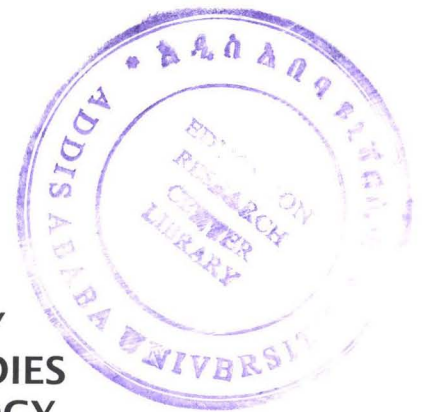


**EXPLORING THE INCOMING: A COMPARATIVE  
ACADEMIC ACHIEVEMENT STUDY OF PREPARATORY  
AND FRESHMAN ORIGIN SOPHOMORE STUDENTS**

**A THESIS PRESENTED TO THE SCHOOL OF GRADUATE  
STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
OF THE DEGREE OF MASTERS OF ARTS IN MEASUREMENT  
AND EVALUATION**

**ADDIS ABABA UNIVERSITY  
SCHOOL OF GRADUATE STUDIES  
DEPARTMENT OF PSYCHOLOGY**



**BY: BIZUNEH TAKELE**

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# LETTER OF APPROVAL

ADDIS ABABA UNIVERSITY  
SCHOOL OF GRADUATE STUDIES  
COLLEGE OF EDUCATION

EXPLORING THE INCOMING: A COMPARATIVE ACADEMIC  
ACHIEVEMENT STUDY OF PREPARATORY AND FRESHMAN  
ORIGIN SOPHOMORE STUDENTS

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EXPLORING THE INCOMING: MA THESIS, AAU JUNE 2005

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I am indebted to Dr Ayele Meshesha, my advisor, whose advice and guidance made this study possible. Another thanks go to my mother, my wife Yetni, my brothers, my sisters and my kids who willingly donated their share of my time, and whose love and encouragement had been my strength. I am also grateful to my host organization, NOE, for sponsoring my study. The last but not the least thanks go to W/o Almaz Beyene (MoE), and Ato Tadesse Beyene (AAU), for their assistance in retrieving the source data and Ato Kassu Zewdie for editing the final draft.

## Dedication

This Thesis is dedicated to my father, Grazmach Takele Wojege whom I lost while I was in this study and whose wise upbringing and love made most of what I am today.  
*Thank you father.*

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## ACRONYMS AND ABBREVIATIONS

MOE	Ministry of Education
ETP	Education and Training Policy
ESLCE	Ethiopian School Leaving Certification Examination
EGSECE	Ethiopian General Secondary Education Certificate Examination
EHEECE	Ethiopian Higher Education Entrance Certificate Examination
CGPA	Cumulative Grade Point Average
AAU	Addis Ababa University
GPA	Grade Point Average
Sem. 1 GPA	Semester 1 GPA
Sem. 2 GPA	Semester 2 GPA

## ABSTRACT

*The purpose of this study is to determine whether or not there exists a significant difference in academic performance between preparatory origin and freshman origin high and low achieving students who came together as regular second year students of the Addis Ababa University (AAU) in the year 2003/2004, as measured by a) academic achievement b) pass rate c) dismissal rate d) withdrawal rate and e) wastage rate with and without controlling secondary school performance.*

*Each of these groups took different paths to the second year of the AAU: 423 preparatory origin students entered AAU second year after completing general secondary education and also completing the first year equivalent preparatory school courses, whereas 303 freshman origin students entered AAU second year after completing high school and a freshman year at the university. The study also aims to see whether or not there exists a statistically significant difference, in academic achievement, between (a) faculties (b) female and male students and c) different age groups.*

*The study showed that, regardless of the path they took to enter the AAU second year, either through preparatory schools or through freshman year at AAU, students in the high achieving group performed equally well at the AAU in terms of:*

- ◆ *First semester GPA*
- ◆ *Second semester GPA*
- ◆ *Cumulative GPA*
- ◆ *Pass rate*
- ◆ *Dismissal rate*
- ◆ *Withdrawal rate, and*
- ◆ *Wastage rate*

However, some differences were observed in academic performance between low achieving group of the preparatory origin and the freshman origin students. **“Low achiever” freshman origin students out-performed “low achiever” preparatory origin students at AAU second year on the following performance measures at  $p < .01$  level:**

- ◆ First semester GPA (2.51 versus 2.17)
- ◆ Second semester GPA (2.53 versus 2.19)
- ◆ Cumulative GPA (2.54 versus 2.23)
- ◆ Pass rate (78.08% versus 63.33%)
- ◆ Dismissal rate (8.22% versus 22.38%)
- ◆ Wastage rate (13.69% versus 24.76%)

In all the six faculties analyzed, no statistically significant difference was observed between academic achievement, as measured by GPA, of preparatory origin female students and freshman origin female students. Nevertheless, freshman origin female students performed higher (statistically significant), as a group, than preparatory origin female students in all the three measures

In seven out of nine faculties, preparatory origin male students performed equally well as their freshman counter mates .In Faculties of Science and Pharmacy, freshman origin male students performed higher (statistically significant) than preparatory origin male students.

After categorizing students into three age groups: group 1, less or equal to 17 years; group 2, between 18 and 19 years inclusive; and group 3, 20 years or above the two cohorts were compared. Only between age group 2 preparatory and freshman origin students, a statistically significant difference, in favor of freshman origin students, was observed.

# I. INTRODUCTION

## 1.1 *Background of the Problem*

### 1.1.1 Theoretical background

Modern public education made a modest entry into the history of Ethiopia at the beginning of this century with the establishment of the Minlik II School (Negash, 1990). Since the introduction of modern education, different education systems were adapted and implemented. In early days, it resembled language schools (Negash, 1990). Until 1963/64, the known education system was 4 + 4 + 4 year combination which was a hybrid derived from Great Britain and neighboring African countries. In 1963/64, the grade structure was changed to 6 + 2 + 4. That is, six years of primary school, followed by two years of Junior secondary and a four-year secondary program. After 1991, the school structure became 8 + 2 + 2. Where the first 8 years are general primary education and the next two years were designed for general secondary education. At the end of the general primary education and the general secondary education, students sat for national examinations, which certify the successful completion of the programs (Education and Training Policy (ETP), 1994). The general secondary education (grades 9-10) is equivalent to the former secondary education (grades 9-12) (MOE, 1999; MOE, 2002). For students who completed the general secondary education, there were two programs to join: The two-year preparatory program, which counts as equivalent to university freshman program, and technical and vocational training programs (MOE, 1999; MOE, 2002; ETP, 1994).

After two years of preparatory program, students would take the Ethiopian Higher Education Entrance Certificate Examination, EHEECE. Then they would be assigned to different higher institutions based on their aggregate scores of EHEECE and cumulative grade of selected subjects they earn in the preparatory

program, according to their field of preferences. This has been the practice of accepting students to colleges and universities in the country for the last two years. This form of admission of students to universities and colleges has replaced the former Ethiopian School Leaving Certificate Examination, ESLCE. We are now at a point where the two forms of admissions have come together.

This study focuses on the current second year students who completed secondary education and were admitted to Addis Ababa University (AAU). These students are composed of two distinct groups because each group took a different path to the university: 3824 students entered AAU directly from high school after taking the former ESLCE, referred to here as “Freshman origin” students. Five thousand seven hundred and thirteen students have joined the university after completing the General Secondary Education and qualifying through Ethiopian General Secondary Education Certificate Examination, EGSECE, and EHEECE, and referred to here as “preparatory origin”. The study attempts to compare the academic performance of the two admission groups at the tertiary institution.

Both groups completed secondary school. The freshman origin students completed eight years of primary education and four years of secondary education. After four years of secondary schooling, they sat for ESLCE and those who were successful (mostly scoring ‘B’ or above in compulsory subjects in the average) joined AAU. These students attended their first year at the AAU and those who met the criteria promoted to second year.

Preparatory origin students passed through eight years of primary education and two years of secondary education. The two-year secondary education was justified by the ministry of education to be equivalent to the former four years of secondary education (MoE). Among the justifications: -

- In the previous 4 years secondary education, both vocational and academic subjects were given in combination. In the new system, only academic subjects are treated, so the academic part of the four-year program can be covered in the two years.
- Some of the four-year contents were shifted to the lower grades, etc.

After completing the two-year secondary school, students sat for EGSECE, and those who successfully completed (mostly those who scored 50% or above) joined the two year preparatory program. This program, designed to prepare students for a degree program, was again justified to be equivalent to the first year university courses by comparing courses offered in the two programs (MOE, 1999).

Thus, the two cohorts were assumed to have similar pre-university second year background knowledge. If this were really the case, the two groups could be expected to perform similarly at the AAU second year. This study investigates the situation.

### **Alternate Paths to Higher Institutions**

Heslop (2004) compared two groups who took alternate paths to Simon Fraser University (SFU): 7,335 direct - entry secondary school students entered SFU from high school within one year of high school graduation and 3,109 college transfer students entered SFU after completing approximately 30 or more college transfer credits. In his study, Heslop used secondary school performance which is the overall mean grade calculated for each student on four provincial exam scores as a control for high school performances. Based on this score of the control, students of both groups were categorized as high and low achiever and corresponding subgroups compared. The dependent variable (the comparator) used in the study was SFU cumulative GPA and the

statistics employed to compare the means was the independent sample t - test. The result identified that students with low high school achievement (low achievers) performed better at SFU if they got transferred from college as opposed to entering directly from high school. Colleges transferred students and direct entry students often performed equally if their high school achievement were higher.

In their study, Carlan and Byxbe (2000) compared native (direct entry) and community college transferred students (students who took preparatory courses before entering a four year institution). The stratified sample of 987 students from both groups (487 native and 500 transferred) was used in the study. The comparison was made by the cumulative GPA they scored after they joined the University. The statistics employed was the independent sample t - test. In this study, Carlan and Byxbe did not find any statistically significant difference between the groups at  $p < .05$  level.

Losak and Lin (1973) investigated whether those students who earned credits for basic courses through the College-Level Examination Program (CLEP) General Examinations achieved the same level of academic performance in advanced courses as those who took the basic courses in the traditional manner. The researchers used a rigorous sampling procedure to match both CLEP and non-CLEP students on Florida Twelfth Grade Test scores. Both groups were then compared on their average grades in five academic areas. The covariance analysis showed that the CLEP students (N=134) did just as well in five academic areas and overall GPA as the non-CLEP students (N=160).

The above review and other related literatures revealed that the path students take to join higher institutions has minimum or no effect on the students' future performance. In this study, the case will be analyzed in the Ethiopian context by considering AAU.

## Transition and Adjustment

The two admission groups completed their transition year (first year) in different atmospheres and studies show this transition year, in most cases, is problematic and has a significant impact on the future achievement of students. The problem of transition from secondary to tertiary has been the center of discussion for years (Powell, 1979; Cuseo, 2000; Rasor, 1998). Attention to this issue as a strategy would significantly improve the overall performance of transition students (Pargetter et al,1998).

The first year represents relatively new experiences and stressful transition for university students (Lu, 1994). For individual students, the consequence of a difficult transition can be costly, most obviously in terms of loss of confidence and income. The economic cost to universities and society are immediately evident in early withdrawals and dismissals in the first year. Furthermore, as the study by McInnis and James (1995) showed, a third or more first year students who remain enrolled have serious doubts about their choice of course and their level of commitment to study is problematic. Indeed the effects of negative transition to the university are easily underestimated since they are often only revealed as discontinuation or failure in later years.

A number of studies have confirmed that students who report positive experiences when first commencing university are more likely to persist in higher education (Clarke and Ramsay, 1990; McInnis, and James, 1995). Conversely, negative experiences during first year, often during the first six weeks of the first semester, have been described as contributing to the likelihood of academic failure or withdrawal in later years (McInnis and James, 1995; Tinto 1995). It is, therefore, appropriate for universities to implement a strategic direction, which places emphasis on shared responsibility for the enhancement of the first year of study.

Despite a multitude of social, academic, and emotional stresses, most students successfully cope with the new complex life and achieve academically (DeBerard, Spielmans, & Julika, 2004). However, others, unable to successfully manage this transition, decide to leave their education during or at the end of their first year.

Some studies (McInnis and James, 1995) concluded that while some students found the transition to university a tough obstruction, for others it was an intimidating gulf. In their study, McInnis and James (1995) revealed that most students expected and enjoyed the opportunity of independence in contrast to their school experience. For school leavers, the contrast between school and university were greater than expected in some respects. Most first year students were however, sure of their reasons for attending university, and a strong desire to do well (DeBerard, Spielmans, & Julika, 2004). Overall, they had clear aims and strong desires and sense of purpose. The overwhelming majority attached a good deal of importance to studying in fields in which they had intrinsic interest (DeBerard, Spielmans, & Julika, 2004). They balanced personal growth against vocational goals. A sense of identity as a university student, feeling of integration with the university, and a commitment to achieving well, were still very much in evidence between the second year students.

The implications of leaving college without obtaining a degree are many. Each student that leaves before degree completion costs the college or university and the country at large thousands of dollars (DeBerard, Spielmans, & Julika, 2004). Despite these considerable negative consequences for universities, students, attrition rates have not changed appreciably over the last few decades (Porter, 1990, as cited by DeBerard, Spielmans, & Julika, 2004).

## Retention and Academic Achievement

There is a consistent relation between university students' academic achievement and retention, with higher performing students persisting in their studies to a greater degree than their lower achieving cohorts (Kirby & Sharpe, 2001; McGrath & Braunstein, 1997; Rayland, Riordan, & Brack, 1994 as cited by DeBerard, Spielmans, & Julika, 2004). Given the consistent relation between these variables, attempts had been made to identify common risk factors for these student outcomes in order to best develop targeted intervention programs.

Eshetu (1998) made a comparative study on performance of 426 teacher and non-teacher streams of the four years (1995-1998) graduates of AAU natural science (Biology, Chemistry, Mathematics, And Physics) departments. The statistical analysis and the interpretation were based on non-parametric statistical method. His study showed that there was no statistically significant difference between the achievements of the two cohorts.

Sintayehu (1998) tried to analyze academic achievement as a function of parenting styles. The samples were 560 students from secondary schools. The academic achievement scores were obtained from school records. In the study, chi-square and analysis of variance were employed. Statistically significant differences in academic achievement, as measured by four years average scores of high school subjects, was observed in favor of authoritative parents and no significant difference in academic achievement of students for the remaining three parenting styles.

The quality of education is partly determined by the success of students in the learning process. Research studies list various factors as causes for student low achievement. Some researchers (e.g., Ekstrom, et al. 1986; Asmerom, et al., 1989 as cited by Yalew) reported that 83% of their sample students

dropped out for academic reasons. Review of the literature by Kaplan, Peck, and Kaplan (1997), suggested that poor academic performance is one of the most often cited correlate of dropout. Laekemariam (1994) also noted that students' attrition is due to their poor academic performance.

On the other hand, Gebre Selassie (1998) attributed the causes of attrition to inefficient administrative and educational services. Hussien et al. (1987) reported that the causes of students' attrition at universities and colleges were the nature of educational planning that gave little chance to provide varied educational opportunities.

Other researchers (Kelly, 1994; Bean et al.,(1985); pointed out that attrition is mainly the result of adjustment problems and self concept rather than low academic performance.

#### **AGE AND ACADEMIC ACHIEVEMENT**

In some studies, age appears to have little predictive power for success in academic achievement (e.g. McClelland & Kruger, 1993) or persistence (e.g. Gillespie & noble; West et al. 1986). In the study by Mathewos (2000), age was found to affect achievement negatively. Farabaugh-Dorkins (1991) in a study of adults (over 21 years) freshman, found dropping out to be most correlated with intent to leave, GPA and goal commitment. However, Clarke and Ramsey (1990) found age correlated positively with performance in most institutions and courses. Siegfried and Walstad (1990) indicated that age has a positive effect on performance in economics. Anderson et al. (1994), controlling time, found a significant difference across sessions and campuses, and that after 25 years, higher ages begin to have a positive effect. As these reviews reveal, findings concerning age as indicator of performance are inconsistency. This study attempts to see as to whether or not age has an effect on academic achievement of second year university students at AAU.

## GENDER AND ACADEMIC ACHIEVEMENT

In some foreign studies, gender is a weak predictor of performance (Benson, 1991; Tutton & Wigg, as cited by Pargetter et al, 1998). However, in most local studies high women dropout rate, mostly due to academic dismissals is evidenced. Gebre Silasie (1983) reported that in 1982, 21.5 % of female AAU social science entrants dropped out during the first semester of the freshman. As cited by Fentaw (2001), data obtained from the first year 32.9 %, 35.0 %, and 34.5 of female students were dropped out from 1995, 1996, and 1997 entrants during the first year, respectively. In his study, using the data from students' academic record, Fentaw (2001) found that 54 % of female entrants to the Social Science Faculty of AAU dropped outs 75% were academic dismissals. In his study, Fentaw compared female students admitted through regular and quota admissions using life-table estimation procedure for determining the magnitude and pattern of female students survival and dropout rates over the eight semesters. He found no significant difference between the two groups.

