrance Qualification Examination has been developed as a new form of entrance examination since 2002/03. It is the time to see its quality and effectiveness in relation to forecasting the performance of students in higher education. The first preparatory origin students have completed their undergraduate learning and have graduated with their first degree in 2005/06 academic year. Now the researcher of this paper has conducted a research to investigate how much the EHEEQE has been successful in predicting College performance starting from first year first semester through undergraduate learning.

Though there are no many local researches in this area, the researcher of this study has tried to refer some related researches. A term paper with the title "Concurrent Validity of the Scholastic Aptitude Test" which was conducted by Asnakew and Kassahun (2004) and an article of the Journal of Education for Development with the title "Academic Performance of PPC and FPC students of the College of Education" which was written by Belay Hagos (2006) are found to be relevant for this study. The researcher has found the results of Belay Hagos findings as useful as a stand point. According to his finding, from the entrance examinations English, Mathematics and SAT were predicting significantly within four consecutive semesters of 2003/04 and 2004/05 academic years. However, this study includes four consecutive semester college performances as a criterion and three test scores of EHEEQE as predictor variables.

CHAPTER III

3. Method of the Study

3.1 Research Design

The design of the study is descriptive. It describes the predictive validity of the 2003/04 EHEEQE for the 2003/04, 2004/05, and 2005/06 academic years GPA and Cumulative GPAs (first year through the end of the undergraduate study of College performance).

3.2 Participants

The total participants for this study were 453 students of the College of Education. They were preparatory origin students who joined the College in 2003/04 academic year. Ten Departments of the College were involved in the study. Eighteen and half percent of these were females.

Numbers of students were expected to be less than 453 of the first total number in each semester and years of College work because of dropouts with academic and non-academic factors. As it is indicated in table 1 that the difference for the number of participants in between first year first semester and third year second semester is seventy two.

The researcher has taken the whole subjects of the target population from ten Departments of the College of Education because, since this study is focused on six semesters of the undergraduate program for the same batch, dropouts were expected in each semester. During this time, we could not identify who drops out and who continues up to the end of undergraduate program. Therefore, it was preferable to take every

individual in the study rather than using a sampling method. The following table summarizes the total number of students in each department during year I semester I and the end of year III semester II.

Table 1:- Number of participants by Gender and Department.

No	Departments	Year I sem. I (2003/04)			Year III sem. II (2005/06)		
		Male	Female	Total	Male	Female	Total
1	E. Lan. and Lit. (A)	17	35	52	14	25	39
2	Biology Education (B)	32	10	42	31	8	39
3	Chemistry Education (C)	33		33	32		32
4	English Education (E)	38	8	46	33	6	39
5	Geography Education(G)	41	7	48	38	3	41
6	History Education (H)	50	4	54	42		42
7	Mathematics Education M	46	4	50	41	3	44
8	Ph. Ed. & Sp. (S)	46	4	50	46	4	50
9	Physics Education (P)	19		19	18		18
10	Psychology (Ps)	46	13	59	32	5	37
	Total	369	84	453	327	54	381

3.3 Instruments

The following variables were considered from the documents of the students.

- ***Predictor Variables:*** Sex, EHEEQE Scores were collected from the files.
- ***Criterion Variable:*** GPA from College performance and cumulative GPA from each progressive semester after year I were recorded on the data collection sheets.
- All courses that each student takes in all six semesters were considered and semester GPAs and Cumulative GPAs were entered in to the SPSS for data analysis.
- Each college performance result has letter grades of "A"B"C"D" and "F" which represent score values of 4,3,2,1, and 0, respectively.
- Grade Point Average on specific course is a product of credit hours and points of a given letter grade. The total grade point averages have been divided by the number of credit hours attempted in order to determine the grade point average (GPA).
- According to the rule of the Registrar of the AAU, any student who fails to achieve a Semester Grade Point Average (SGPA) of 2.00 will be warned. Any student who either fails a second consecutive semester falls bellow a 1.75 CGPA or fails to maintain a CGPA of 2.00 after the second semester has been subjected to dismiss.

3.4 Procedures

The College performance records of 453 students and scores of the entrance examination (EHEEQE scores) of these students were collected from the main Registrar's office of the Addis Ababa University.

Since the records of each student collected by one person of the Registrar (statistician) and were collected from two sections of the registrar, it takes a lot of time and was very complex because, there was no data that has been arranged for each student in all semesters of the undergraduate learning.

All students who have already been out of the system or academically dismissed or those who withdraw were also considered upto where their records were available. Therefore they can give a full picture of the entrants of the academic year of 2003/04 in the College of Education except the Department of Business Education. Finally, the data were entered into the SPSS, a computer software program. Experts have processed the entered data for analysis.

2.5. Method of Data Analysis

The study followed a quantitative data analysis method in order to analyze and interpret the results.

Pearson Product Moment Correlation Coefficients and Multiple Regression Analysis were used and Stepwise solution for Regression Analyses was applied. The F-test has been used to test for the significance of the relationships between the variables. In order to describe the data, mean, analysis of variance, and standard deviation were used. It is hoped that these statistics show us the relationship of the variables (the criterion and the predictors) and its impact to the College performance.

Chapter IV

4. Results

In this section the researcher reports the results of the study.

Three major findings will be described in this chapter. These are: correlation between EHEEQE scores and College performance (GPA), relationship trends between EHEEQE and College GPA through the year of undergraduate learning, and gender differences for the predictive validity of the EHEEQE.

4.1 Relationships between EHEEQE Scores and College GPA

Pearson Product Moment Correlation Coefficients were calculated for the first entrants of the preparatory origin students of the College of Education. To see the magnitude and direction of the relationships, the calculation were operated in ten departments for the relationships between EHEEQE (predictor variables) and College performance of first year first semester GPA, first year Cumulative GPA, second year Cumulative GPA, and third year Cumulative GPA (criterion variables).