In some other foreign studies, gender has been shown to be a statistical correlate of both first semester GPA and first semester academic warning (DeBerard & Julika, 2000). In this study by Deberard and Julika, males were related to lower GPA and greater likelihood of academic warning. In some studies, however, although it has been shown that males outperform females in certain types of courses (e.g., economics and electrical engineering courses) while females on average do better in other types of courses (e.g., nutrition and dietetics) (Killer, Crouse, & Trusheim, 1993; Schram, 1996). In some studies, gender did not appear to predict performance (Benson, 1991; 1993; Tutton & Wigg).

Thus, research results have shown inconsistent relationship between gender

and academic achievement. This is in parallel with the reviews and studies by Galicki & McEwen, (1989); Ryland, Riordan, & Brack, (1994); Bridgeman & Wendler, (1991). This study will attempt to see whether gender is a statistical correlate of academic achievement as measured by GPA.

## **1.2 Purpose of the Study**

As indicated earlier, this is a comparative academic achievement study of students who joined AAU directly from high school and who joined AAU after two years of preparatory school. The purpose is to examine if there is a difference in academic achievement between the two groups. The comparative academic performance study includes descriptive profile of the freshman origin and preparatory origin students and analysis of the differences in overall academic performance and differences in course grade performance, if any. Along with the possible differences in academic performance between the two admission groups, conclusions will be drawn about academic achievement of the two sub-groups of students (low achievers and high achievers) within each admission category, between different sexes and age groups of the two cohorts and between different faculties.

### **1.2.1 Statement of the problem**

The study attempts to answer the following questions.

1. Is there a statistically significant difference between second year students of freshman origin and preparatory schools origin with respect to their academic performance as measured by academic achievement and attrition rate?
2. Is there a statistically significant difference in academic achievement between students of the two groups in the same faculties?
3. Is there a statistically significant difference in academic achievement between same sexes of the two cohorts as a whole and within faculties?
4. Is there a statistically significant difference in academic achievement

between different age groups?

### **1.2.2 Objectives of the study**

Objectives of the study are

1. To examine whether or not there exists a difference between the two admission groups in terms of their academic achievement;
2. To determine if there is a significant difference in academic achievement between the students in different faculties;
3. To see if there is a significant difference in academic achievement between different age/ sex groups.

### **1.2.3 Significance of the study**

Among the policy issues facing higher education, questions concerning access, admission, transfer, retention, and attrition remain central. The effectiveness and survival of educational programs depend upon a thorough understanding of the needs, problems, attitudes and achievement of its clientele (Darkenwald and Merriam, 1982). Thus, a comparison of educational attainment is important not only to clearly understand the performance level of the different admission groups but also to analyze the relative effectiveness of the two programs.

The freshman origin students under consideration are the last batch of their kind because the grade structure in which they came in through has phased-out. The system through which they were trained was well established, stable and thoroughly researched, comparing their academic performance with the academic performance of the group that came in from the new school structure could enable us to identify the relative strength and weakness of the new system and to devise mechanisms to rectify its weaknesses, if any and

strengthen further its strong aspects. Furthermore, this study hopes to provide information on what differentiates the learning gain of the freshman origin students from those of the preparatory origin. This is important for program planners and implementers. In addition, by comparing the academic achievement of students of different faculties at AAU, the researcher could comment on the nature of performance of second year students of different age groups and male and female students in the university, on similar and different fields of study.

#### **1.2.4 Operational Definitions of Terms**

*Academic achievement:* Relative score of the student as measured by first semester GPA, second semester GPA, and cumulative GPA.

*Academic performance:* Performance of second year AAU students as measured by academic achievement, pass rate, withdrawal rate, dismissal rate, and wastage rate.

*Achievement Level:* the position a student is assigned by the researcher based on the score obtained in ESLCE or EHEECE.

*Cumulative GPA (CGPA):* The average score of a student computed for the 30-36 credit hour courses offered in the second semester of the year 2003/2004.

*Dismissal rate:* A proportion obtained by dividing the number of students discontinued their education in the year for academic reason by the total number of students enrolled at the beginning of the year.

*First semester GPA (sem.1 GPA):* The average score of a student computed for the 15-18 credit hour courses offered in the first semester of the year 2003/2004.

*Freshman origin students:* students who joined AAU second year after twelve years of secondary education and one year at the university. These students took ESLCE and got admitted to the university as freshman in the year 2002.

*High Achiever:* A level of a students' achievement score, which is above or equal to the median score.

*Low Achiever:* A level of a students' achievement score, which is below the median score.

*Pass rate:* A proportion obtained by dividing the number of students who scored 1.75 or above in the semester by the total number of students enrolled at the beginning of the year.

*Preparatory origin students:* Students, who, as a result of ETP of 1994, completed ten years of general secondary education and two years of preparatory school, joined AAU second year after taking EHEECE in the year 2003.

*Second semester GPA (sem.2 GPA):* The average score of a student computed for the 15-18 credit hour courses offered in the second semester of the year 2003/2004.

*Wastage rate:* The combined proportion of withdrawal rate and dismissal rate.

*Withdrawal rate:* A proportion obtained by dividing the number of students discontinued their education in the year for non-academic reason by the total number of students enrolled at the beginning of the year.

*Attrition rate:* A construct that is measured in terms of withdrawal or/and dismissal rates

### 1.2.5 Limitation of the Study

The use of letter grades as an outcome or performance measure has been criticized. Grades may not be reliable or adequate measurements of student learning because they may not reflect what students actually know or the general professional competencies achieved (Berslow, 2005). Furthermore, they can be influenced by course-grading policies (e.g., scoring on the curve, weighting of assessable elements forming the final grade, degree of subjectivity in the process, etc), instructors experience, quality and type of examination (Abate, Stamatakis, and Haggett, as cited by Berslow,2005) .

A number of potential independent variables affecting the performance could not be competently addressed with the available data. They include, the influence of personal and professional time commitments, self-motivation, the effect of credit load, and the effect of informal affirmative actions taken by instructors. Among these and other many potential independent variables that may affect the academic achievement of students, only academic background of students as measured by performance in standardized achievement test batteries (ESLCE and EHEECE) was partly controlled.

The uneven group size and the limited number of departments for which there were well-recorded data was also the limitation of the study. The type of statistics and methods of comparison chosen to analyze the data were selected in an attempt to overcome these size limitations. This study may also have limitation owing to the following factors: the extreme lack of local studies concerning the preparatory students who joined the university as a result of the new education and training policy of 1994 (which deprived the study useful directions or ideas for emphasis), and poor record keeping by the university. This study covered only 9 faculties and 22 departments of AAU. This may have a negative impact on the generalizability of the result. The study involved only 68% of students admitted to the university due to time

constraint and limited resources. Finally, some affirmative actions taken by instructors and the assigning of the two groups into separate classrooms may also reduce the reliability of the study.

### **1.2.6 Delimitation of the Study**

The study is limited to AAU students only. From AAU, limited to a number of faculties and departments. This is done because the attempt to get data from other universities was not possible. Even then, adequate data for some departments were not available.

## **II METHODOLOGY**

### **2.1 Design of the Study**

The research design for this study is ex post facto or causal-comparative design. Causal-comparative research attempts to determine the causes for differences that already exist in groups of individuals (Ary, Jacobs and Razaviech, 1996). Furthermore, the major advantage of the casual-comparative research design is that it allows researchers to examine cause and effect relationships under conditions where experimental manipulation is difficult or impossible. The researcher sought to determine if there was a difference in academic performance between preparatory school background admissions and freshman origin admissions. The variables in this study cannot be manipulated; therefore, a causal-comparative design can be used .

To tackle extraneous variables that may occur (this is a major drawback of the method), Gay (1987) suggests forming subgroups within each group that represent all levels of the control variable. The comparable subgroups in each group can be compared. In this study, each cohort was divided in to two sub groups within the department as high achievers, those students scored above or equal to the median score, and low achievers, those students scored below

the median score based on the control variable (the admission criteria). The corresponding sub-groups were compared. In addition to controlling the extraneous variables, the technique has the added advantage of permitting to see if the independent variables affect the dependent variable at different levels of the control variable.

The basic casual-comparative study involves selecting two groups differing on some independent variable and comparing them on some dependent variable (Gay, 1987). In casual-comparative research, the independent variable has already taken place and possible effects on an observed dependent variable are studied (Ary, Jacobs & Razaviech, 1996). The dependent variables in the study are students' mean scores on two semesters GPA, their pass rate, withdrawal rate, dismissal rate, and wastage rate. The independent variables are the two admission categories.

The population consisted of second year AAU students enrolled through preparatory schools in the year 2003/04 and students enrolled into second year after completing freshman program at the University. Students currently enrolled in these programs were chosen because the first year university completers are the last batch of their kind and the preparatory school background students are the first of their kind, who may be matched to the first group.

### **2.1.1 Description of Variables**

Two groups of students were considered for the study: One group, which has come from preparatory schools and another group, which has attended the freshman program at the University level. Achievement of the two groups is compared.

## 1. *The Independent Variables*

The independent Variables are the two admission groups, namely, those who joined the second year from preparatory schools and those students that joined the second year from the freshman program of the university.

### *Preparatory Origin Students*

Preparatory origin students are those students who, as the result of the implementation of the Education policy of April 1994, completed ten years of schooling (eight years of primary education and two years of general secondary education) and were selected to join the two-year preparatory school after taking the national examination. After the two years of preparatory school, these students took the Ethiopian Higher Education Entrance Certificate Examination. They were assigned as second year university students by considering the aggregate scores of the two years preparatory school and the EHEECE score.

### *Freshman Origin Students*

These are students who have completed the twelve years of schooling and are in the second year university after having taken the Ethiopian School Leaving Certificate Examination and having completed the freshman program at the University.

### *Sex*

This variable refers to the female and male students of preparatory origin and freshman origin students.

### *Age*

The age variable refers to the age of the student at the beginning of second year at AAU.

### *Faculty*

These are the nine faculties considered in this study. These are: Faculty of Business and Economics, Faculty of Technology, Faculty of Science, Faculty of Education, Faculty of Social Science, Faculty of Law, Faculty of Informatics, School of Pharmacy, Institute of Language Studies.

## 2. *The Dependent Variables*

The dependent variables of the study used to compare the two groups are first and second semester GPA of the second year and the cumulative GPA in the two semesters of each student in the comparable faculties; The pass rate, the withdrawal rate, the dismissal rate, and the wastage rates of the two groups are also used as a comparator in the study.

## 3. *The Control Variable*

In this study, the control variable is introduced to partially control the effect of background knowledge of students. Based on these control variables, students will be categorized as high achiever (if they score equal to or greater than the median score) or low achiever (if they score less than the median score). The sole purpose of the control variable is only to categorize. Measures used as a control in this study are the secondary school performance as measured by the ESLCE grade point average and EHEECE results, calculated for each student on five national examination scores (English and Mathematics plus three other academic subjects with the highest grades). Since ESLCE and EHEECE results are used in determining admission eligibility to the university, they are the best 'real' measures available. Freshman origin students admitted to the university are evaluated for admission solely by the ESLCE scores. The preparatory origin students, however, were admitted to the university on the basis of a 50% - 50% blend of EHEECE scores and grades of preparatory school

of the two-year courses. Nevertheless, for this study only the result on EHEECE will be considered. The blended grades will not be used as the control because the researcher has a doubt that the school-assigned grades could potentially be biased by the preparatory schools from which they came.

### **2.1.2 Population and Sample**

The source population for this study consists of 4554 students admitted to AAU in the years 2001 and 2003. Departments which have no match and which have incomplete records in the database section were excluded. In addition to these students, transferred students, readmitted students and students with incomplete record were also excluded from group and as a result, the final population was reduced to 2409 students who took one of two paths to the university.

Preparatory origin students make about 57% of the population. They consist of 1382 students who joined the university as second year students after satisfying the admission criteria.

The freshman Origin group makes 43 % of the population. These have attended the freshman program at the University after completing high school education. These students were admitted to the university at least one year before the preparatory origin students. Obviously this could have helped them to adjust better to university environment, such as teaching and learning methods, social life, study culture, etc.

Students from 9 faculties and 22 departments at AAU were considered for the study. The sample of about 725 students from the 2409 was analyzed. Four hundred and twenty two of the samples (about 58%) are preparatory origin. The remaining 303 of the samples (about 42%) are freshman origin students. Two stage stratified random sampling was used to select the samples. First,

students in each faculty were labeled as preparatory origin and freshman origin according to their admission. Second, each stratum was then subdivided into 22 departments. Students in each department were then categorized as high achiever and low achiever groups. The sample points were randomly selected from these using SPSS (version 10) software.

Table 1: Summary Table For The Population And Sample

	Population	Sample	
	Count	Count	Percent of the population
Preparatory Origin	1382	423	30.61
Freshman Origin	1027	302	29.41

## ***2.2 Procedure of Data Collection***

Students' scores on the control and independent variables were collected from Ministry of Education (MOE) records and scores on the dependent variables were collected from the University Registrar. The complete records on both semesters of each student were needed for the student to be included as a sample point.

In calculating students GPA on the dependent variable, letter grades were first

converted in to numerical equivalents (A = 4, B = 3, C = 2, D = 1 and F = 0). The numerical values were then multiplied by the corresponding credit hours of the respective course in each selected subject. Finally, the result was divided by the total credit hours for each criterion yielding students GPA on the criterion for one semester. This was done for both semesters. The GPAs of the two semesters and the cumulative GPA of the two semesters were considered as student GPA on the dependent variable. The pass, the withdrawal, and the dismissal rates were obtained by dividing the total count in each variable by the total number of students at the beginning of the year. The wastage rate is the sum of the withdrawal rate and the dismissal rate in each group.

### ***2.3 Procedure of Data Analyses***

In this section of the study, the variety of statistical procedures will be discussed. Space precludes a detailed discussion of the more complex procedures, so readers requiring further information are directed to specialized texts.

The two semesters means, the pass rate, the withdrawal rate, the dismissal rate, and the wastage rates of the two groups were used as a comparator. The independent sample t-test, one-way ANOVA, proportion comparisons were used when appropriate, to determine the significance of the difference in academic performance observed.

The study will give attention to both the overall academic performance on the university as well as academic performance within faculties or existing fields in the university.

### **2.3.1 Statistical Techniques**

#### ***Means***

The mean (or average) scores across categories of the variable of interest (for example, admission group, gender, faculty) are presented, first for all students, and then for each sub group. The mean scores are estimates of the respective population means *ages*; mean first, second and cumulative GPAs' scores for preparatory origin and freshman origins second year male and female students in the year 2003/2004. They show the extent to which the average performance of these admission groups at the second year level differs. These mean scores are accompanied by a standard deviation that indicates the spread of scores, standard error that indicates the 95 percent confidence limits surrounding the mean estimate.

#### ***Mean plots***

Mean plots accompanied some of the results. These plots are used to graphically illustrate the distributions. Mean plots provide an easy way to compare the mean scores for the different groups

#### ***Percentiles and Proportion test***

Proportions and proportion tests (Ferguson and Takane, 1989) are used to compare and test for the significance of difference between the proportions of the status (pass, dismissals, withdrawals and wastage rates) of the two admission groups.

#### ***Independent Sample T-Test***

Independent sample t-test is used to compare the mean scores of admission groups on first, second and cumulative GPA (which are continuous variables), as a whole and with respect to each faculty and the mean scores of different

sexes. The data was checked for the fulfillment of the assumptions (using Levene's test for equality of variance, tests of homogeneity, etc) underling this test. In all cases, equality of variance is assumed (sig. value for Levene's test found to be greater than .05). The effect size for the t-test was calculated when appropriate by using eta squared. Eta squared can range from 0 to 1 (.01=small effect, .06=moderate effect, .14= large effect)(Pallant, 2001) and represents the proportion of variance in the dependent variable that is explained by the independent variable.

### ***One-way between groups ANOVA with post-hoc tests***

One-way between groups analysis of variance is used to compare the academic achievement of different age groups (the age is grouped in to three levels). The post- hoc test Scheffe, because the groups are unequal in number) will be used after a significant difference is observed to test pairs of groups for which the significance occurred.

## **III Student Profile**

In this section of the study, a profile of students in each admission group is provided. These profiles provide a comparison of the number of students admitted, their age and gender, faculty and department distributions upon admission. Differences in this profile between the preparatory origin students and the freshman origin students are highlighted, but any difference in academic performance between the two groups will be discussed later.

### ***3.1 Gender Distribution***

The proportion of males dominates the proportion of females admitted to AAU in general (24 versus 76). Male to female ratio is 73 to 27 for preparatory origin entrants and it is 81 to 19 for freshman origin entrants (table 2). This shows that the proportion of female students admitted to AAU via preparatory

schools is by about 9% higher than those admitted to AAU through freshman program.

Table 2: Distribution Of Students By Admission Group And Gender

		Admission Group		
SEX	Data	Freshman	Preparatory	Grand Total
Females	Count	191	387	578
	Percent	18.60%	28.00%	23.99%
Males	Count	836	995	1831
	Percent	81.40%	72.00%	76.01%
Total Count		1027	1382	2409
Total Percent		100.00%	100.00%	100.00%

When the gender distribution is analyzed in terms of faculties, the maximum difference is observed in the Faculty of Technology freshman entrants, where, the male entrants exceeded their female counterparts almost by 16.2% followed by Faculty of Science freshman entrants where, the male to female ratio is 16 to 1 (Table 3).

Comparing the two gender groups as a whole, main difference in faculty preference among males and females is observed in the Faculties of Language and Business and Economics where females' exceed males by 7.59% and 6.56%, respectively. Male students prefer better the Faculty of Science and Faculty of Technology (exceeding the female entrants by 8.46% and 7.93%, respectively), than their female counter parts (Table 3).

Table 3: Distribution Of Students Admitted To Different Faculties Of Aau By Gender And Admission Group

Faculty	Admission Group	SEX				Total Count	Total Percent
		F		M			
		Count	Percent	Count	Percent		
Business & Economics	Freshman	62	10.73%	137	7.48%	199	8.26%
	Preparatory	70	12.11%	161	8.79%	231	9.59%
Business & Economics Total		132	22.84%	298	16.28%	430	17.85%
Education	Freshman	2	0.35%	37	2.02%	39	1.62%
	Preparatory	36	6.23%	163	8.90%	199	8.26%
Education Total		38	6.57%	200	10.92%	238	9.88%
Informatics	Freshman	6	1.04%	43	2.35%	49	2.03%
	Preparatory	10	1.73%	28	1.53%	38	1.58%
Informatics Total		16	2.77%	71	3.88%	87	3.61%
Language Studies	Freshman	11	1.90%	15	0.82%	26	1.08%
	Preparatory	54	9.34%	52	2.84%	106	4.40%
Language Studies Total		65	11.25%	67	3.66%	132	5.48%
Law	Freshman	23	3.98%	44	2.40%	67	2.78%
	Preparatory	22	3.81%	37	2.02%	59	2.45%
Law Total		45	7.79%	81	4.42%	126	5.23%
School of Pharmacy	Freshman	17	2.94%	97	5.30%	114	4.73%
	Preparatory	29	5.02%	25	1.37%	54	2.24%
School of Pharmacy Total		46	7.96%	122	6.66%	168	6.97%
Science	Freshman	12	2.08%	165	9.01%	177	7.35%
	Preparatory	42	7.27%	161	8.79%	203	8.43%
Science Total		54	9.34%	326	17.80%	380	15.77%
Social Sc.	Freshman	34	5.88%	108	5.90%	142	5.89%
	Preparatory	77	13.32%	188	10.27%	265	11.00%
Social Sc. Total		111	19.20%	296	16.17%	407	16.89%
Technology	Freshman	24	4.15%	190	10.38%	214	8.88%
	Preparatory	47	8.13%	180	9.83%	227	9.42%
Technology Total		71	12.28%	370	20.21%	441	18.31%
Grand Total		578	100.00%	1831	100.00%	2409	100.00%

### 3.2 Age Upon AAU Admission

Based on the population of the study, preparatory origin students who joined AAU were younger, on average, than freshman origin students (average age 18.02 versus 19.13) (see table 4 below). The difference in average age between the two groups reflects the time lag for freshman origin students who took one more year to reach second year at AAU. This age difference was found to be statistically significant at .05 level (See Table 5 below).

Table 4: Mean Age By Admission Group

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Preparatory Origin	423	18.02	1.14	.0554	17.91	18.13	16	24
Freshman Origin	302	19.13	1.38	.0796	18.97	19.29	17	34
Total	725	18.48	1.36	.0505	18.38	18.58	16	34

Table 5: Independent Samples Test for the Difference of Mean Age of the Two Admission Group

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
AGE	Equal variances assumed	1.93	0.165	-12	723	0.001	-1.11	0.0939	-1.29	-0.92

### 3.3 Faculty Upon Admission to AAU

Upon admission to AAU, the top three faculties sought by both groups are Technology (18.31%), Business and Economics (17.85%) and Social Science (16.89%), and). The least-sought faculties are Informatics (3.60%), Law (5.23%), and Language Studies (5.48%). Compared to freshman origin students, the faculty destinations of preparatory origin students showed a higher proportion of entering Education (14.01% versus 3.80%) and Social Science (19.18% versus 13.83%). Preparatory origin students were less likely to enter Pharmacy (3.91% versus 11.10%) and Technology ( 16.43% versus 20.84%) (see Table 6 below).

Table 6: Distribution Of Students Population Admitted To AAU By Faculty And Admission Group

Faculty	Admission Group				Total Count stu.	Total Percent
	Freshman		Preparatory			
	Count stu.	Percent	Count stu.	Percent		
Business & Economics	199	19.38%	231	16.71%	430	17.85%
Education	39	3.80%	199	14.40%	238	9.88%
Informatics	49	4.77%	38	2.75%	87	3.61%
Language Studies	26	2.53%	106	7.67%	132	5.48%
Law	67	6.52%	59	4.27%	126	5.23%
School of Pharmacy	114	11.10%	54	3.91%	168	6.97%
Science	177	17.23%	203	14.69%	380	15.77%
Social Sc.	142	13.83%	265	19.18%	407	16.89%
Technology	214	20.84%	227	16.43%	441	18.31%
Grand Total	1027	100.00%	1382	100.00%	2409	100.00%

Table 7: Distribution Of Students Sample Admitted To AAU By Faculty And Admission Group

Faculty	Admission Group				Total Count of stu	Total Percent
	Freshman		Preparatory			
	Count	Percent	Count	Percent		
Business & Economics	52	17.22%	69	16.31%	121	16.69%
Education	19	6.29%	68	16.08%	87	12.00%
Informatics	24	7.95%	11	2.60%	35	4.83%
Language Studies	17	5.63%	29	6.86%	46	6.34%
Law	20	6.62%	19	4.49%	39	5.38%
School of Pharmacy	30	9.93%	21	4.96%	51	7.03%
Science	36	11.92%	60	14.18%	96	13.24%
Social Sc.	55	18.21%	87	20.57%	142	19.59%
Technology	49	16.23%	59	13.95%	108	14.90%
Grand Total	302	100.00%	423	100.00%	725	100.00%

## IV Results and Discussion

### 4.1 Measurement of Academic Performance

In the literature reviewed, a concise definition of academic achievement was rarely established. Several articles (e.g., Astin, 1993; Canabal, 1998; Hood, Craig, & Ferguson, 1992; Perkins et al., 1999; Stern & Nakata, 1991; Van de Water, 1996) used grade point average, GPA, as their definition of academic achievement. Similarly, Palmer and Bray (2003) used GPA to compare the persistence rate, dropout rate, wastage rate and academic performance, of two groups of students at Deakin University. Others used less concrete identifiers such as student perceptions (Ford & Bosworth, 1995) or level of college engagement (Pascarella et al., 1994). The inconsistencies in defining and describing academic achievement made it difficult to draw comparisons between some data. Academic achievement of students can be affected by a number of factors. This study defines academic achievement by GPA.

Two aspects of academic performance were examined in this study: Academic achievement (as defined by GPA), and attrition rate (as measured by withdrawal rate, dismissal rate and wastage rate).

#### **4.1.1 Academic Achievement**

A measure of academic achievement in the context of university assessment has a number of difficulties. First, final grades for most universities are usually recorded in the form of letter grades (A = Very Good, B = Good, C = Average, D = Pass, and F = Fail). In such kind of grading system, there is little guarantee that the difference in the achievement between a 'D' and a 'C' represents the same difference in achievement as between a 'C' and a 'B', or between a 'B' and an 'A'. Second, the same grade in different subjects does not necessarily represent the same level of achievement. Third, students with same abilities may be attracted to different units.

These features of assessment imply that the reduction of grades to some numerical equivalent (say 0, 1, 2, 3 and 4) and the calculation of a mean score for the units in which a student is enrolled is an unsatisfactory procedure. Examining the scores of students in each faculty separately resolves some of these difficulties, but is likely to encounter the problem of small sample sizes.

Another problem peculiar to this study is related to the two different grade reporting systems used in the selection variables in the two groups. That is, the admission criteria used for *ESLCE* entrants is reported in letter grades and the admission criteria applied to *EHEECE* used raw scores. To overcome this mishap, students in each group were sub grouped as high achiever (those students scored above the median) and low achiever (students scored below the median) within each department.

*First Semester, Second Semester and Cumulative GPA:* These are the grade point averages calculated on the first 15-18 credits, on the second 15-18 credits and 30-36 credits completed at AAU, respectively. This performance measure has been adjusted in such a way that the GPA's for preparatory origin students is compared to the GPA of freshman origin equivalent year- level and semester GPA of freshman origin students. A weighted average over all student year levels is calculated to provide a single indicator of GPA on the "first semester", "second semester", and "cumulative" AAU credits for each admission group.

**a. Whole Group Considered**

Tables 8 and 9 below show the descriptive statistics and the independent sample t-test, respectively, considering the two groups as a whole (without controlling the back ground knowledge). A significant academic achievement difference is observed between the two groups in favor of fresh man origin students in all the three measures. The result is different if we control the background knowledge (this will be discussed in later sections).

Table 8: Group Statistics For Preparatory And Freshman Origin Students - Whole Group Considered

	Adm. group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Preparatory Origin	423	2.38	.6248	0.030
	Freshman Origin	302	2.59	.6153	0.035
CGPA	Preparatory Origin	393	2.39	.6069	0.031
	Freshman Origin	288	2.55	.5938	0.035
CGPA	Preparatory Origin	389	2.44	.5354	0.027
	Freshman Origin	288	2.5843	.5543	0.033

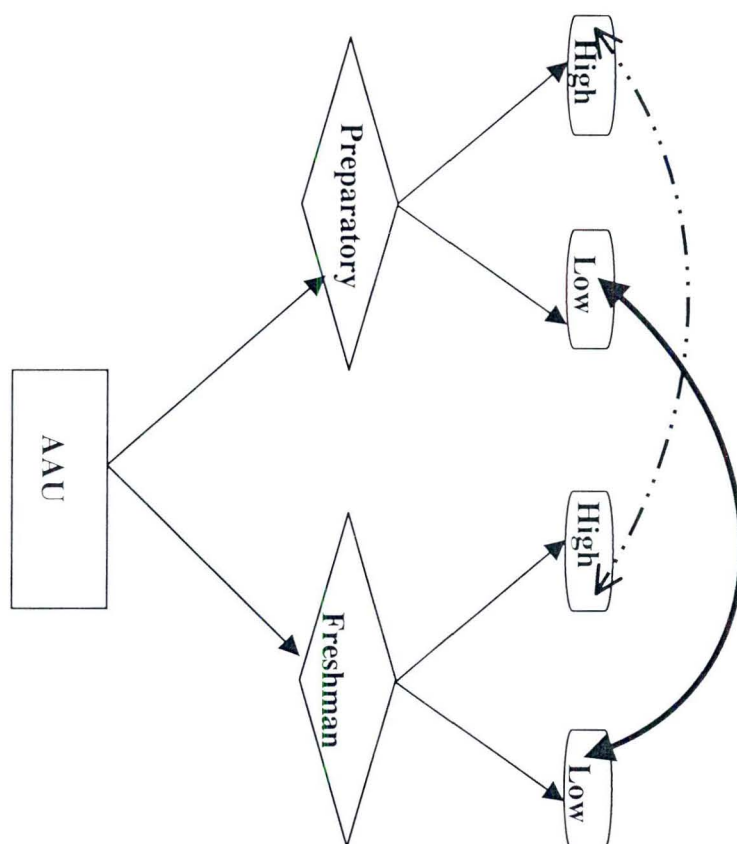
Table 9: Independent Samples T-Test For Academic Achievement Of Preparatory Origin And Freshman Origin Students - Whole Group Considered

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM 1 GPA	Equal variances assumed	.599	.439	4.606	723	.0001	0.215	0.047	0.124	0.307
SEM 2 GPA	Equal variances assumed	.081	.776	3.300	679	.001	0.154	0.047	0.062	0.246
CGPA	Equal variances assumed	1.311	.253	3.496	675	.001	0.148	0.042	0.065	0.231

The academic achievement of the whole group is also analyzed in terms of faculties they were admitted to (See Appendix A). Although in most faculties freshman origin students perform better in terms of mean score, the only significant difference observed is in Faculty of Technology first semester GPA, with mean difference .3162; Faculty of Science in first, second and s', mean difference .318, .466, and .351 respectively; Faculty of Law in first and , with mean differences 0.540 and .326 respectively; and in the Institute of Language Studies with mean difference .3263. In the remaining faculties no significant difference is observed (see appendix A).

## Academic Background Controlled

Among the many mechanisms of controlling the background knowledge, most frequently used is classifying the students according to their prior achievement as high and low and comparing the corresponding sub groups. The process will have the following model.



**Figure 1: Model of Research design for controlling Background Knowledge**

An independent sample t-test was conducted to compare the academic achievement of the preparatory and freshman origin of AAU students on second semester. After controlling academic background, there was no significant difference observed in scores in all the three semesters between the high achiever groups. The descriptives, for freshman high achievers and

preparatory high achievers (in the same order) were: (M = 2.67, SD = .621), and (M = 2.58, SD = .663) in the first semester GPA; (M = 2.56, SD = .574), and (M = 2.58, SD = .614) in the second semester GPA ; (M = 2.627, SD = .546), and (M = 2.626, SD=.548) in the CGPA .

The magnitude of the difference in the means ( eta squared,  $\eta^2$ ), the proportion of variance in the dependent variable that is explained by the admission route (the independent variable) is computed by using the formula

$$\eta^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

is very small (.005)in the first semester, and almost 0 in the second and that is, expressed as a percentage, only .5 per cent of the variance in first semester GPA and no percent of the variance in the second and is explained by admission route.

However, there is a highly statistical significant mean decrease in all the three GPAs' from freshman origin low achievers (M = 2.51, SD = .601) to preparatory origin low achievers (M = 2.18, SD = .513),  $t(354)=-5.60$ ,  $p<.000$ . The eta-squared statistics (.08) indicated not a large effect size. Similar condition holds true for the second semester and the CGPA's (See appendix B).

***From these observations of the GPAs of the “first semester GPA” , “second semester GPA”, and “ cumulative GPA” on AAU credits, we can conclude that : (1) students who perform well in secondary school perform equally well at AAU, regardless of the route they took to get to AAU;***

***(2) freshman students who did not perform well in secondary school benefited from attending the first year at AAU and performed better in their second year GPAs' at AAU than students who attended their first year at preparatory schools. That is, low achieving students benefit if they attend the first year at the university, rather than entering AAU second***

*year directly from preparatory schools.*

The academic achievement of the two groups is further compared taking the faculties into account. When background achievement is controlled by standardized achievement tests and comparison is made with respect to individual faculties, no significant mean difference is observed except between the low achievers of Business and Economics faculty (at .01 level), Science faculty (at .01 level) and School of Pharmacy (at .01 level) (see appendix C). *Thus as the academic category becomes more specific, the difference in academic achievement between the two groups vanishes. Another important observation worth noting is that as the stay at the university increases the difference between the groups decreases and becomes insignificant (see appendix C).*

#### 4.1.2 Attrition rate

A dismissal rate was calculated for each group as the ratio of the number of students dismissed up to the end of the academic year to the total number of students enrolled in the programs at the beginning of the year 2003-4. This measure was based on ratio *rather* than count of students. Since freshman origin students typically enrolled in fewer units than preparatory origin students, a dismissal in, say, one student produces a greater failure rate for a freshman origin cohort than preparatory origin cohort. Nevertheless, the use of a failure rate is a more appropriate measure for comparing preparatory origin and freshman origin students than simple counts of units failed. *Fail* and *Withdraw* are grades-and behaviors-which merge. At one end of the spectrum is the student who formally withdraws from the cohort in the fourth week of a semester, and at the other end is the student who ceases to be involved in the unit and possibly the course after the fourth week, but who does not inform the university and is therefore graded as failing the unit.

Somewhere in between are students who, sometime in the duration of the unit, recognize inevitable failure and withdraw rather than fail.

In this study, the dismissal rate is computed by using the status of students in both groups at the end of the year. Tables 10, 11, and 12 summarize the comparison of the groups. Table 10 summarizes the status of the whole group. The withdrawal, the dismissal, and the pass rates for the 2003/2004-second year students were respectively, 2.8%, 12.0%, and 76.8%. The wastage rate, which is given by the aggregate of withdrawal rate and dismissal rate, for the cohort, is 14.8%.

Table 10: Status of The Whole Sample Group

	Frequency	Percent	Valid Percent	Cumulative Percent
Withdrawal	20	2.8	2.8	2.8
Dismissal	87	12.0	12.0	14.8
Probation	61	8.4	8.4	23.2
Pass	557	76.8	76.8	100.0
Total	725	100.0	100.0	

In table 11 the withdrawal, the dismissal, and the pass rates of preparatory origin second year students are summarized. In this group, a minimum withdrawal rate (1.9%), and a maximum dismissal rate (15.8%) was recorded. The wastage rate was calculated to be 17.7%.

Table 11: Statuses of Preparatory Origin Students

	Frequency	Percent	Valid Percent	Cumulative Percent
Withdrawal	8	1.9	1.9	1.9
Dismissal	67	15.8	15.8	17.7
Prohibition	36	8.5	8.5	26.2
Pass	312	73.8	73.8	100.0
Total	423	100.0	100.0	

The status of fresh man origin students was presented in table 12 below. The withdrawal, the dismissal, and the pass rates for this group were 4.0%, 6.6%, and 81.1%, respectively.

Table 12: Statuses Of Freshman Origin Students

Status	Frequency	Percent	Valid Percent	Cumulative Percent
Withdrawal	12	4.0	4.0	4.0
Dismissal	20	6.6	6.6	10.6
Prohibition	25	8.3	8.3	18.9
Pass	245	81.1	81.1	100.0
Total	302	100.0	100.0	

Attrition rates can be compared either by considering the dismissal rate only or by combining the dismissal and withdrawal rates. In the first case, comparing the dismissal rates of the groups shows that the dismissal rate of the preparatory origin students (15.8%) is more than double (2.4 times) that of the dismissal rate of the freshman origin students (6.6%) (See tables 9 and 10). The pass rate of the preparatory origin students is almost by 10% less than the pass rate of the freshman origin students (See tables 11 and 12).