4.1.1. Relationships between SAT and College GPA

The relationship between SAT scores and first year first semester GPA were positive and significant for six departments: Ethiopian Languages and Literature (r=o.293*), Chemistry (r=0.379*), English (r=0.459**), Geography (r=0.412**), Mathematics (r=0.503**), Physical Education and Sport (r=0.394**); SAT score was not significant for the Department of Biology, History, Physics, and Psychology (see table 2).

At the end of second year (second year Cumulative GPA), the relationship were positive and significant for only three departments: Chemistry (r=0.480**), Geography (r=0.366*), and Mathematics (r=0.433**). But it was not significant for seven departments (Table 2).

At the end of undergraduate learning, the relationships were positive and significant for five departments. Ethiopian Languages and Literature (r=0.346*), Chemistry (r=0.509**), English (r=0.389*), Geography (r=0.404**), and Mathematics (r=0.466**).

As we have seen that SAT score was consistently positive and significant for three departments (Chemistry, Geography and Mathematics and was not significant for four departments (Biology, History, Physics and Psychology).

4.1.2. Relationships between Mathematics Test Scores and College GPA

The relationships between Mathematics test scores of the entrance examination and College performance were consistently positive and significant only for the Department of Chemistry.

Chemistry was the only department that correlates positively and significantly through undergraduate learning: The values of Pearson r between Mathematics test scores and Collage GPA for the Department of Chemistry to Y_1 S_1, Y_1 cum., Y_2 cum., and Y_3 cum. were, 0.550**, 0.586**, 0.576**, and 0.522**, respectively.

Table 3: Relationships between Mathematics test scores and College performance

No	Departments	Y_1 S_1	Y_1 cum	Y_2 cum	Y_3 cum
1	Ethiopian language and literature	r=0.048 N= 50	r=0.065 N= 48	r=0.001 N= 45	r=0.070 N= 38
2	Biology	r=0.274 N=42	r=0.369* N=42	r=0.293 N=42	r=0.275 N= 39
3	Chemistry	r=0.550** N= 33	r=0.586** N= 33	r=0.576** N= 33	r=0.522** N= 32
4	English	r=0.045 N= 45	r=0.030 N= 43	r=-0.023 N= 41	r=0.055 N= 39
5	Geography	r=0.175 N= 48	r=0.100 N=48	r=0.126 N=44	r=0.101 N=41
6	History	r= -0.014 N= 54	r= -0.061 N= 45	r= -0.126 N= 39	r= -0.245 N= 42
7	Mathematics	r=0.261 N= 50	r=0.305* N= 49	r=0.569** N= 44	r=0.316* N= 44
8	Physical education and sport	r=0.056 N= 50	r=0.010 N= 50	r=-0.055 N= 50	r=-0.033 N= 50
9	Physics	r=-0.328 N= 19	r=-0.411 N= 19	r=-0.324 N= 19	r=-0.141 N= 18
10	Psychology	r=0.098 N= 59	r=0.088 N= 58	r=0.323* N= 50	r=0.152 N= 37

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Except for the Department of Biology (r=0.369*) for first year CGPA, and for the Department of Mathematics (r=0.305*) for first year Cumulative GPA, (r=0.569**) for second year CGPA, and (r=0.316*) for third year CGPA; for the rest of seven departments, Mathematics test scores of the EHEEQE was not totally significant through the level of undergraduate

4.1.4.2. Test Score of General Science

The relationship between General Science test scores and first year first semester GPA were positive and significant for only the Department of Chemistry from Science Education (r=0.522**). It was not significant for three departments of Science Education (Biology, Mathematics, and Physics).

At the end of first year, the relationship between first year CGPA and General Science test scores were positive and significant for only two Departments: Chemistry (r=0.553**) and Mathematics (r=0.283*). Similarly, it was also only for Chemistry and Mathematics Departments that the relationships were positive and significant to second year and third year CGPA: Chemistry (r=0.610**, and r=0.617** to second year and third year Cumulative GPA respectively, and Mathematics (r=0.446**, and r=0.327* to the second year and third year Cumulative GPA respectively).

4.1.5. Relationships between Total without SAT/ with SAT Scores of the EHEEQE and College GPA

4.1.5.1 Total Scores of the EHEEQE without SAT Scores and College GPA

The result indicates that the relationship between total scores without SAT (achievement test scores) and first year fist semester GPA were positive and significant for nine departments. It was only not significant for the Department of Physics. For positive and significant relationship the value of r was 0.403**, 0.356*, 0.733**, 0.680**, 0.605**, 0.592**,

0.461**, 0.388**, and 0.549** to Ethiopian Languages and Literature, Biology, Chemistry, English, Geography, History, Mathematics, Physical Education and sport, and Psychology, respectively.

To fist year and second year GPA, except for the Department of Physical Education and Sport, and Physics, the relationship between Cumulative GPA and total achievement test scores were positive and significant for the rest eight departments (see table 6).

Similarly, at the end of undergraduate (6th semester), the relationships were positive and significant for the same departments of the above mentioned: Ethiopian Languages and Literature. (r=0.434**), Biology (r=0.491**), Chemistry (r=0.729**), English (r=0.653**), Geography (r=0.445**), History (r=0.348*), Mathematics (r=0.442**), and Psychology (r=0.407*).