Table 13: Significance Test For The Difference Between The Status Of Preparatory Origin And Freshman Origin Second Year Students Proportions

	Number of Observation (Prep.)	Proportion	Number of Observation (Fresh.)	Proportion	z	sig.
Withdrawal	8	0.02	12	0.04	-1.67	
Dismissal	67	0.16	20	0.07	3.79	0.01*
Wastage	75	0.18	32	0.11	3.14	0.01*
Prohibition	36	0.09	25	0.08	0.13	
Pass	311	0.74	246	0.81	-2.36	0.01*

If we compare the wastage rate of the groups by considering withdrawals and dismissal rates combined, again the wastage rate of the preparatory origin students is by almost 7% higher than the wastage rate of freshman origin students (tables 11 and 12). Another important observation is the case of students at risk. These are students in the prohibition category. In both groups we have equivalent amount of students at risk: 8.5% for preparatory and 8.3% for freshman origin students.

Testing for the significance of the difference between proportions using proportion test revealed that the difference is significant for the pass rate, dismissal rate and for the wastage rate all at  $p < .01$  level (see table 13). When high school achievement is controlled, no significant difference between the high achiever groups is observed in pass, withdrawal, dismissal, and wastage rates. A significant difference is observed between low achiever groups. In the pass rate, dismissal rate and the wastage rate, all at  $p < .01$  level (see table 14).

Table 14: Significance Test Of Proportions By Admission Group And Achievement Level

Achievement Level	Status	Number of Observation (prep.)	Proportion	Number of Observation (fresh.)	Proportion	z	sig.
Low	Withdrawal	5	0.02	8	0.05	1.53	
	Dismissal	47	0.22	12	0.08	3.54	0.01
	Wastage	52	0.25	20	0.14	6.02	0.01
	Probation	25	0.12	12	0.08	1.12	
	Pass	133	0.63	114	0.78	2.97	0.01
High	Withdrawal	3	0.01	4	0.03	0.8	
	Dismissal	20	0.09	8	0.05	1.53	
	Wastage	23	0.11	12	0.08	1.01	
	Probation	11	0.05	12	0.08	3.85	0.01
	Pass	179	0.84	131	0.84	0.02	

#### 4.2 Academic Achievement Difference in GENDER

In this section, academic achievement difference between preparatory origin and freshman origin female students and academic achievement difference between preparatory origin and freshman origin male AAU students is analyzed. The analysis of the difference in academic achievement of females of the two groups and for males of the two groups was treated separately. In each case, first, the whole group was analyzed and then the difference was observed within faculties.

#### 4.2.1 Comparison of female students of the two groups

##### *a. Whole Group Considered*

The comparison of academic achievement differences between preparatory origin and freshman origin female students, whole group considered, was summarized in tables 15 and 16 below. The statistics employed to compare the academic achievement scores, as measured by the cumulative GPA of males and females was an independent- sample t-test. A significant difference in scores of the two groups at  $p < .05$  level is observed (see table 16) in all the three measures.

**Table 15: Group Statistics for Preparatory and Freshman Female Students Academic Achievement as Measured by GPA**

<b>Table 13: Group Statistics for Preparatory and Freshman Female Students</b>					
	GROUP	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	Prep. female students	125	2.11	0.595	0.0532
	fresh. female students	67	2.39	0.697	0.0852
SEM2GPA	Prep. female students	110	2.13	0.536	0.0511
	fresh. female students	61	2.34	0.697	0.0892
Cumulative GPA	Prep. female students	109	2.20	0.447	0.0428
	fresh. female students	61	2.38	0.657	0.0841

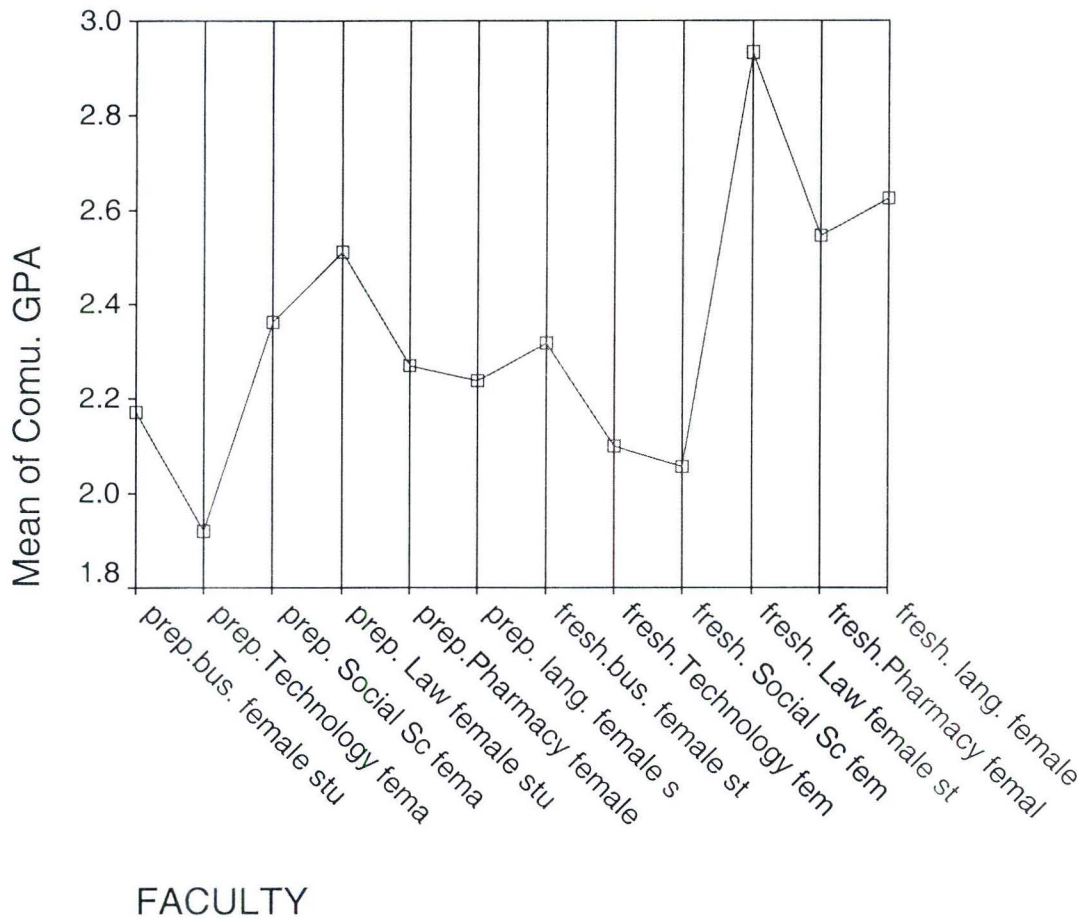
The magnitude of the difference in the means is moderate (.064). That is about 6% of the variance in academic achievement is explained by sex.

Table 16: Independent Samples Test for Preparatory and Freshman Female Students Academic Achievement as Measured by GPA

Measures	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	3.7	0.056	-2.91	190			0.004	-0.2785
SEM2GPA	6.889	0.009	-2.17	169	0.031	-0.2072	0.0955	-0.3956	-0.0188
Cumu. GPA	17.158	0	-2.13	168	0.034	-0.1814	0.085	-0.3493	-0.0135

*b. Analysis within faculties*

To analyze differences in academic achievement between female students of the two groups within each faculty, an independent sample t-test was conducted for each faculty and the result is summarized in appendix E. As illustrated in tables of the appendix E, no significant difference among females of the two groups is observed in all the six Faculties analyzed (three of the faculties were excluded due to insufficient number) at p,.05 level. The mean plot below further illustrates the case.



**Figure 2: Mean Plot For The Means The Cumulative GPAs Of Freshman Origin And Preparatory Origin Female Students**

Although not significant, freshman female students of Law faculty were performed consistently higher from the whole group and from preparatory female Law Faculty students. It was observed that the significant difference in academic achievement, which was, noted when female students of the two groups were compared as a whole is now minimized and became insignificant. This shows that the significant difference observed is not as such faculty dependent.

## 4.2.2 Comparison of male students of the two groups

### a. Whole Group Considered

When the academic achievement of male students of the two groups, as measured by first, second, and cumulative GPAs, were compared considering the whole group, a significant difference was observed in all the three measures at  $p < .05$  level (see tables 17 and 18).

Table 17: Group Statistics for Preparatory and Freshman Male Students Academic Achievement as Measured by GPA

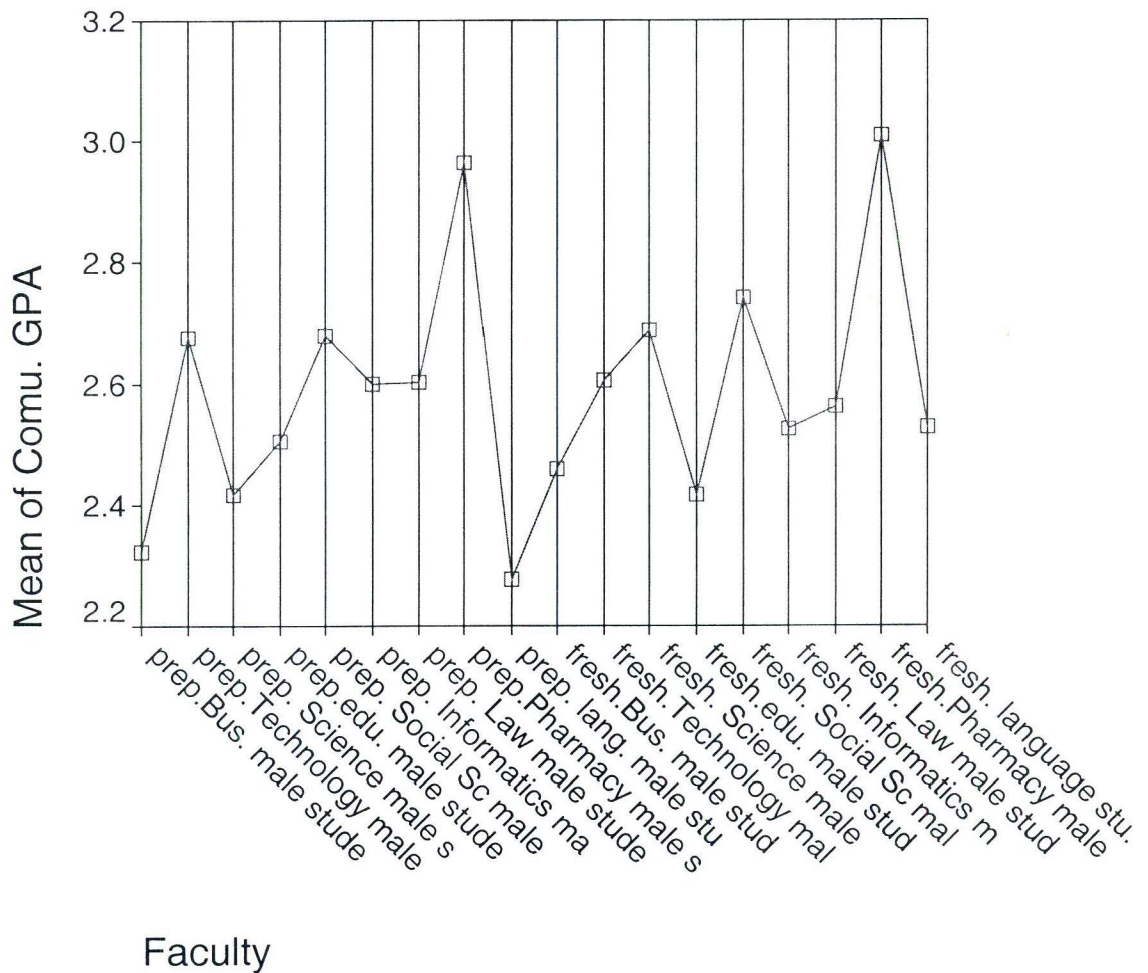
	SEX4	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	Prep. male students	298	2.4929	0.6022	0.0349
	Fresh. male students	235	2.6538	0.5779	0.0377
SEM2GPA	Prep. male students	283	2.4936	0.6029	0.0358
	Fresh. male students	227	2.6017	0.5511	0.0366
Cumu. GPA	Prep. male students	280	2.5305	0.5381	0.0322
	Fresh. male students	227	2.6401	0.5107	0.0339

Table 18: Independent Samples Test for Preparatory and Freshman Male Students Academic Achievement as Measured by GPA

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	0.02	0.88	-3.13	511	0.00	-0.16	0.05	-0.26	-0.06
SEM2GPA	2.15	0.14	-2.09	508	0.04	-0.11	0.05	-0.21	-0.01
Cumu. GPA	0.07	0.80	-2.33	505	0.02	-0.11	0.05	-0.20	-0.02

**b. Analysis within faculties**

Comparison of male preparatory origin students and male freshman origin students revealed that, the only significant difference is between male students of Science and Pharmacy Faculties. Since the courses in both faculties were of natural science courses, a better emphasis on these courses at the preparatory schools may improve the result. The mean plot below further illustrates the situation



**Figure3: Mean Plot For The Means Of the Cumulative GPAs Of Freshman Origin And Preparatory Origin male Students**

As can be seen from the mean plot above, Irrespective of the route, school of Pharmacy students performed higher than the rest of the group. Male students of Faculties of Language and business preparatory origin were the list achievers of the whole group.

### 4.3 Academic Achievement Difference in AGE

A One-way between groups analysis of variance was conducted to explore the impact of age on level of academic achievement, as measured by first, second and cumulative GPA. Subjects in each cohort were divided into three groups according their age (Group 1: 17 or less; Group 2: 18 to 19; Group 3: 20 and above). Then, corresponding age groups in the two cohorts were compared.

TABLE 19: Between Groups One- Way ANOVA for Academic Achievement of Different Age Groups as Measured by First, Second, And Cumulative GPAs

		Sum of Squares	df	Mean Square	F	Sig.
Cumulative GPA	Between Groups	3.92	5	0.784	2.644	0.022*
	Within Groups	199.09	671	0.297		
	Total	203.01	676			
SEM1_GPA	Between Groups	9.05	5	1.809	4.682	0.0001*
	Within Groups	277.81	719	0.386		
	Total	286.86	724			
SEM2GPA	Between Groups	5.03	5	1.007	2.78	0.017*
	Within Groups	244.49	675	0.362		
	Total	249.53	680			

There was a statistically significant difference at the  $p < .05$  level in all the three academic achievement scores for the age groups: [F(5, 724)=4.68,  $p = .001$ , for the first semester GPA, [F(5,680) = 2.78,  $p = .017$ ], for the second semester and [F(5,676) =2.64,  $p = .022$ ] (see table 19). Despite reaching statistical significance, the actual difference in mean

scores between the groups was small. The effect size, calculated using eta squared,  $\eta^2$ , which is given by

$$\eta^2 = \frac{SS_b}{SS_t},$$

was .03, for the first semester GPA, .02 for the second semester and cumulative GPA.

Further analysis using multiple comparison using Tukey HSD, revealed that the only significant difference observed was between the age group 2 (between 18 and 19 years inclusive) of preparatory and freshman origins. In the remaining two groups, no significant difference is observed .05 level in all the three measures. Tables 20 below summarize the Tukey multiple comparisons.

TABLE 20: Multiple Comparisons (Tukey HSD) for Academic Achievement Of Different Age Groups as Measured by First, Second, And Cumulative GPAs

Dep. Variable	(I) AGE2	(J) AGE2	Mean Difference (I-J)	Std. Error	Sig.	95% CI	
						Lower Bound	Upper Bound
Cumulative GPA	17 years or less prep	17 years or less fresh	-0.09	0.19	1.00	-0.63	0.44
	Between 18 and 19 years inclusive prep	Between 18 and 19 years inclusive fresh	-0.17	0.05	0.021*	-0.32	-0.02
	20 years or above prep	20 years or above fresh	-0.19	0.11	0.55	-0.50	0.13
SEM1 GPA	17 years or less prep	17 years or less fresh	-0.11	0.21	1.00	-0.72	0.50
	Between 18 and 19 years inclusive prep	Between 18 and 19 years inclusive fresh	-0.26	0.06	.0001*	-0.43	-0.10
	20 years or above prep	20 years or above fresh	-0.09	0.12	0.98	-0.44	0.26
SEM2 GPA	17 years or less prep	17 years or less fresh	-0.21	0.21	0.92	-0.80	0.38
	Between 18 and 19 years inclusive prep	Between 18 and 19 years inclusive fresh	-0.13	0.06	0.22	-0.30	0.04
	20 years or above prep	20 years or above fresh	-0.33	0.12	0.09	-0.68	0.02

The mean difference is significant at the .05 level

#### 4.4 Academic Achievement Difference Between Faculties

Another question worth discussing is to whether or not there exists a difference in academic achievement between the nine faculties considered in the study. A one-way between groups analysis of variance was conducted to explore the impact of the faculty the student admitted to on the academic achievement of the students, as measured by the first, the second and the cumulative GPAs'. The result of the analysis was summarized in table-21 below.