No	Department	Total Score without SAT				Total Score with SAT			
		$Y_1 S_1$	Y_1	Y_2	Y_3	$Y_1 S_1$	Y_1	Y_2	Y_3
1	E. Lan. & Lit.	r=0.403** N=52	r=0.424** N=50	r=0.378* N=46	r=0.434** N=39	r=0.423** N=52	r=0.446** N=50	r=0.405** N=46	r=0.476** N=39
2	Biology	r=0.356* N=42	r=0.467** N=42	r=0.4[illegible]** N=42	r=0.491** N=39	r=0.370* N=42	r=0.482** N=42	r=0.416** N=42	r=0.500** N=39
3	Chemistry	r=0.733** N=33	r=0.752** N=33	r=0.742** N=33	r=0.729** N=32	r=0.718** N=33	r=0.756** N=33	r=0.752** N=33	r=0.751** N=32
4	English	r=0.680** N=45	r=0.653** N=43	r=0.656** N=41	r=0.653** N=39	r=0.693** N=45	r=0.671** N=43	r=0.621** N=41	r=0.651** N=39
5	Geography	r=0.605** N=48	r=0.571** N=48	r=0.467** N=44	r=0.445** N=41	r=0.603** N=48	r=0.560** N=48	r=0.477** N=44	r=0.479** N=41
6	History	r=0.592** N=54	r=0.634** N=45	r=0.527** N=39	r=0.348* N=42	r=0.597** N=54	r=0.645** N=45	r=0.542** N=39	r=0.373 N=42
7	Mathematics	r=0.461** N=50	r=0.464** N=49	r=0.596** N=44	r=0.442** N=44	r=0.533** N=50	r=0.530** N=49	r=0.625** N=44	r=0.506** N=44
8	Ph. Ed. & Sp.	r=0.388** N=50	r=0.259 N=50	r=0.214 N=50	r=0.233 N=50	r=0.434** N=50	r=0.278 N=50	r=0.258 N=50	r=0.281* N=50
9	Physics	r=0.202 N=19	r=0.217 N=19	r=0.170 N=19	r=0.108 N=18	r=-0.044 N=19	r=-0.076 N=19	r=-0.030 N=19	r=0.140 N=18
10	Psychology	r=0.549** N=59	r=0.521** N=58	r=0.614** N=50	r=0.407* N=37	r=0.524** N=59	r=0.474** N=58	r=0.552** N=50	r=0.347* N=37

**.Correlation is significant at the 0.01 level (2-tailed).

*.Correlation is significant at the 0.05 level (2-tailed).

Table 6:- The relationships between College Performance and Total Score without SAT & Total Score with SAT

4.1.5.2. Total Scores of the EHEEQE with SAT Scores and College GPA

The result for this section is almost similar with the above that has been described though there are differences to the magnitude of the relationships. It was not totally significant for the Department of Physics from first year first semester up to third year second semester. For the Department of Physical education and Sport, it was significant to first year first semester GPA (r=0.434**), and to third year CGPA (r= 0.281*).

The relationship between first year Cumulative GPA and the total scores of EHEEQE with SAT score, the value of r were positive and significant to eight departments: Ethiopian Languages and Literature (r=0.446**), Biology (r=0.482**), Chemistry (r=0.756**), English (r=0.671**), Geography (r=0.560**), History (r=0.645**), Mathematics (r=0.530**), and Psychology (r=0.474**) (see also table 6 for the results of the rest relations).

When we see the Multiple Regression to the parts of EHEEQE scores for College performance, F-test were significant for seven departments to first year first semester GPA (Chemistry, English, Geography, History, Mathematics, Physical Education and Sport, and Psychology). To third year second semester, F test were significant to five departments (Chemistry, English, Geography, History, and Mathematics) (see table 7).

Table 7: Analyses of Variance (ANOVA) for the variables of EHEEQE Scores to College performance in different Departments

Departments	Year level	Model	Sum of Square	d/f	Mean Square	F	R^2
Chemistry	Y_1 S_1	1. Regression	3.693	4	0.923	8.138*	0.538
		Residual	3.177	28	0.113		
	Y_3 S_2	2. Regression	3.273	4	0.818	9.111*	0.574
		Residual	2.425	27	0.090		
English	Y_1 S_1	3. Regression	9.685	4	2.421	14.880*	0.598
		Residual	6.508	40	0.163		
	Y_3 S_2	4. Regression	2.982	4	0.745	10.560*	0.554
		Residual	2.400	34	0.071		
Geography	Y_1 S_1	5. Regression	6.827	4	1.707	9.711*	0.475
		Residual	7.558	43	0.176		
	Y_3 S_2	6. Regression	1.901	4	0.475	3.928*	0.304
		Residual	4.355	36	0.121		
History	Y_1 S_1	7. Regression	9.871	4	2.468	14.647*	0.545
		Residual	8.256	49	0.168		
	Y_3 S_2	8. Regression	1.312	4	0.328	5.862*	0.388
		Residual	2.070	37	0.056		
Mathematics	Y_1 S_1	9. Regression	6.395	4	1.599	7.882*	0.412
		Residual	9.127	45	0.203		
	Y_3 S_2	10. Regression	2.173	4	0.543	4.699*	0.325
		Residual	4.509	39	0.116		
Ph. Ed. & Sp.	Y_1 S_1	11 Regression	2.016	4	0.504	4.186*	0.276
		Residual	5.298	44	0.120		
Psychology	Y_1 S_1	12 Regression	7.501	4	1.875	8.781*	0.394
		Residual	11.532	54	0.214		

According to the weighted value of the Multiple Regressions, 53.8 percent of first year first Semester College GPA was accounted for by the EHEEQE scores to the Department of Chemistry, and for the others, 59.8, 47.5, 54.5, 41.2, 27.6, and 39.4 Percent to the Department of English, Geography, History, Mathematics, Physical Education and Sport, and Psychology, respectively (Table seven).

At the end of third year that 57.4, 55.4, 30.4, 38.8 and 32.5 percent of Cumulative GPA was accounted for by the EHEEQE scores to the Departments of Chemistry, English, Geography, History, and Mathematics, respectively (see also table seven).

Depending on Stepwise solutions for the Regression Analyses, the following results have been summarized. From the potential predictor variables we focused on the relative contribution of individual predictor variables. From these, English test scores (X_3) and Social Studies test scores (X_4) have accounted better to first year first semester GPA. For instance, X_3 accounted for 13.6 % ($F_{(1, 48)} = 8.578$, $P<0.05$) of the variance of GPA for the Department of Ethiopian Languages and Literature. Similarly, it accounted better than other tests of the variance of College performance for the Department of Chemistry, English, Geography, and Mathematics (see on Table 8).

Table 8:-Summary table for regression of Y_1 S_1 College GPA on predictor variables

Departments	Predictor	R	R^2	Adjusted R^2	R^2 Change	F	df_1	df_2
Ethio. Lan. & Lit.	X_3	.369	.136	.134	.136	8.578	1	48
Chemistry	X_3	.608	.369	.349	.369	18.14	1	31
	$X_3 + X_2$	.700	.490	.456	.091	14.425	1	30
English	X_3	.701	.491	.479	.491	41.471	1	43
	$X_3 + X_4$	.758	.574	.554	.084	28.352	1	42
Geography	X_3	.606	.367	.354	.367	26.705	1	46
	$X_3 + X_4$	.686	.471	.448	.104	20.052	1	45
History	X_4	.696	.485	.475	.485	48.991	1	52
	$X_4 + X_1$	.731	.534	.516	.049	29.267	1	51
Mathematics	X_3	.541	.293	.278	.293	19.900	1	48
	$X_3 + X_1$	.634	.402	.376	.108	15.767	1	47
Phy. Ed. & Sport	X_4	.467	.218	.201	.218	13.075	1	47
Psychology	X_4	.572	.327	.315	.327	27.717	1	57
	$X_4 + X_3$	.627	.393	.372	.066	18.143	1	56

- **X_1= SAT, X_2= Mathematics, X_3= English, X_4 =Social Studies/ General Science**

At the end of third year, relatively each potential predictor in particular has contributed for the variance of College GPA.

In the Department of Ethiopian Languages and Literature, English test score accounted for 21.1% ($F_{(1, 36)} = 9.624$, $P<0.05$) of the variance in College GPA. In the Department of Mathematics, Scholastic Aptitude Test(X_1) accounted for 21.7 %($F_{(1, 42)} = 11.638$, $P<0.05$) of the variance in College performance.

When Mathematics test score was added to the model for the Department of Mathematics, the variation in College CGPA was raised to 29.8 % ($F_{(1, 41)} = 8.684$, $P<0.05$), it is a significant increment (See on Table 9).

Table 9:-Summary table for regression of Y_3 S_2 College GPA on predictor variables

Departments	Predictor	R	R^2	Adjusted R^2	R^2 Change	F	df_1	df_2
Ethio. Lan. & Lit	X_3	.459	.211	.189	.211	9.624	1	36
	$X_3 + X_1$	.546	.299	.258	.088	7.448	1	35
Biology	X_3	.467	.218	.197	.218	10.344	1	37
Chemistry	X_4	.617	.381	.360	.381	18.467	1	30
	$X_4 + X_2$	.703	.495	.460	.114	14.201	1	29
English	X_3	.721	.520	.507	.520	40.017	1	37
Geography	X_3	.483	.235	.215	.235	11.965	1	39
History	X_4	.471	.221	.202	.221	11.375	1	40
	$X_4 + X_3$	.576	.332	.298	.111	9.694	1	39
Mathematics	X_1	.466	.217	.198	.218	11.638	1	42
	$X_1 + X_4$	.454	.298	.263	.081	8.684	1	41
Phy. Ed. & Sport	X_4	.355	.126	.107	.126	6.769	1	47
Psychology	X_4	.457	.208	.186	.208	9.216	1	35

*** X_1= SAT, X_2= Mathematics, X_3= English, X_4 =Social Studies/ General Science**

4.2 The Trends of the Relationships

The trends of the relationships between College GPA and the EHEEQE (score for each parts of the entrance examination) are described on the graph below (see figure 1-4).

The graph is represent to the values of r (Y-axis) and year level (X-axis) to see the trends of the relationship between College GPA and entrance examination scores how it forecasting College performance through different levels of College work. The Y-axis represents the values of Correlation Coefficients (r= 0.00 – 1.00) for the relationship between EHEEQE and GPA.

The X-axis represents College year level divisions through undergraduate learning (first year first semester, first year, second year, and third Year).

1. E. Lan. and Lit.
2. Biology
3. Chemistry
4. English
5. Geography
6. History
7. Mathematics
8. Ph. Ed. and Sp.
9. Physics
10. Psychology