Table 21: One-Way ANOVA For Comparing Academic Achievement Difference Between Faculties

		Sum of Squares	df	Mean Square	F	Sig.
SEM 1 GPA	Between Groups	16.188	8	2.024	5.353	.001
	Within Groups	270.67	716	.378		
	Total	286.86	724			
SEM 2 GPA	Between Groups	11.58	8	1.447	4.087	.001
	Within Groups	237.95	672	.354		
	Total	249.53	680			
Cumulative GPA	Between Groups	10.28	8	1.285	4.454	.0001
	Within Groups	192.73	668	.289		
	Total	203.01	676			

There was a statistically significant difference at the  $p < .001$  level in all the three academic achievement scores for the nine faculties [F(8,716)=5.353,p=.001], for the first semester GPA,[F(8,672) = 4.087,  $p = .000$ ], for the second semester and [F(8,668) =4.454,  $p = .000$ ]. Despite reaching statistical significance, the actual difference in mean scores between the groups was moderate. The effect size, calculated using eta squared,  $\eta^2$ , which is given by

$$\eta^2 = \frac{SS_b}{SS_t},$$

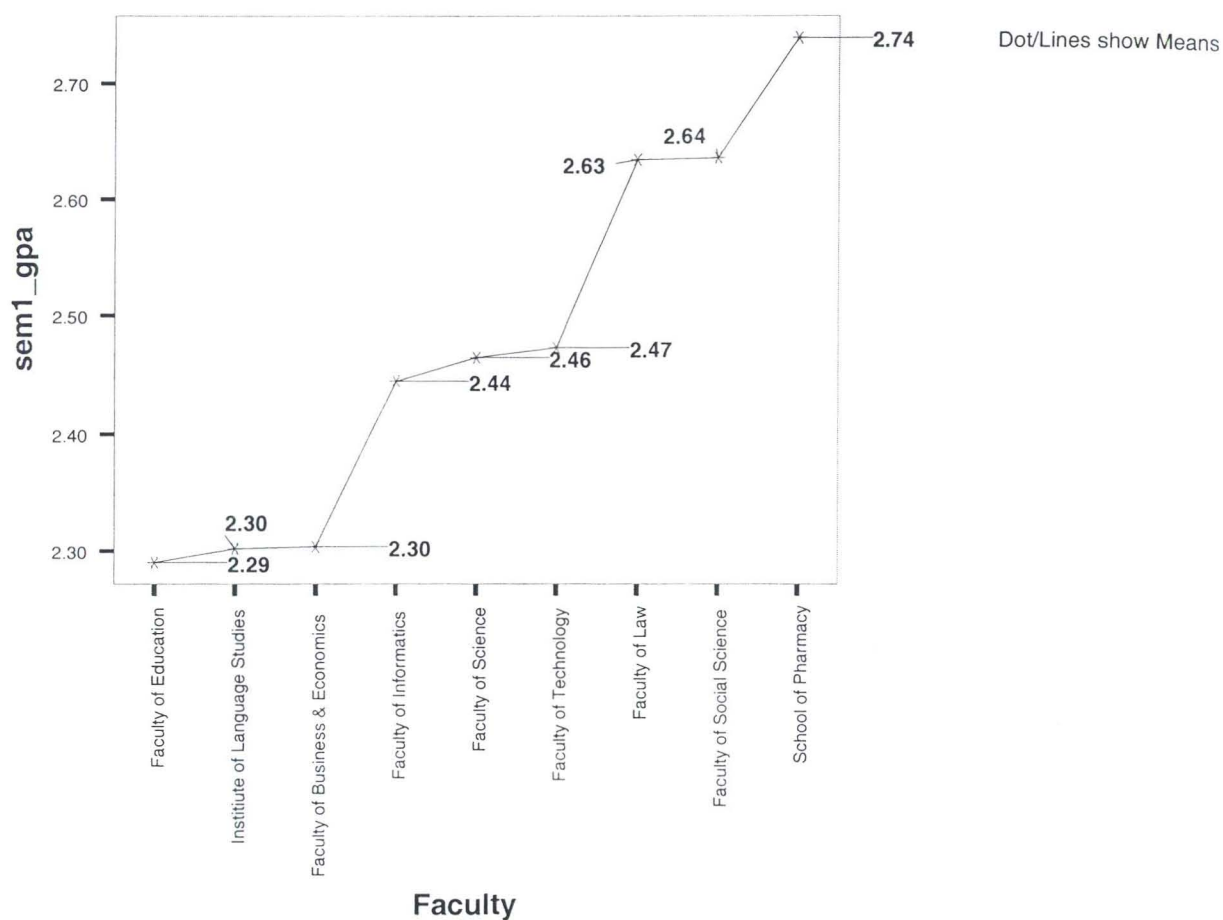
was .06, for the first semester GPA, .05 for the second semester GPA, and .05 for the cumulative GPA .

Post-hoc comparisons results using the Scheffe test indicated that in the first semester GPA, the mean score of School of Pharmacy (M=2.74, SD=.64) was significantly different (higher) from the mean score of Faculty of Business and Economics ( M=2.30, SD=.70),and Faculty of Education (M=2.29, SD=.52).

Table 22: Post-hoc (Scheffe) Comparison of the Academic Achievement of Faculties

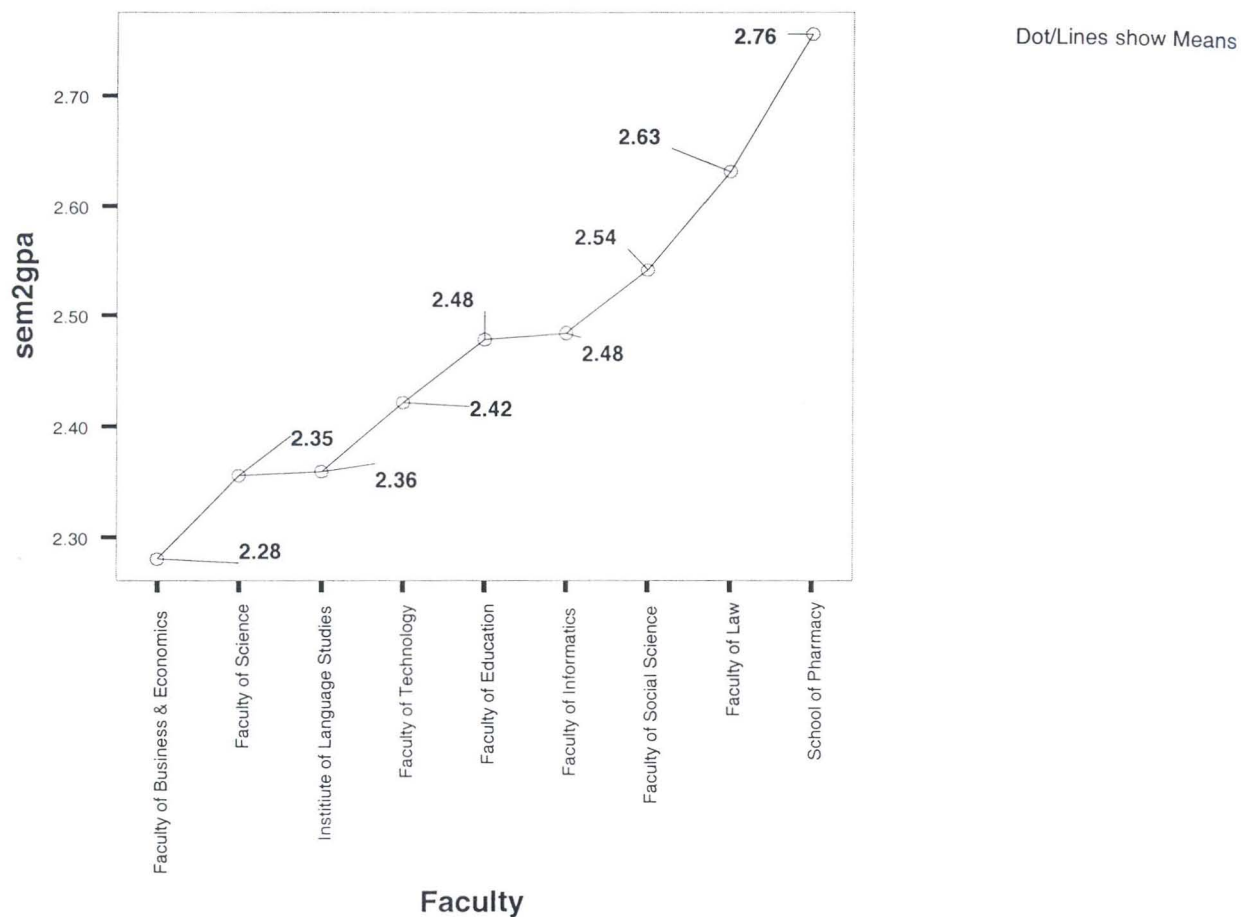
Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.
SEM.1 GPA	School of Pharmacy	Faculty of Bus. & Econ.	0.44	0.103	0.001
		Faculty of Edu.	0.45	0.198	0.001
		Institute of Lang. Stu.	0.44	0.125	0.014
	Faculty of Social Science	Faculty of Bus. & Econ.	0.33	0.076	0.001
		Faculty of Edu.	0.35	0.084	0.001
		Institute of Lang. Stu.	0.33	0.104	0.037
SEM.2 GPA	School of Pharmacy	Faculty of Bus. & Econ.	0.48	0.101	0.001
		Faculty Tech.	0.33	0.103	0.032
		Faculty of Sc.	0.40	0.105	0.004
		Institute of Lang. Stu.	0.40	0.126	0.044
	Faculty of S. Sc.	Faculty of Bus. & Econ.	0.26	0.076	0.016
	Faculty of Law	Faculty of Bus. & Econ.	0.35	0.112	0.045
CGPA	School of Pharmacy	Faculty of Bus. & Econ.	0.45	0.092	0.001
		Faculty of Science	0.34	0.096	0.009
		Faculty of Edu.	0.36	0.098	0.008
		Institute of Lang. Stu.	0.41	0.114	0.009
	Faculty of Social Science	Faculty of Bus. & Econ.	0.25	0.069	0.007

Similarly, the mean score of Faculty of Social Science (M= 2.74, SD= .64) was significantly higher than that of the Faculty of Education (M=2.29, SD=.52), and Faculty of Business and Economics. (See Table 13 above and appendix D ). The mean plot below illustrates the case.



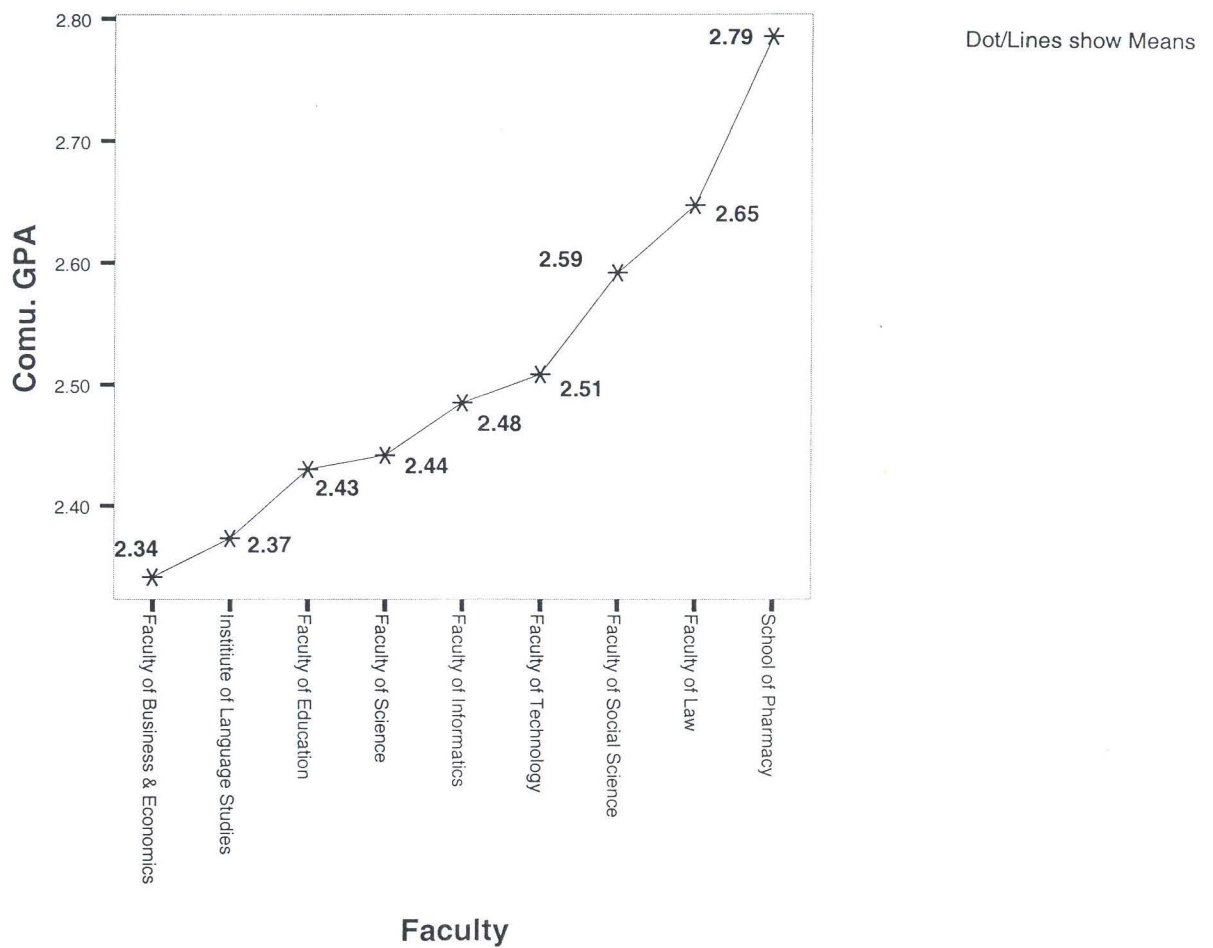
**Figure 4: The Mean Plot for the First Semester Academic Achievement Difference Between Faculties**

In the second semester GPA, the result of Scheffe- test indicated that mean score of Faculty of Business and Economics ( $M=2.28$ ,  $SD=.63$ ) was significantly lower than the mean scores of social science ( $M=2.54$ ,  $SD=.61$ ), law ( $M=2.63$ ,  $SD=.53$ ), and pharmacy ( $M=2.76$ ,  $SD=.57$ ). Similarly, the mean GPA of School of Pharmacy is significantly higher than the mean scores of technology ( $M=2.29$ ,  $SD=.66$ ), science ( $M=2.35$ ,  $SD=.56$ ) and language ( $M=2.36$ ,  $SD=.61$ ) see appendix D). The mean plot below further clarifies the situation.



**Figure 5: The Mean Plot for the Second Semester Academic Achievement Difference Between Faculties**

The Scheffe test using the cumulative GPA as dependent variable indicated that the same School of Pharmacy mean GPAs (2.74, SD=) is significantly higher than the mean GPAs' of the Faculty of Education (M=2.43, SD=.46), language (M=2.37, SD=.48) and the Faculty of Business and Economics (M=2.34, SD=.60). the mean cumulative GPA of the Faculty of Business and Economics is also significantly different (lower) than the mean score of Faculty of Social Science (see appendix D). The mean plot below further illustrates the condition.



**Figure 6: The Mean Plot for the cumulative GPA Academic Achievement Difference Between Faculties as Measured by Cumulative GPA**

As the mean plots illustrate, School of Pharmacy students mean score was consistently higher than the remaining faculties. Similarly, the mean GPAs of the Faculty of Business and Economics and Institute of Language Studies were consistently low.

## **Key Findings**

Some of the noteworthy observations and findings from this study are summarized here. Throughout the study, it is frequently observed that: (a) students with low entrance grades perform better at AAU if they attend their first year at the university; and (b) preparatory origin students and freshman origin students often perform equally at AAU if they scored above the median score in the admission examinations. This may seem counter-intuitive because overall performance scores are generally higher for freshman origin students than preparatory origin students. Some reasons that may attribute to these differences are: since preparatory origin students are new to the university system (social life, study culture, lecture system, dormitory usage, class schedule and library usage etc.), they may need some time to adapt the environment and this second year may be the adaptation period. This is evidenced by the increase in mean GPA from the first semester to the second.

Furthermore, The pass rate of freshman origin students was significantly higher than the pass rate of preparatory origin students. Similarly, the withdrawal, dismissal and wastage rates of preparatory origin students are higher than that of freshman origin students.

These problems may be tackled partly by in-depth orientation programs that include practical practices and by designing supportive and focused intervention programs.

In all the six faculties, analyzed, no statistically significant difference was observed between academic achievement, as measured by GPA, of preparatory origin female students and freshman origin female students. Nevertheless,

freshman origin female students performed significantly higher, as a group, than preparatory origin female students in all the three measures

In seven out of nine faculties preparatory origin male students performed equally well as their freshman counter mates .In Faculties of Science and Pharmacy, freshman origin male students performed significantly higher than preparatory origin male students.

After categorizing students into three age groups: group 1, less or equal to 17 years; group 2, between 18 and 19 years inclusive; and group 3, 20 years or above the two cohorts were compared. Only between age group 2 preparatory and freshman origin students, a significant difference, in favor of freshman origin students, was observed.