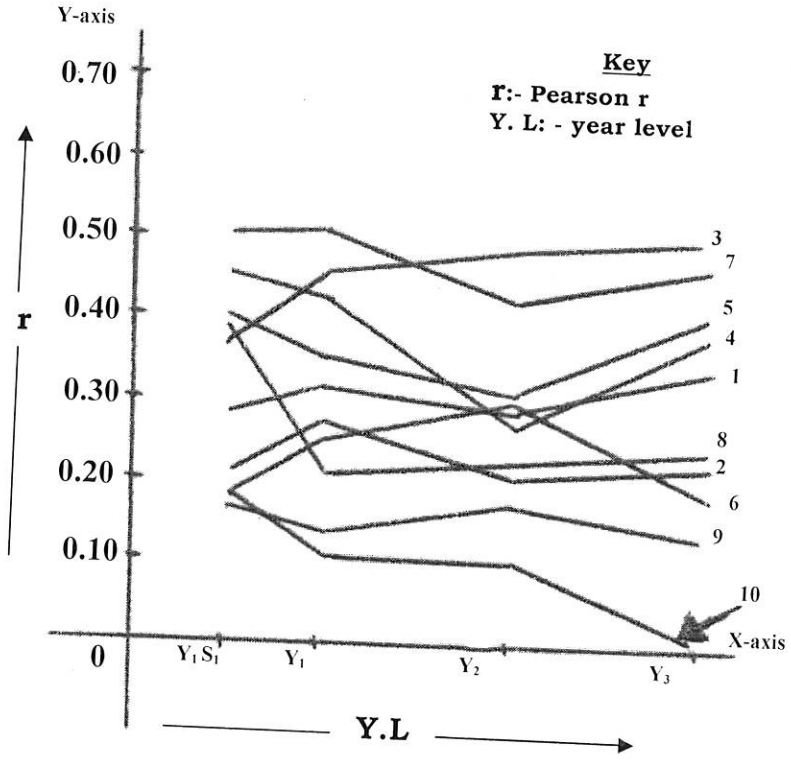

Figure 1. Trends for the relationships between SAT scores and College performance in ten Departments

Depending on the graph of the relationship between the SAT scores of EHEEQE and College GPA and Cumulative GPAs in the consecutive years of undergraduate learning, for most of the Departments relatively it has similar trend (r was consistent) (Figure 1).

For the Department of Psychology the values of r for the relationships between SAT and GPA were with the decreasing manner for the increment of year levels.

For Mathematics test scores, except for the Departments of Mathematics and Psychology, the trends for the relationship between test score and College performance, relatively have similar r values for the Departments of Geography, Ethiopian Languages and Literature, English, Chemistry, and Biology regardless of the magnitude and direction of the relationships (See figure 2).

1. E. Lan. and Lit.
2. Biology
3. Chemistry
4. English
5. Geography
6. History
7. Mathematics
8. Ph. Ed. and Sp.
9. Physics
10. Psychology

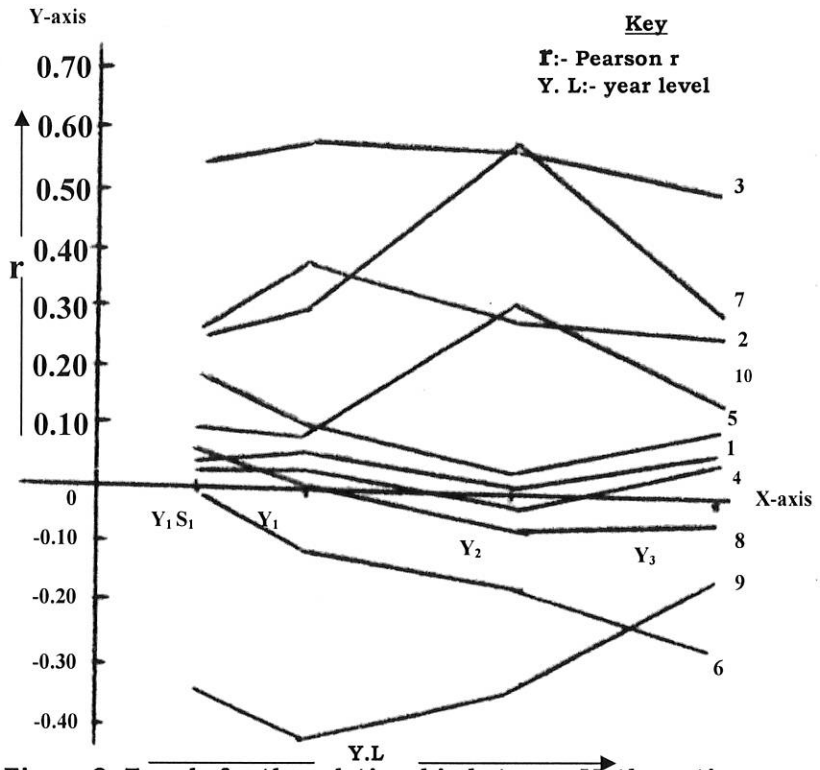

Figure 2. Trends for the relationship between Mathematics test score and College performance in ten departments

When we see for the relationship of the test scores of Social Studies and College GPA, almost all lines go with the declining manner to the X-axis after first year first semester GPA (see figure 4).

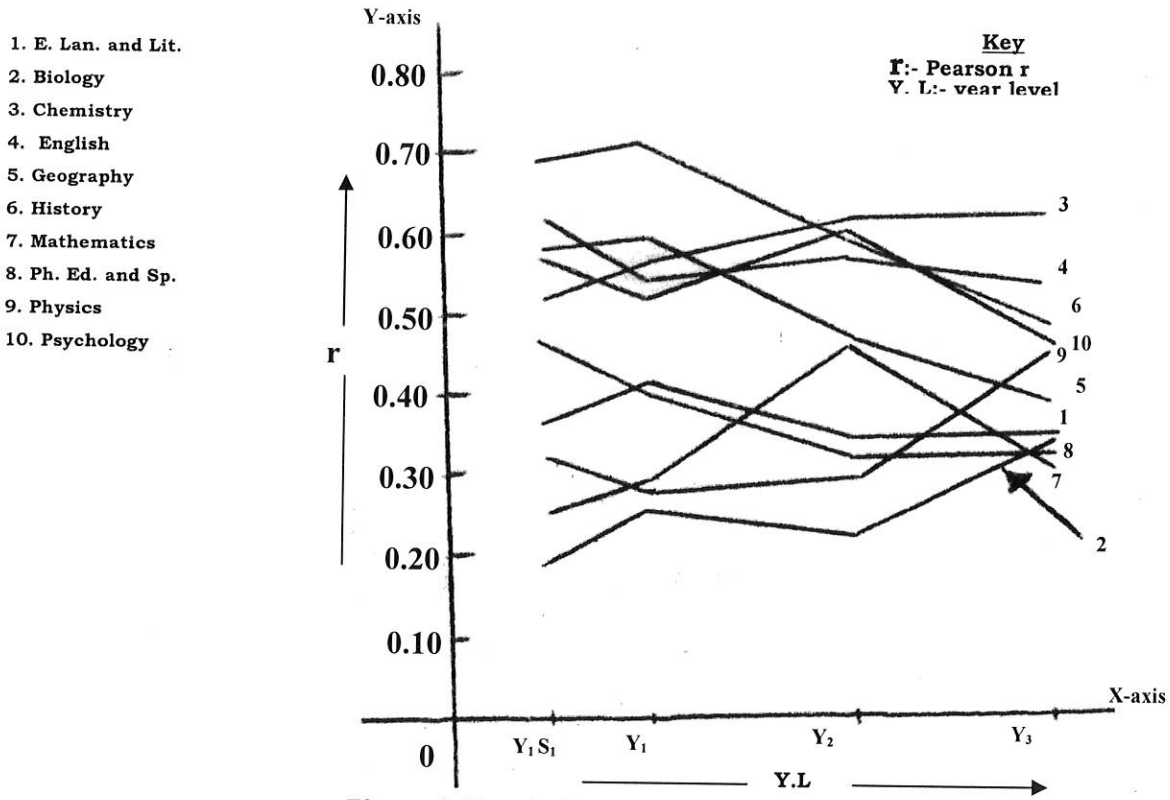

Figure 4. Trends for the relationships between Social studies/General Science test scores and College performance in ten departments

On the other hand, in relation to General Science test scores for the field of Natural Science, the trend of the line were increased almost for all Departments of Natural Science streams.

The ranges (the gaps) for the values of r for the relationships between English test scores and College performance, and for the relationship between Mathematics test scores and College performance are relatively large when we compare with the other relationships.

4.3. Gender difference for the Predictive Validity of EHEEQE

To see gender difference to the relationship between EHEEQE and College performance, only the Department of Ethiopian Languages and Literature and Psychology are taken, they have relatively better "N" to treat.

To the Department of Ethiopian Languages and Literature there were positive and significant relationships between English test scores and first year Cumulative GPA (r=0.353*) and between Social Studies test scores and third year Cumulative GPA (r=0.483*) for female students than male students (See Appendix A).

In relation to the Department of Psychology, there was only one positive and significant relationship between Social Studies test scores and first year Cumulative GPA (r=0.467**) for male students than female students (See Appendix D). There were no significant gender differences for the relationship between EHEEQE and College GPA at different year levels of undergraduate program in the two Departments (See Appendices C & D).

These differences have been occurred for the researcher of this study has got the differences for the accessibility of the participants between the two research papers. Participants included in this paper were not included in Belay's paper and vise versa. In addition to this there is a difference of N between the two papers as observed above.

When we come to the results of this paper, in some cases, there were positive and significant relationships between EHEEQE and College GPA. There were also low and negative relationships between the predictors and the criterion variables.

EHEEQE scores were highly related without any exceptions for the Department of Chemistry relatively better than other departments through all levels of undergraduate program. Generally, it is obvious that student who has got a high score in EHEEQE also has scored high GPA in College (Hinkle,et al. 1994 ; Eckland, 1982). Therefore, EHEEQE has contributed better for College performance for the Department of Chemistry.

On the contrary, EHEEQE scores have very weak relationship to the Department of Physics at all levels of study. Especially the entrance examination of English and Mathematics test scores and College performance were inversely related though the relationships were not significant. In most cases EHEEQE has no significant relevance for the Department of Physics to predict College performance. This might be related with the condition of students when they take the College examination, though this can not be a pertinent cause for this result (Giener, 1995). In this condition for some students, their College GPA

English test scores were highly related with College performance for the Department of English throughout the level of undergraduate learning. The possible reason for this relation might be the placement of students to the Department of English would be in accordance with the interest of students. It may be also related with the nature of the subject matter for it is language whether in the former or latter cases.

Concerning the contribution of each test of the EHEEQE for College GPA depending on positive and significant relationship between College performance and EHEEQE, for first year first semester GPA, 8.60-49.10% is accounted for by each test score of the EHEEQE for different Departments of the College of Education, and for third year Cumulative GPA 10.00-52.00% is accounted for by each part of the entrance examination for the Departments of the College of Education.

In relation to the trends of the relationship between College performance and EHEEQE scores throughout undergraduate learning, in some cases, the relationships were declining with the increment of year level. There were also trends of relationships with increasing manner when the year level of undergraduate learning increases. When we see the trends of the relationships on the graph (see figure 1-figure 4) especially for the relationship between College performance and test score of Social Studies, it has totally a declining mode after first year first semester. The possible explanation for this can be that the EHEEQE is related much with facts and simple learning rather related with critical thinking of students. This trend has agreed with the findings of other researchers. Pertaining to this Sedlacek (1998), Meagher et. al. (2006), and Schaeffer (1995) have concluded that the ability of test scores to predict grades decreases after the first, second and subsequent years of College performance.

On the other hand, the line for the relationship for College performance and General Science test scores for Natural Science students have relatively raised up with the latter years of study. There are conditions that the entrance examinations contribute better in the latter years of study than first year study. There are similar findings, Distefano and Rice (1966) has found positive and significant relationship between fourth year Cumulative GPA of College performance and the entrance examination than for the relationship between entrance examination to first year and second years of College studies. There are also many relations that have similar trends through the level of undergraduate program regardless of some ups and downs.