Another important observation worth noting is the comparison made between faculties. Significant difference is observed in mean academic achievement, as measured by cumulative GPA, between faculties. Significant difference is observed between:

- ◆ School of Pharmacy and Faculty of Business and Economics (2.74 versus 2.30)
- ◆ School of Pharmacy and Institute of Language Studies (2.74 versus 2.30)
- ◆ School of Pharmacy and Faculty of Education (2.74 versus 2.29)
- ◆ Faculty of Social Science and Faculty of Education (2.64 versus 2.29)
- ◆ Faculty of Social Science and Faculty of Business and Economics (2.64 versus 2.30)
- ◆ Faculty of Social Science and Institute of Language Studies (2.64 versus 2.30) in the first semester,

## Between

- ◆ School of Pharmacy and Faculty of Business and Economics (2.76 versus 2.28)
- ◆ Pharmacy and Faculty of Technology (2.76 versus 2.29)
- ◆ School of Pharmacy and Faculty of Science (2.76 versus 2.35)
- ◆ School of Pharmacy and Institute of Language Studies (2.76 versus 2.36).
- ◆ Faculty of Social Science and Faculty of Business and Economics (2.54 versus 2.28)
- ◆ Faculty of Law and Faculty of Business and Economics (2.63 versus 2.28) in semester 2 GPA; and

## Between

- ◆ School of Pharmacy and Faculty of Business and Economics (2.79 versus 2.34)
- ◆ Pharmacy and Faculty of Education (2.79 versus 2.43)
- ◆ School of Pharmacy and Faculty of Science (2.79 versus 2.44)
- ◆ School of Pharmacy and Institute of Language Studies (2.79 versus 2.37)
- ◆ Faculty of Social Science and Faculty of Business and Economics (2.59 versus 2.34). In the cumulative average score of semester one and two (CGPA).

## V. CONCLUSIONS AND RECOMMENDATIONS

### *Conclusions*

This research compared academic performance of two distinct groups of students joined AAU second year in the year 2003/2004. Preparatory origin students who joined second year via two years of preparatory school, and freshman origin students who joined second year after completing first year at AAU. Instruments used for comparison were first semester GPA, second semester GPA, cumulative GPA, pass rate, withdrawal rate, dismissal rate, and wastage rate. A total of 725 students from nine faculties and 22 departments sampled randomly and analyzed after stratifying by department and achievement level. Below major results of descriptive and inferential analysis were noted.

1. In this study no significant difference between preparatory origin and freshman origin "high achievers" second year students of the year 2003/2004. However, significant difference in academic achievement as measured by semesters and cumulative GPAs is observed between the "low achievers" of Science Faculty (at  $p = .00$  level) School of Pharmacy (at  $p < .01$  level), and Business and Economics Faculty (at  $p < .05$  level), in which freshman origin students performing better. The significant difference, when occurred, is observed in all the three semesters. The overall trend is that as the stay of students at the university increased, the difference in mean academic achievement as measured by GPA decreases and becomes insignificant.
2. Overall significant pass rate, withdrawal rate, dismissal rate, and wastage rate differences were observed between the two groups in favor

of freshman origin students at  $p < .01$  level. Further analysis revealed that these differences were limited to “low achiever” groups. That is low pass rate and high dismissal and wastage rates were observed in preparatory origin low achiever groups as compared to the low achiever groups of freshman origin students.

3. In comparing female students of the two groups within faculties, no statistically significant difference was observed between the two admission groups.
4. In seven of the nine faculties compared in this study, preparatory origin male students performed equally well as freshman origin male students. In faculties of Science and Pharmacy, freshman origin male students mean score was significantly higher than their preparatory origin counter mates
5. In the study, it was observed that faculties differ in academic achievements as measured by semester and cumulative GPAs (School of pharmacy consistently achieving higher and Institute of language studies and Faculty of business and Economics consistently achieving low). This difference is significant between faculty of Business & Economics and Faculty of Social Science (at  $p < .001$  level (only in the first semester); Faculty of education and Faculty of Social Science ( at  $p < .001$  level); Faculty of education and School of Pharmacy (at  $p < .001$  level) Faculty of Social Science with Faculty of Language Studies (at  $p < .05$  level)and between Faculty of Business & Economics and School of Pharmacy (in all the three semester).
6. Substantial increment in proportion (about 10%) of female students who admitted to AAU through preparatory origin than the freshman route

was also noted in the study.

7. In this study, no significant difference was evidenced between the age groups of 17 and less, 18-19, and 20 and above.

### ***Recommendations***

- ✿ The study exhibited high dismissal rate of preparatory origin students. Varieties of reasons may be attributed for these. Definitely school related factors are in the list. Conducting continuous surveys like non-returning student survey, an surveys on attrition and retention may benefit the institution by identifying reasons behind. Based on the survey findings different intervening and supportive programs may be designed.
- ✿ Designing and implementing an early warning systems (campus-wide) requiring the instructors to refer students experiencing academic difficulty (in most cases six weeks after the class begin) for advising, tutoring and other existing services based on an early exams, quizzes, and assignments may help in elevating the problem of at-risk students. This may require hiring a few more academic advisors but it may minimize the wastage rate.
- ✿ In school system like ours, in which students joining higher institutions are obliged to start their major area courses without introductory courses, well tailored, focused and exhaustive orientation courses may benefit the students by thoroughly introducing them to the system and hence minimize the attrition rate.

- ⊗ Most “low achiever” students were admitted to AAU with low EHEECE average scores. Nevertheless no supportive intervention programs and tutorials were designed to compensate these. Designing some sort of supportive classes for those students who are academically at-risk may contribute in minimizing the attrition.
  
- ⊗ Female students were admitted to AAU with moderate modifications of admission scores whereas they have to compete with their male counterparts, which were admitted with relatively higher admission scores. Designing some sort of compensating intervention programs (like tutorials) may improve their academic performance.
  
- ⊗ Students attending preparatory schools face diversified problems. Home atmosphere, work load, lack of support, inconvenient leaving and study environment, insufficient study time and study materials, school facility, teachers efficiency, are among others. Attending the preparatory year (s) at the university may minimize these problems, hence an advantage. Nevertheless, designing some intervening programs at preparatory schools may minimize school related problems and some of student and family related problems to improve the success of students.
  
- ⊗ Organizing a well systematized database system and making it available to researchers and other concerned authorities has a multitude of advantages. The more exhaustive the database is of the academic and biographic data of students the more informative it will be. Hence working on this direction effectively and efficiently is strongly recommended.

### ***Suggestions for Further Study***

- ✧ Tracking these groups further may enrich this study and may come out with more tangible and conclusive evidences.
- ✧ Faculty preference of the two groups is observed to be different this may need further investigation to find out the rational behind.
- ✧ Female students of Faculty of Law scored high average score compared to that of males in the same faculty. Investigating their practice and sharing the experience may benefit girls in other faculties.
- ✧ The study was limited to only nine faculties of AAU. Studying other faculties of AAU and extending the study to other university may help in drawing a more general picture.
- ✧ Further study of the problems of transition students benefits students, The University and the society

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## APPENDICES

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**APPENDIX A: INDEPENDENT SAMPLE TEST AND GROUP STATISTICS FOR THE TWO ADMISSION GROUPS AS ANALYZED BY FACULTY**

**A-1.1 Group Statistics of FRESHMAN ORIGIN and PREPARATORY ORIGIN Business & Economics Faculty Students Academic Achievement**

	FACULTY OF BUSINESS & ECONOMICS	N	Mean	Std. Deviation	Std. Error Mean
SEM1.GPA	Freshman	52	2.3840	.7479	.1037
	Preparatory	69	2.2420	.6652	8.008E-02
SEM. 2GPA	Freshman	48	2.3633	.6138	8.859E-02
	Preparatory	63	2.2148	.6381	8.039E-02
CGPA	Freshman	48	2.4034	.6350	9.166E-02
	Preparatory	63	2.2919	.5659	7.129E-02

**A-1.2 Independent Samples Test between FRESHMAN ORIGIN and PREPARATORY ORIGIN Business & Economics Faculty Students Academic Achievement**

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
		SEM. 1 GPA	Equal variances assumed	1.718	.192	1.101			119	.273
	Equal variances not assumed			1.083	102.588	.281	.1419	.1310	-.1180	.4018
SEM. 2 GPA	Equal variances assumed	.000	.990	1.235	109	.219	.1485	.1203	-8.9833E-02	.3869
	Equal variances not assumed			1.242	103.217	.217	.1485	.1196	-8.8725E-02	.3858
CGPA	Equal variances assumed	1.654	.201	.975	109	.332	.1115	.1143	-.1151	.3381
	Equal variances not assumed			.960	94.774	.339	.1115	.1161	-.1190	.3420

**A-2.1 Group Statistics for FRESHMAN ORIGIN and PREPARATORY ORIGIN  
Technology Faculty Students Academic Achievement**

	FACULTY OF TECHNOLOGY	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	49	2.6462	.6583	9.404E-02
	Preparatory	59	2.3300	.7625	9.927E-02
SEM. 2 GPA	Freshman	48	2.3690	.6220	8.978E-02
	Preparatory	52	2.4704	.6977	9.675E-02
CGPA	Freshman	48	2.5306	.5876	8.482E-02
	Preparatory	52	2.4860	.6067	8.413E-02

**A-2.2 Independent Samples Test for FRESHMAN ORIGIN and PREPARATORY ORIGIN  
Technology Faculty Students Academic Achievement**

Academic Achievement		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SEM. 1 GPA	Equal variances assumed	.348	.557	2.281	106	.025	.3162	.1386	.0414	.5911
	Equal variances not assumed			2.313	106	.023	.3162	.1367	.0451	.5873
SEM. 2 GPA	Equal variances assumed	.184	.669	-.765	98	.446	-.1014	.1326	-.3645	.1617
	Equal variances not assumed			-.768	98	.444	-.1014	.1320	-.3633	.1605
CGPA	Equal variances assumed	.054	.817	.373	98	.710	.0447	.1196	-.1927	.2820
	Equal variances not assumed			.374	98	.709	.0447	.1195	-.1924	.2817

**A-3.1 Group Statistics of FRESHMAN ORIGIN and PREPARATORY ORIGIN  
Science Faculty Students**

	FACULTY OF SCIENCE	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	36	2.6638	.5765	9.609E-02
	Preparatory	60	2.3455	.5508	7.111E-02
SEM. 2 GPA	Freshman	32	2.6513	.5690	.1006
	Preparatory	56	2.1850	.4799	6.413E-02
CGPA	Freshman	32	2.6613	.5502	9.727E-02
	Preparatory	54	2.3102	.4586	6.241E-02

**A-3.2 Independent Samples Test of FRESHMAN ORIGIN and PREPARATORY  
ORIGIN Science Faculty Students**

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1 GPA	Equal variances assumed	.185	.668	2.694	94	.008	.3183	.1182	8.368E-02	.5529
	Equal variances not assumed			2.663	71.168	.010	.3183	.1195	7.996E-02	.5566
SEM. 2 GPA	Equal variances assumed	1.013	.317	4.096	86	.000	.4663	.1139	.2400	.6927
	Equal variances not assumed			3.909	56.104	.000	.4663	.1193	.2274	.7053
CGPA	Equal variances assumed	1.785	.185	3.183	84	.002	.3511	.1103	.1318	.5705
	Equal variances not assumed			3.038	56.295	.004	.3511	.1156	.1196	.5826

**A-4.1 Independent Samples Test for FRESHMAN ORIGIN and PREPARATORY ORIGIN Education Faculty Students**

	FACULTY OF EDUCATION	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	19	2.2879	.3373	7.738E-02
	Preparatory	68	2.2896	.5575	6.760E-02
SEM. 2 GPA	Freshman	17	2.5315	.4042	9.804E-02
	Preparatory	61	2.4632	.5404	6.920E-02
CGPA	Freshman	17	2.4171	.3572	8.663E-02
	Preparatory	60	2.4325	.4877	6.296E-02

**A-4.2 Independent Samples Test for FRESHMAN ORIGIN and PREPARATORY ORIGIN Education Faculty Students**

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SEM. 1 GPA	Equal variances assumed	3.306	.073	-.012	85	.990	-1.6331E-03	.1346	-.2692	.2660
	Equal variances not assumed			-.016	48.390	.987	-1.6331E-03	.1027	-.2082	.2049
SEM2-GPA	Equal variances assumed	2.223	.140	.484	76	.630	6.829E-02	.1412	-.2129	.3495
	Equal variances not assumed			.569	33.683	.573	6.829E-02	.1200	-.1757	.3122
CGPA	Equal variances assumed	2.038	.158	-.121	75	.904	-1.5441E-02	.1272	-.2688	.2379
	Equal variances not assumed			-.144	34.737	.886	-1.5441E-02	.1071	-.2329	.2020

A-5.1 Group Statistics of FRESHMAN ORIGIN and PREPARATORY ORIGIN Social Science Faculty Students

	FACULTY SOCIAL SCIENCE	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	55	2.6476	.6210	8.373E-02
	Preparatory	87	2.6284	.4998	5.358E-02
SEM. 2 GPA	Freshman	55	2.5632	.6492	8.754E-02
	Preparatory	86	2.5252	.5928	6.392E-02
CGPA	Freshman	55	2.6053	.5801	7.822E-02
	Preparatory	86	2.5829	.4987	5.378E-02

A-5.2 Independent Samples Test of FRESHMAN ORIGIN and PREPARATORY ORIGIN Social Science Faculty Students

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM. 1 GPA	Equal variances assumed	4.240	.047	.714	33	.480	.1412	.1978	-.2613	.5436
	Equal variances not assumed			.633	15.003	.536	.1412	.2231	-.3344	.6168
SEM. 2 GPA	Equal variances assumed	3.234	.081	.478	33	.636	.0970	.2030	-.3160	.5101
	Equal variances not assumed			.408	13.991	.690	.0970	.2379	-.4132	.6073
CGPA	Equal variances assumed	3.015	.092	.297	32	.768	.0562	.1888	-.3284	.4407
	Equal variances not assumed			.256	12.771	.802	.0562	.2195	-.4188	.5311

A-6.1 Group Statistics for Faculty of Informatics Students

	FACULTY INFORMATICS	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	24	2.4894	.4810	9.819E-02
	Preparatory	11	2.3482	.6646	.2004
SEM. 2 GPA	Freshman	24	2.5143	.4680	9.554E-02
	Preparatory	11	2.4173	.7225	.2179
CGPA	Freshman	24	2.5012	.4395	8.970E-02
	Preparatory	10	2.4450	.6334	.2003

A-6.2 Independent Samples Test Group Statistics for Faculty of Informatics Students

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM. 1 GPA	Equal variances assumed	5.206	.024	.203	140	.840	.01918	.09469	-.1680	.2064
	Equal variances not assumed			.193	97.060	.847	.01918	.09941	-.1781	.2165
SEM2-GPA	Equal variances assumed	.992	.321	.357	139	.721	.03797	.1062	-.1721	.2480
	Equal variances not assumed			.350	107.517	.727	.03797	.1084	-.1769	.2528
CGPA	Equal variances assumed	2.870	.092	.243	139	.808	.02235	.09182	-.1592	.2039
	Equal variances not assumed			.236	102.555	.814	.02235	.09492	-.1659	.2106

### A-7.1 Group Statistics for Faculty of Law Students

	FACULTY OF LAW	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	20	2.6965	.5193	.1161
	Preparatory	19	2.5684	.7322	.1680
SEM. 2 GPA	Freshman	20	2.7235	.4889	.1093
	Preparatory	18	2.5250	.5722	.1349
CGPA	Freshman	20	2.7106	.4730	.1058
	Preparatory	18	2.5767	.6204	.1462

### A-7.2 Independent Samples T-test for Faculty of Law Students

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM. 1 GPA	Equal variances assumed	1.391	.244	3.219	49	.002	.5396	.1676	.2028	.8765
SEM2-GPA	Equal variances assumed	.047	.829	1.896	48	.064	.3048	.1607	-.01842	.6280
CGPA	Equal variances assumed	.194	.662	2.373	48	.022	.3260	.1374	.04979	.6021

### A-8.1 Group Statistics for School of Pharmacy Students

	SCHOOL OF PHARMACY	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Freshman	30	2.9610	.4411	.08053
	Preparatory	21	2.4214	.7539	.1645
SEM. 2 GPA	Freshman	30	2.8778	.5351	.09770
	Preparatory	20	2.5730	.5884	.1316
CGPA	Freshman	30	2.9160	.4561	.08326
	Preparatory	20	2.5900	.5045	.1128

### A-8.2 Independent Samples Test for School of Pharmacy Students

		Levene's Test for Equality of Variances	t-test for Equality of Means		df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t					Lower	Upper
SEM1_GPA	Equal variances assumed	2.399	.130	.633	37	.531	.1280	.2024	-.2821	.5382
SEM2-GPA	Equal variances assumed	.484	.491	1.153	36	.256	.1985	.1722	-.1506	.5477
CGPA	Equal variances assumed	1.268	.268	.753	36	.457	.1339	.1779	-.2269	.4947

A-9.1 Group Statistics for Institute of Language Studies

	INSTITIUT OF LANGUAGE STUDIES	N	Mean	Std. Deviation	Std. Error Mean
	Freshman	17	2.4912	.5484	.1330
	Preparatory	29	2.1903	.4648	.08631
SEM. 2 GPA	Freshman	14	2.5625	.5934	.1586
	Preparatory	26	2.2496	.5950	.1167
CGPA	Freshman	14	2.5840	.4387	.1172
	Preparatory	26	2.2577	.4676	.09171