According to the results of this finding, achievement total scores are related to College performance relatively better than Scholastic Aptitude Test scores alone. There are similar findings in the relationships of achievement test scores and College performance (Geiser, 2002; Sedlacek, 1998).

In relation to gender difference to the relationship between College performance and entrance examination, it was only to the Department of Ethiopian Languages and Literature that English test scores and Social Studies test scores are related to College performance for female students than male students. And there was only one positive and significant relationship between Social Studies test scores and first year Cumulative GPA to male students than female students to the Department of Psychology. In other departments because of insignificant number of female students, the researcher of this study did not treat them.

- Social Studies test scores and English test scores of the EHEEQE relatively have better relationship to College GPA and, on the other hand, Mathematics test score has the lowest relationship to College performance of students in most of the Departments of the College of Education.

- In all cases the EHEEQE scores effectively contributed or are highly related with the Department of Chemistry; on the contrary, not to the Department of Physics.

- It was only to the Department of Ethiopian Languages and Literature that English test scores and Social Studies test scores that have better relationships to College performance to female students than male students.

6.2 Recommendations

The following recommendations are made based on the findings of the analysis and discussions.

1. The College of Education of the Addis Ababa University and the Departments of the College of Education have to give due attention for giving orientation and counseling services to the students of new comers about the life in the University and how they adjust themselves with the environment of the University.

2. If we can not take care of about the administration of EHEEQE, it would be danger for selecting the correct student for College

6.3. Suggestions for Further Study

- This study focused only on the College of Education. Researchers who are interested to do research in this area might contribute better if they try to see also in other faculties for the predictive validity of EHEEQE.

- This research has taken the EHEEQE as the predictor variables for College performance of the students of the College of Education. There might be also other possible factors that can play a significant role to forecast College performance; from these, high school records, EGSECE, and family background can be mentioned. Therefore, if researchers consider these variables, they might come across with other possible predictor variables for predicting College performance.

- To increase the quality of the EHEEQE, continuous research is needed to be conducted for different batches of College students. In such research, many possible suggestions might reveal. Therefore, the conductor of this study hopes that individuals in group or in particular will develop research proposals for different batches of higher education entrants for the predictive validity of the EHEEQE.

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Correlations

		V1	V2	V3	V4	V5	V6	V7
V1	Pearson Correlation	1	.250	.127	.460**	.247	.263	.330
	Sig. (2-tailed)		.160	.466	.005	.152	.133	.115
	N	35	33	35	35	35	34	24
V2	Pearson Correlation	.250	1	.091	.207	.130	.101	.079
	Sig. (2-tailed)	.160		.615	.247	.471	.582	.721
	N	33	33	33	33	33	32	23
V3	Pearson Correlation	.127	.091	1	.377*	.333	.353*	.483*
	Sig. (2-tailed)	.466	.615		.026	.051	.041	.017
	N	35	33	35	35	35	34	24
V4	Pearson Correlation	.460**	.207	.377*	1	.317	.393*	.428*
	Sig. (2-tailed)	.005	.247	.026		.064	.021	.037
	N	35	33	35	35	35	34	24
V5	Pearson Correlation	.247	.130	.333	.317	1	.960**	.899**
	Sig. (2-tailed)	.152	.471	.051	.064		.000	.000
	N	35	33	35	35	35	34	24
V6	Pearson Correlation	.263	.101	.353*	.393*	.960**	1	.946**
	Sig. (2-tailed)	.133	.582	.041	.021	.000		.000
	N	34	32	34	34	34	34	24
V7	Pearson Correlation	.330	.079	.483*	.428*	.899**	.946**	1
	Sig. (2-tailed)	.115	.721	.017	.037	.000	.000	
	N	24	23	24	24	24	24	24

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

V1=SAT, **V2**=Mathematics Test score, **V3**=English Test Score, **V4**=Social Studies/General Science Test Score, **V5**=Y1S1 GPA, **V6**=Y1 Cum, **V7**=Y3 Cum.

Appendix A: - The relationships between EHEEQE Scores and College GPA to Female students of the Department of Ethiopian Languages and Literature.

Correlations

		V1	V2	V3	V4	V5	V6	V7
V1	Pearson Correlation	1	-.053	.028	.323	.008	.033	-.029
	Sig. (2-tailed)		.840	.914	.205	.976	.905	.919
	N	17	17	17	17	17	16	15
V2	Pearson Correlation	-.053	1	-.130	-.011	-.370	-.204	-.074
	Sig. (2-tailed)	.840		.618	.966	.144	.448	.794
	N	17	17	17	17	17	16	15
V3	Pearson Correlation	.028	-.130	1	.405	.322	.124	.015
	Sig. (2-tailed)	.914	.618		.107	.208	.648	.958
	N	17	17	17	17	17	16	15
V4	Pearson Correlation	.323	-.011	.405	1	-.031	-.104	-.184
	Sig. (2-tailed)	.205	.966	.107		.907	.701	.511
	N	17	17	17	17	17	16	15
V5	Pearson Correlation	.008	-.370	.322	-.031	1	.967**	.890**
	Sig. (2-tailed)	.976	.144	.208	.907		.000	.000
	N	17	17	17	17	17	16	15
V6	Pearson Correlation	.033	-.204	.124	-.104	.967**	1	.909**
	Sig. (2-tailed)	.905	.448	.648	.701	.000		.000
	N	16	16	16	16	16	16	15
V7	Pearson Correlation	-.029	-.074	.015	-.184	.890**	.909**	1
	Sig. (2-tailed)	.919	.794	.958	.511	.000	.000	
	N	15	15	15	15	15	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

V1=SAT, **V2**=Mathematics Test score, **V3**=English Test Score, **V4**=Social Studies/General Science Test Score, **V5**=Y1S1 GPA, **V6**=Y1 Cum, **V7**=Y3 Cum.

Appendix B: - The relationships between EHEEQE Scores and College GPA to Male Students of the Department of Ethiopian Languages and Literature.

	V1	V2	V3	V4	V5	V6
V1	1 13	.422 .150 13	.005 .986 13	.502 .080 13	.257 .397 13	.210 .491 13
V2	.422 .150 13	1 13	.495 .085 13	.316 .294 13	.231 .447 13	.254 .402 13
V3	.005 .986 13	.495 .085 13	1 13	.160 .602 13	.495 .085 13	.592* .033 13
V4	.502 .080 13	.316 .294 13	.160 .602 13	1 13	.643* .018 13	.408 .167 13
V5	.257 .397 13	.231 .447 13	.495 .085 13	.643* .018 13	1 13	.844* .000 13
V6	.210 .491 13	.254 .402 13	.592* .033 13	.408 .167 13	.844* .000 13	1 13

V1=SAT, **V2**=Mathematics Test score, **V3**=English Test Score, **V4**=Social Studies/General Science Test Score, **V5**=Y1S1 GPA, **V6**=Y1 Cum, **V7**=Y3 Cum.

Appendix C: - The relationships between EHEEQE Scores and College GPA to Female students of the Department of Psychology.

Correlations

		V1	V2	V3	V4	V5	V6	V7
V1	Pearson Correlation	1	.086	.246	.254	.252	.154	.067
	Sig. (2-tailed)		.569	.099	.089	.091	.313	.719
	N	46	46	46	46	46	45	31
V2	Pearson Correlation	.086	1	-.178	.064	.037	.004	.136
	Sig. (2-tailed)	.569		.236	.671	.806	.981	.466
	N	46	46	46	46	46	45	31
V3	Pearson Correlation	.246	-.178	1	.277	.305*	.282	.009
	Sig. (2-tailed)	.099	.236		.063	.039	.060	.960
	N	46	46	46	46	46	45	31
V4	Pearson Correlation	.254	.064	.277	1	.478**	.467**	.337
	Sig. (2-tailed)	.089	.671	.063		.001	.001	.064
	N	46	46	46	46	46	45	31
V5	Pearson Correlation	.252	.037	.305*	.478**	1	.917**	.814**
	Sig. (2-tailed)	.091	.806	.039	.001		.000	.000
	N	46	46	46	46	46	45	31
V6	Pearson Correlation	.154	.004	.282	.467**	.917**	1	.902**
	Sig. (2-tailed)	.313	.981	.060	.001	.000		.000
	N	45	45	45	45	45	45	31
V7	Pearson Correlation	.067	.136	.009	.337	.814**	.902**	1
	Sig. (2-tailed)	.719	.466	.960	.064	.000	.000	
	N	31	31	31	31	31	31	31

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

V1=SAT, **V2**=Mathematics Test score, **V3**=English Test Score, **V4**=Social Studies/General Science Test Score, **V5**=Y1S1 GPA, **V6**=Y1 Cum, **V7**=Y3 Cum.

Appendix D: - The relationships between EHEEQE Scores and College GPA to Male Students of the Department of Psychology.

No	Departments	EHEEQE Test Scores							
		SAT		Mathematics		English		Social St./Gen. Sci.	
		Mean	S	Mean	S	Mean	S	Mean	S
1	E. Lan. & Lit	36.40	7.11	31.10	8.53	36.50	10.83	38.77	11.43
2	Biology	42.40	6.87	42.24	9.56	42.90	8.42	42.81	6.11
3	Chemistry	41.64	6.35	45.42	9.19	41.88	10.31	43.39	6.40
4	English	36.48	7.89	31.59	8.77	42.39	11.26	44.26	8.97
5	Geography	40.33	8.18	36.65	10.19	42.02	9.10	50.85	10.56
6	History	35.59	6.81	31.13	7.69	37.39	7.20	45.07	9.20
7	Mathematics	42.80	5.51	46.60	10.17	41.82	8.36	43.20	7.53
8	Ph. Ed. & Sp.	35.57	8.15	34.00	9.22	39.24	9.58	42.02	9.24
9	Physics	37.68	6.63	40.58	6.47	39.79	6.80	38.37	4.60
10	Psychology	40.12	7.79	38.47	9.49	42.08	7.93	50.73	9.85

Appendix F: - Mean and Standard Deviation of the EHEEQE Test Scores of the Departments of the College of Education in 2003/04.

Departments	Y_1S_1		Y_1 Cum.		Y_2 Cum.		Y_3 Cum.	
	Mean	**S**	**Mean**	**S**	**Mean**	**S**	**Mean**	**S**
E. Lan. & Lit.	2.024	0.742	2.068	0.686	2.219	0.403	2.302	0.382
Biology	2.692	0.503	2.616	0.434	2.473	0.384	2.508	0.338
Chemistry	2.308	0.463	2.405	0.459	2.378	0.445	2.450	0.429
English	2.479	0.607	2.486	0.589	2.497	0.478	2.530	0.376
Geography	2.635	0.553	2.707	0.543	2.620	0.464	2.665	0.395
History	2.333	0.585	2.357	0.485	2.443	0.391	2.419	0.287
Mathematics	2.608	0.563	2.564	0.469	2.491	0.372	2.477	0.394
Ph. Ed. & Sp.	2.551	0.386	2.667	0.370	2.694	0.367	2.653	0.366
Physics	2.223	0.316	2.369	0.305	2.442	0.204	2.504	0.209
Psychology	2.351	0.573	2.319	0.553	2.464	0.543	2.699	0.428

Appendix E: Means and Standard Deviations of College performance to the Departments of the College of Education in different levels of undergraduate program.