A-9.2 Independent Samples Test for Institute of Language Studies Students

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
SEM. 1 GPA	Equal variances assumed	.066	.798	1.982	44	.054	.3008	.1518	-.00502	.6067	
SEM. 2 GPA	Equal variances assumed	.000	.995	1.588	38	.121	.3129	.1971	-.08605	.7118	
CGPA	Equal variances assumed	.449	.507	2.149	38	.038	.3263	.1518	.01897	.6336	

## APPENDIX B: COMPARISON OF THE MEANS OF PREPARATORY AND FRESHMAN ORIGIN STUDENTS BY ACHIEVEMENT LEVEL

### B-1.1 Mean academic Achievement of Preparatory and Freshman origin "low achiever" Students

	ach_level	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Prep low achievers	210	2.1797	.5128	.03539
	Fresh low achievers	146	2.5120	.6006	.04970
SEM. 2 GPA	Prep low achievers	190	2.1912	.5323	.03862
	Fresh low achievers	137	2.5314	.6168	.05270
CGPA	Prep low achievers	188	2.2336	.4403	.03211
	Fresh low achievers	137	2.5370	.5613	.04796

### B-1.2 Independent Sample T- Test of Academic Achievement for preparatory and Freshman origin "low achiever" Students

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
GPA										
SEM1	Equal variances assumed	8.835	.003	-5.602	354	.000	-.3323	.05931	-.4489	-.2156
SEM2	Equal variances assumed	2.967	.086	-5.332	325	.000	-.3402	.06380	-.4657	-.2147
Cumu.	Equal variances assumed	10.594	.001	-5.459	323	.000	-.3035	.05559	-.4128	-.1941

B-2.1 Group Statistics for preparatory and Freshman origin "high achiever" Students by Achievement Level

	ach_level	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1 GPA	Prep high achievers	213	2.5752	.6631	.04543
	Fresh high achievers	156	2.6713	.6209	.04971
SEM. 2 GPA	Prep high achievers	203	2.5785	.6138	.04308
	Fresh high achievers	151	2.5578	.5739	.04671
CGPA	Prep high achievers	201	2.6264	.5476	.03862
	Fresh high achievers	151	2.6271	.5462	.04445

B-2.2 Independent Samples T-Test for preparatory and Freshman origin s "high achiever" Students

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
GPA										
SEM1	Equal variances not assumed	.000	.990	-1.427	346	.155	-.09608	.06735	-.2285	.0364
SEM2	Equal variances assumed	.772	.380	.323	352	.747	.02074	.06417	-.1055	.1469
CGPA	Equal variances assumed	.164	.685	-.012	350	.990	-.07151	.05891	-.1166	.1151

**APPENDIXC: COMPARISON OF THE MEAN ACADEMIC ACHIEVEMENTS OF PREPARATORY AND FRESHMAN ORIGIN STUDENTS BY FACULTY AND ACHIEVEMENT LEVEL**

C-1.1.1 Group Statistics for Preparatory and Freshman origin Faculty of Business & Economics "low achievers"

	Admission Group	FACULTY3	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	Preparatory	35	1.9574	.5224	.08830
	Freshman	Freshman	28	2.2988	.6834	.1292
SEM. 2	Preparatory	Preparatory	30	1.9547	.5287	.0965
	Freshman	Freshman	26	2.3349	.6020	.1181
CGPA	Preparatory	Preparatory	30	2.0363	.3936	.0719
	Freshman	Freshman	26	2.3333	.6189	.1214

C-1.1.2 Independent Samples T-test for Preparatory and Freshman origin Faculty of Business & Economics "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
		SEM. 1	Equal variances assumed	2.556	.115				-2.248	61
SEM. 2	Equal variances assumed	.096	.758	-2.517	54	.015	-.3803	.1511	-.6831	-.0774
CGPA	Equal variances assumed	3.250	.077	-2.172	54	.034	-.2970	.1368	-.5712	-.0228

C-1.2.1 Group Statistics for Preparatory and Freshman origin Faculty of Business & Economics "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	34	2.5350	.6755	.1159
	Freshman	24	2.4833	.8204	.1675
SEM. 2	Preparatory	33	2.4512	.6437	.1121
	Freshman	22	2.3968	.6400	.1364
CGPA	Preparatory	33	2.5242	.6026	.1049
	Freshman	22	2.4862	.6583	.1403

C-1.2.2 Independent Samples Test for Preparatory and Freshman origin Business & Economics "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	1.545	.219	.262	56	.794	5.167E-02	.1969	-.3427	.4461
SEM. 2	Equal variances assumed	.108	.744	.308	53	.759	5.443E-02	.1768	-.3001	.4090
CGPA	Equal variances assumed	.978	.327	.221	53	.826	3.803E-02	.1721	-.3071	.3832

C-2.1.1 Group Statistics for Preparatory and Freshman origin Technology Faculty  
"low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	29	2.0707	.7250	.1346
	Freshman	20	2.3016	.5756	.1287
SEM. 2	Preparatory	24	2.2329	.6652	.1358
	Freshman	19	2.1645	.5712	.1311
CGPA	Preparatory	24	2.2617	.5641	.1151
	Freshman	19	2.2659	.4993	.1146

C-2.1.2 Independent Samples Test for Preparatory and Freshman Origin Technology Faculty "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	.528	.471	-1.188	47	.241	-.2310	.1944	-.6219	.1600
SEM. 2	Equal variances assumed	.099	.754	.356	41	.724	.0684	.1921	-.3196	.4564
CGPA	Equal variances assumed	.176	.677	-.025	41	.980	-.04194	.1648	-.3370	.3286

C-2.2.1 Group Statistics for Preparatory and Freshman origin Technology Faculty "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	30	2.5807	.7232	.1320
	Freshman	29	2.8839	.6121	.1137
SEM. 2	Preparatory	28	2.6739	.6704	.1267
	Freshman	29	2.5029	.6266	.1164
CGPA	Preparatory	28	2.6782	.5840	.1104
	Freshman	29	2.7041	.5836	.1084

C-2.2.2 Independent Samples Test for Preparatory and Freshman origin Technology Faculty "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances not assumed	.040	.842	-1.740	56	.087	-.3032	.1742	-.6522	.0458
SEM. 2	Equal variances not assumed	.044	.835	.994	54	.325	.1710	.1720	-.1738	.5158
CGPA	Equal variances assumed	.164	.688	-.167	55	.868	-.02588	.1547	-.3359	.2841

C-3.1.1 Group Statistics for Preparatory and Freshman origin  
Faculty of Science "low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	33	2.2382	.3864	.0673
	Freshman	15	2.8252	.4517	.1166
SEM. 2	Preparatory	31	1.9987	.4167	.0748
	Freshman	13	2.8306	.5265	.1460
CGPA	Preparatory	30	2.1363	.3504	.0640
	Freshman	13	2.8406	.4567	.1267

C-3.1.2 Independent Samples Test for Preparatory and Freshman origin Faculty of  
Science "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances not assumed	.033	.856	-4.360	24	.000	-.5870	.1346	-.8651	-.3090
SEM. 2	Equal variances assumed	1.906	.175	-5.584	42	.000	-.8319	.1490	-1.1325	-.5313
CGPA	Equal variances assumed	.589	.447	-5.515	41	.000	-.7042	.1277	-.9621	-.4464

C-3.2.1 Group Statistics for Preparatory and Freshman origin  
Faculty of Science "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	27	2.4767	.6872	.1322
	Freshman	21	2.5485	.6367	.1389
SEM. 2	Preparatory	25	2.4160	.4586	.0917
	Freshman	19	2.5287	.5776	.1325
CGPA	Preparatory	24	2.5275	.4910	.1002
	Freshman	19	2.5386	.5859	.1344

C-3.2.2 Independent Samples Test for Preparatory and Freshman origin Faculty  
of Science "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SEM. 1	Equal variances assumed	.059	.809	-.371	46	.712	-.07185	.1937	-.4617	.3180
SEM. 2	Equal variances assumed	.588	.448	-.722	42	.475	-.1127	.1561	-.4277	.2024
CGPA	Equal variances assumed	.732	.397	-.068	41	.946	-.01115	.1642	-.3428	.3205

C-4.1.1 Group Statistics for Preparatory and Freshman origin Faculty of Education  
"low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	33	2.1255	.3471	.06041
	Freshman	10	2.3471	.3756	.1188
SEM. 2	Preparatory	29	2.3060	.3839	.0713
	Freshman	8	2.5294	.5095	.1801
CGPA	Preparatory	29	2.2441	.3087	.0573
	Freshman	8	2.4678	.4434	.1568

C-4.1.2 Independent Samples Test for Preparatory and Freshman origin Faculty of Education "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	.346	.560	-1.737	41	.090	-.2216	.1276	-.4793	.0361
	Equal variances not assumed			-1.663	14	.119	-.2216	.1333	-.5074	.06420
SEM. 2	Equal variances assumed	.945	.338	-1.357	35	.183	-.2234	.1646	-.5575	.1107
	Equal variances not assumed			-1.153	9	.278	-.2234	.1937	-.6594	.2127
CGPA	Equal variances assumed	2.246	.143	-1.648	35	.108	-.2237	.1358	-.4993	.0519
	Equal variances not assumed			-1.340	8.957	.213	-.2237	.1669	-.6016	.1542

C-4.2.1 Group Statistics for Preparatory and Freshman origin Faculty of Education "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	35	2.4443	.6695	.1132
	Freshman	9	2.2222	.2967	.09891
SEM. 2	Preparatory	32	2.6056	.6230	.1101
	Freshman	9	2.5333	.3157	.1052
CGPA	Preparatory	31	2.6087	.5589	.1004
	Freshman	9	2.3719	.2797	.0932

C-4.2.2 Independent Samples Test for Preparatory and Freshman origin Faculty of Education "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	4.370	.043	.964	42	.340	.2221	.2303	-.2427	.6868
	Equal variances not assumed			1.477	30	.150	.2221	.1503	-.08471	.5288
SEM. 2	Equal variances assumed	4.063	.051	.334	39	.740	7.229E-02	.2164	-.3654	.5100
	Equal variances not assumed			.475	27	.639	7.229E-02	.1523	-.2403	.3849
CGPA	Equal variances assumed	4.253	.046	1.219	38	.230	.2368	.1942	-.1564	.6300
	Equal variances not assumed			1.728	27.456	.095	.2368	.1370	-.0441	.5177

C-5.1.1 Group Statistics for Preparatory and Freshman origin Faculty of Social Science "low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	40	2.4875	.4471	7.069E-02
	Freshman	32	2.6516	.6312	.1116
SEM. 2	Preparatory	40	2.4118	.5122	.08098
	Freshman	32	2.6690	.6314	.1116
CGPA	Preparatory	40	2.4555	.4366	.06903
	Freshman	32	2.6570	.5655	.09996

C-5.1.2 Independent Samples Test for Preparatory and Freshman origin Faculty of Social Science "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	4.849	.031	-1.289	70	.201	-.1641	.1272	-.4178	.0897
	Equal variances not assumed			-1.242	54	.220	-.1641	.1321	-.4289	.1008
SEM. 2	Equal variances assumed	.675	.414	-1.910	70	.060	-.2573	.1347	-.5260	.01142
	Equal variances not assumed			-1.866	59	.067	-.2573	.1379	-.5332	1.863
CGPA	Equal variances assumed	2.784	.100	-1.707	70	.092	-.2015	.1181	-.4370	.03396
	Equal variances not assumed			-1.659	57	.103	-.2015	.1215	-.4447	.0417

C-5.2.1 Group Statistics for Preparatory and Freshman origin Faculty of Social Science "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	47	2.7483	.5153	7.517E-02
	Freshman	23	2.6420	.6205	.1294
SEM. 2	Preparatory	46	2.6239	.6442	.09498
	Freshman	23	2.4159	.6587	.1373
CGPA	Preparatory	46	2.6937	.5269	.07769
	Freshman	23	2.5333	.6051	.1262

C -5.2.2 Independent Samples T- Test for Preparatory and Freshman origin Faculty of Social Science "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	2.289	.135	.757	68	.452	.1063	.1403	-.1738	.3863
	Equal variances not assumed			.710	37	.482	.1063	.1496	-.1968	.4093
SEM. 2	Equal variances assumed	.363	.549	1.255	67	.214	.2080	.1657	-.1228	.5388
	Equal variances not assumed			1.245	43	.220	.2080	.1670	-.1287	.5447
CGPA	Equal variances assumed	1.493	.226	1.134	67	.261	.1604	.1414	-.1219	.4427
	Equal variances not assumed			1.083	39	.286	.1604	.1482	-.1393	.4601

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	6	1.8883	.5440	.2221
	Freshman	12	2.4648	.5830	.1683
SEM. 2	Preparatory	6	2.0567	.6191	.2527
	Freshman	12	2.3776	.4741	.1369
CGPA	Preparatory	5	2.0340	.6043	.2703
	Freshman	12	2.4210	.4880	.1409

C-6.1.2 Independent Samples Test for Preparatory and Freshman origin  
Faculty of Informatics "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SEM. 1	Equal variances assumed	.629	.439	-2.019	16	.061	-.5765	.2855	-1.1818	.0289
	Equal variances not assumed			-2.069	11	.063	-.5765	.2787	-1.1913	.0384
SEM. 2	Equal variances assumed	.256	.620	-1.225	16	.238	-.3209	.2619	-.8761	.2343
	Equal variances not assumed			-1.116	8	.296	-.3209	.2874	-.9830	.3412
CGPA	Equal variances assumed	.079	.782	-1.394	15	.184	-.3870	.2776	-.9788	.2048
	Equal variances not assumed			-1.270	6	.249	-.3870	.3048	-1.1243	.3502

C-6.2.1 Group Statistics For Preparatory And Freshman Origin Faculty Of Informatics "high achievers"

	Ach. Level	N	Mean	Std. Deviation	Std. Error Mean
Sem. 1 GPA	Preparatory	5	2.9000	.1908	.0853
	Freshman	12	2.5139	.3776	.1090
Sem. 2 GPA	Preparatory	5	2.8500	.6300	.2818
	Freshman	12	2.6510	.4386	.1266
CGPA	Preparatory	5	2.8560	.3393	.1517
	Freshman	12	2.5813	.3893	.1124

Table C-6.2.2 Independent Samples Test for Preparatory and Freshman Origin Faculty of Informatics "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
Sem. 1 GPA	Equal variances assumed	3.309	.089	2.146	15	.049	.3861	.1799	.0256	.7697
	Equal variances not assumed			2.789	14	.014	.3861	.1384	.0893	.6829
Sem. 2 GPA A	Equal variances assumed	.403	.535	.752	15	.464	.1990	.2645	-.3648	.7628
	Equal variances not assumed			.644	6	.545	.1990	.3089	-.5669	.9648
CGPA	Equal variances assumed	.117	.737	1.370	15	.191	.2747	.2005	-.1526	.7020
	Equal variances not assumed			1.455	9	.181	.2747	.1888	-.1551	.7046

C-7.1.1 Group Statistics for Preparatory and Freshman origin  
Faculty of Law "low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	9	2.1378	.5844	.1948
	Freshman	10	2.5400	.5082	.1607
SEM. 2	Preparatory	8	2.2313	.6027	.2131
	Freshman	10	2.5387	.4298	.1359
CGPA	Preparatory	8	2.2238	.5720	.2022
	Freshman	10	2.5379	.4317	.1365

C-7.1.2 Independent Samples Test for Preparatory and Freshman origin  
Faculty of Law "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SEM. 1	Equal variances assumed	.883	.361	-1.605	17	.127	-.4022	.2506	-.9309	.1265
	Equal variances not assumed			-1.593	16	.131	-.4022	.2525	-.9376	.1331
SEM. 2	Equal variances assumed	1.250	.280	-1.264	16	.224	-.3074	.2432	-.8229	.2081
	Equal variances not assumed			-1.216	12	.247	-.3074	.2527	-.8567	.2419
CGPA	Equal variances assumed	1.049	.321	-1.330	16	.202	-.3142	.2362	-.8149	.1865
	Equal variances not assumed			-1.288	12.771	.221	-.3142	.2440	-.8422	.2139

C-7.2.1 Group Statistics for Preparatory and Freshman origin  
Faculty of Law "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	10	2.9560	.6452	.2040
	Freshman	10	2.8529	.5066	.1602
SEM. 2	Preparatory	10	2.7600	.4449	.1407
	Freshman	10	2.9084	.4939	.1562
CGPA	Preparatory	10	2.8590	.5228	.1653
	Freshman	10	2.8832	.4687	.1482

C -7.2.2 Independent Samples Test for Preparatory and Freshman origin  
Faculty of Law "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		
									Lower	Upper
SEM. 1	Equal variances assumed	.946	.344	.397	18	.696	.1031	.2594	-.4419	.6481
	Equal variances not assumed			.397	17	.696	.1031	.2594	-.4441	.6503
SEM. 2	Equal variances assumed	.333	.571	-.706	18	.489	-.1484	.2102	-.5900	.2932
	Equal variances not assumed			-.706	17	.489	-.1484	.2102	-.5904	.2936
CGPA	Equal variances assumed	.096	.760	-.109	18	.914	-.02423	.2220	-.4907	.4423
	Equal variances not assumed			-.109	18	.914	-.02423	.2220	-.4911	.4426

C-8.1.1 Group Statistics for Preparatory and Freshman origin School of Pharmacy "low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	11	2.3882	.3448	.1040
	Freshman	11	2.9658	.4738	.1429
SEM. 2	Preparatory	10	2.3280	.4808	.1521
	Freshman	11	3.0606	.5765	.1738
CGPA	Preparatory	10	2.3740	.3726	.1178
	Freshman	11	3.0181	.5227	.1576

C-8.1.2 Independent Samples Test for Preparatory and Freshman origin School of Pharmacy "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SEM. 1	Equal variances assumed	1.634	.216	-3.269	20	.004	-.5776	.1767	-.9461	-.2090
	Equal variances not assumed			-3.269	18	.004	-.5776	.1767	-.9484	-.2068
SEM. 2	Equal variances assumed	.975	.336	-3.144	19	.005	-.7326	.2330	-1.2203	-.2449
	Equal variances not assumed			-3.172	19	.005	-.7326	.2309	-1.2162	-.2490
CGPA	Equal variances assumed	1.920	.182	-3.220	19	.005	-.6441	.2000	-1.0627	-.2255
	Equal variances not assumed			-3.273	18	.004	-.6441	.1968	-1.0574	-.2308

C - 8.2.1 Group Statistics for Preparatory and Freshman origin  
School of Pharmacy "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	10	2.4580	1.0621	.3358
	Freshman	19	2.9583	.4344	.09966
SEM. 2	Preparatory	10	2.8180	.6052	.1914
	Freshman	19	2.7719	.4944	.1134
CGPA	Preparatory	10	2.8060	.5429	.1717
	Freshman	19	2.8568	.4162	.09549

C - 8.2.2 Independent Samples Test for Preparatory and Freshman origin  
Faculty of Law "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	3.821	.061	-1.808	27	.082	-.5003	.2768	-1.0682	.06754
	Equal variances not assumed			-1.428	11	.182	-.5003	.3503	-1.2748	.2742
SEM. 2	Equal variances assumed	.874	.358	.221	27	.827	.04607	.2086	-.3819	.4741
	Equal variances not assumed			.207	15	.839	.0461	.2225	-.4269	.5190
CGPA	Equal variances assumed	.412	.527	-.281	27	.781	-.05082	.1806	-.4214	.3198
	Equal variances not assumed			-.259	15	.799	-.0508	.1965	-.4702	.3686

C-9.1.1 Group Statistics for Preparatory and Freshman origin  
Institute of Language Studies "low achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	14	2.0600	.3786	.1012
	Freshman	8	2.2562	.4238	.1498
SEM. 2	Preparatory	12	2.1100	.5710	.1648
	Freshman	6	2.4896	.7928	.3237
CGPA	Preparatory	12	2.1208	.4019	.1160
	Freshman	6	2.4214	.4488	.1832

C-9.1.2 Independent Samples T-Test for Preparatory and Freshman origin  
Institute of Language Studies "low achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
SEM. 1	Equal variances assumed	.050	.825	-1.121	20	.276	-.1962	.1751	-.5614	.1689
	Equal variances not assumed			-1.085	13	.297	-.1962	.1808	-.5858	.1933
SEM. 2	Equal variances assumed	1.297	.272	-1.171	16	.259	-.3796	.3242	-1.0670	.3078
	Equal variances not assumed			-1.045	8	.328	-.3796	.3632	-1.2230	.4638
CGPA	Equal variances assumed	.005	.942	-1.441	16	.169	-.3006	.2086	-.7427	.1416
	Equal variances not assumed			-1.386	9	.199	-.3006	.2169	-.7899	.1888

Group Statistics for Preparatory and Freshman origin  
Institute of Language Studies "high achievers"

	Admission Group	N	Mean	Std. Deviation	Std. Error Mean
SEM. 1	Preparatory	15	2.3120	.5159	.1332
	Freshman	9	2.7000	.5831	.1944
SEM. 2	Preparatory	14	2.3693	.6096	.1629
	Freshman	8	2.6172	.4439	.1569
CGPA	Preparatory	14	2.3750	.5017	.1341
	Freshman	8	2.7059	.4170	.1474

C - 9.2.2 Independent Samples Test for Preparatory and Freshman origin  
Institute of Language Studies "high achievers"

		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	t	df				Lower	Upper
		SEM. 1	Equal variances assumed	.481	.495				-1.700	22
	Equal variances not assumed			-1.647	15	.120	-.3880	.2356	-.8893	.1133
SEM. 2	Equal variances assumed	1.258	.275	-1.004	20	.327	-.2479	.2470	-.7631	.2673
	Equal variances not assumed			-1.096	19	.287	-.2479	.2262	-.7221	.2263
CGPA	Equal variances assumed	.537	.472	-1.576	20	.131	-.3309	.2100	-.7690	.1071
	Equal variances not assumed			-1.660	17	.115	-.3309	.1993	-.7512	.0894

APPENDIX D ACADEMIC DIFFERENCE BETWEEN FACULTIES

D-1 Mean academic Achievement of Faculties

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
SEM. 1 GPA	Faculty of Business & Economics	121	2.3030	.7025	.06386	2.1766	2.4295	.60	3.83
	Faculty of Technology	108	2.4735	.7312	.07036	2.3340	2.6129	.23	4.00
	Faculty of Science	96	2.4649	.5787	.05906	2.3476	2.5821	.79	4.00
	Faculty of Education	87	2.2892	.5157	.05529	2.1793	2.3991	.65	3.71
	Faculty of Social Science	142	2.6358	.5478	.04597	2.5449	2.7267	1.17	4.00
	Faculty of Informatics	35	2.4450	.5393	.09116	2.2597	2.6302	1.33	3.39
	Faculty of Law	39	2.6341	.6269	.1004	2.4309	2.8373	1.50	4.00
	School of Pharmacy	51	2.7389	.6420	.0899	2.5583	2.9194	.00	3.80
	Institute of Language Studies	46	2.3015	.5127	.0756	2.1493	2.4538	1.17	3.60
	Total	725	2.4686	.6295	.0234	2.4227	2.5145	.00	4.00
SEM. 2 GPA	Faculty of Business & Economics	111	2.2790	.6292	.0597	2.1606	2.3973	.94	3.84
	Faculty of Technology	100	2.4217	.6611	.06061	2.2905	2.5529	.72	3.89
	Faculty of Science	88	2.3546	.5584	.0595	2.2362	2.4729	1.35	4.00
	Faculty of Education	78	2.4781	.5122	.058	2.3626	2.5936	1.00	3.88
	Faculty of Social Science	141	2.5400	.6134	.05166	2.4379	2.6422	.79	3.80
	Faculty of Informatics	35	2.4838	.5512	.09317	2.2945	2.6731	1.17	3.75
	Faculty of Law	38	2.6295	.5323	.0863	2.4545	2.8044	1.57	3.71
	School of Pharmacy	50	2.7559	.5714	.0808	2.5935	2.9183	1.61	4.00
	Institute of Language Studies	40	2.3591	.6060	.0958	2.1653	2.5529	1.33	3.80

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
	Total	681	2.4564	.6058	.0232	2.4108	2.5019	.72	4.00
CGPA	Faculty of Business & Economics	111	2.3401	.5966	.0566	2.2279	2.4523	1.25	3.76
	Faculty of Technology	100	2.5074	.5950	.0595	2.3893	2.6255	1.12	3.86
	Faculty of Science	86	2.4408	.5203	.0561	2.3293	2.5524	1.57	3.72
	Faculty of Education	77	2.4291	.4599	.0524	2.3247	2.5335	1.34	3.79
	Faculty of Social Science	141	2.5916	.5300	.0446	2.5034	2.6799	1.25	3.91
	Faculty of Informatics	34	2.4846	.4947	.0848	2.3120	2.6572	1.33	3.24
	Faculty of Law	38	2.6471	.5443	.0883	2.4682	2.8261	1.63	3.81
	School of Pharmacy	50	2.7856	.4978	.0704	2.6441	2.9270	1.91	3.91
	Institute of Language Studies	40	2.3719	.4787	7.569E-02	2.2188	2.5250	1.67	3.26
	Total	677	2.4994	.5480	2.106E-02	2.4580	2.5407	1.12	3.91

**D-2** Multiple Comparisons (Scheffe test) for equality of means between faculties

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval			
						Lower Bound	Upper Bound		
SEM 1 GPA Business & Economics		Faculty of Technology	-.1704	8.139E-02	.477	-.4229	.0820		
		Faculty of Science	-.1618	8.404E-02	.596	-.4225	.0988		
		Faculty of Education	1.383E-02	8.643E-02	1.000	-.2542	.2819		
		Faculty of Social Science	-.3328	7.607E-02	.000*	-.5687	-.0968		
		Faculty of Informatics	-.1420	.1180	.956	-.5080	.2241		
		Faculty of Law	-.3311	.1132	.083	-.6822	.0201		
		School of Pharmacy	-.4358	.1026	.001*	-.7542	-.1174		
		Institute of Language Studies	1.509E-03	.1065	1.000	-.3288	.3318		
		Faculty of Technology		Faculty of Business & Economics	.1704	8.139E-02	.477	-8.2008E-02	.4229
				Faculty of Science	8.614E-03	8.624E-02	1.000	-.2589	.2761
				Faculty of Education	.1843	8.857E-02	.487	-9.0461E-02	.4590
				Faculty of Social Science	-.1623	7.850E-02	.495	-.4058	.0812
				Faculty of Informatics	2.849E-02	.1196	1.000	-.3424	.3994
Faculty of Law	-.1606			.1149	.899	-.5169	.1957		
Faculty of Science		School of Pharmacy	-.2654	.1045	.213	-.5894	.0586		
		Institute of Language Studies	.1720	.1083	.811	-.1638	.5077		
		Faculty of Business & Economics	.1618	8.404E-02	.596	-9.8825E-02	.4225		
		Faculty of Technology	-8.6138E-03	8.624E-02	1.000	-.2761	.2589		
		Faculty of Education	.1757	9.101E-02	.593	-.1066	.4580		
		Faculty of Social Science	-.1710	8.124E-02	.470	-.4229	.0810		
		Faculty of Informatics	1.988E-02	.1214	1.000	-.3567	.3964		
		Faculty of Law	-.1692	.1168	.878	-.5314	.1929		
		School of Pharmacy	-.2740	.1065	.199	-.6044	.0566		

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Institute of Language Studies	.1633	.1103	.864	-.1786	.5053
	Faculty of Education	Faculty of Business & Economics	-1.3828E-02	8.643E-02	1.000	-.2819	.2542
		Faculty of Technology	-.1843	8.857E-02	.487	-.4590	.0905
		Faculty of Science	-.1757	9.101E-02	.593	-.4580	.1066
		Faculty of Social Science	-.3466	8.371E-02	.001*	-.6063	-.08697
		Faculty of Informatics	-.1558	.1231	.941	-.5375	.2259
		Faculty of Law	-.3449	.1185	.086	-.7124	.0226
		School of Pharmacy	-.4496	.1084	.001*	-.7860	-.1133
		Institute of Language Studies	-1.2320E-02	.1121	1.000	-.3600	.3353
	Faculty of Social Science	Faculty of Business & Economics	.3328	7.607E-02	.000*	.0969	.5687
		Faculty of Technology	.1623	7.850E-02	.495	-.08115	.4058
		Faculty of Science	.1710	8.124E-02	.470	-.08103	.4229
		Faculty of Education	.3466	8.371E-02	.001*	.0870	.6063
		Faculty of Informatics	.1908	.1160	.780	-.1691	.5507
		Faculty of Law	1.734E-03	.1112	1.000	-.3430	.3465
		School of Pharmacy	-.1030	.1004	.983	-.4144	.2083
		Institute of Language Studies	.3343	.1043	.037*	.0108	.6578
	Faculty of Informatics	Faculty of Business & Economics	.1420	.1180	.956	-.2241	.5080
		Faculty of Technology	-2.8492E-02	.1196	1.000	-.3994	.3424
		Faculty of Science	-1.9878E-02	.1214	1.000	-.3964	.3567
		Faculty of Education	.1558	.1231	.941	-.2259	.5375
		Faculty of Social Science	-.1908	.1160	.780	-.5507	.1691
		Faculty of Law	-.1891	.1432	.925	-.6331	.2549
		School of Pharmacy	-.2939	.1350	.420	-.7125	.1247
		Institute of Language Studies	.1435	.1379	.982	-.2843	.5712
	Faculty of Law	Faculty of Business & Economics	.3311	.1132	.083	-.02010	.6822

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Faculty of Technology	.1606	.1149	.899	-.1957	.5169
		Faculty of Science	.1692	.1168	.878	-.1929	.5314
		Faculty of Education	.3449	.1185	.086	-.02262	.7124
		Faculty of Social Science	-.0017	.1112	1.000	-.3465	.3430
		Faculty of Informatics	.1891	.1432	.925	-.2549	.6331
		School of Pharmacy	-.1048	.1308	.997	-.5104	.3009
		Institute of Language Studies	.3326	.1338	.239	-.08255	.7477
	School of Pharmacy	Faculty of Business & Economics	.4358	.1026	.001*	.1174	.7542
		Faculty of Technology	.2654	.1045	.213	-.05865	.5894
		Faculty of Science	.2740	.1065	.199	-.0565	.6044
		Faculty of Education	.4496	.1084	.001*	.1133	.7860
		Faculty of Social Science	.1030	.1004	.983	-.2083	.4144
		Faculty of Informatics	.2939	.1350	.420	-.1247	.7125
		Faculty of Law	.1048	.1308	.997	-.3009	.5104
		Institute of Language Studies	.4373	.1250	.014*	.0495	.8251
	Institute of Language Studies	Faculty of Business & Economics	-.0151	.1065	1.000	-.3318	.3288
		Faculty of Technology	-.1720	.1083	.811	-.5077	.1638
		Faculty of Science	-.1633	.1103	.864	-.5053	.1786
		Faculty of Education	.0123	.1121	1.000	-.3353	.3600
		Faculty of Social Science	-.3343	.1043	.037*	-.6578	-.01076
		Faculty of Informatics	-.1435	.1379	.982	-.5712	.2843
		Faculty of Law	-.3326	.1338	.239	-.7477	.0826
		School of Pharmacy	-.4373	.1250	.014*	-.8251	-.0495
SEM. 2 GPA	Faculty of Business & Economics	Faculty of Technology	-.1427	.0820	.722	-.3972	.1118
		Faculty of Science	-.0756	.0849	.994	-.3390	.1879
		Faculty of Education	-.1991	.0849	.016*	-.4953	-.0268

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Faculty of Informatics	-.2048	.1154	.699	-.5626	.1530
		Faculty of Law	-.3505	.1118	.045*	-.6974	-3.6036E-03
		School of Pharmacy	-.4769	.1014	.000*	-.7912	-.1625
		Institute of Language Studies	-8.0139E-02	.1097	.998	-.4205	.2602
	Faculty of Technology	Faculty of Business & Economics	.1427	8.204E-02	.722	-.1118	.3972
		Faculty of Science	6.714E-02	8.698E-02	.998	-.2026	.3369
		Faculty of Education	-5.6374E-02	8.989E-02	.999	-.3352	.2224
		Faculty of Social Science	-.1183	7.780E-02	.846	-.3596	.1230
		Faculty of Informatics	-6.2098E-02	.1169	1.000	-.4246	.3004
		Faculty of Law	-.2078	.1134	.661	-.5595	.1439
		School of Pharmacy	-.3342	.1031	.032	-.6538	-.0144
		Institute of Language Studies	6.258E-02	.1113	1.000	-.2827	.4079
	Faculty of Science	Faculty of Business & Economics	7.558E-02	8.493E-02	.994	-.1879	.3390
		Faculty of Technology	-6.7136E-02	8.698E-02	.998	-.3369	.2026
		Faculty of Education	-.1235	9.254E-02	.921	-.4105	.1635
		Faculty of Social Science	-.1855	8.084E-02	.345	-.4362	.0653
		Faculty of Informatics	-.1292	.1189	.976	-.4981	.2396
		Faculty of Law	-.2749	.1155	.295	-.6332	.0834
		School of Pharmacy	-.4013	.1054	.004*	-.7282	-.0744
		Institute of Language Studies	-4.5546E-03	.1135	1.000	-.3565	.3474
	Faculty of Education	Faculty of Business & Economics	.1991	8.792E-02	.364	-7.3606E-02	.4718
		Faculty of Technology	5.637E-02	8.989E-02	.999	-.2224	.3352
		Faculty of Science	.1235	9.254E-02	.921	-.1635	.4105
		Faculty of Social Science	-6.1963E-02	8.397E-02	.998	-.3224	.1985
		Faculty of Informatics	-5.7232E-03	.1211	1.000	-.3812	.3698

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Faculty of Law	-.1514	.1177	.936	-.5165	.2137
		School of Pharmacy	-.2778	.1078	.196	-.6122	.0566
		Institute of Language Studies	.1190	.1157	.983	-.2400	.4779
	Faculty of Social Science	Faculty of Business & Economics	.2611	7.551E-02	.016*	.0279	.4953
		Faculty of Technology	.1183	7.780E-02	.846	-.1230	.3596
		Faculty of Science	.1855	8.084E-02	.345	-.0653	.4362
		Faculty of Education	6.196E-02	8.397E-02	.998	-.1985	.3224
		Faculty of Informatics	5.624E-02	.1124	1.000	-.2923	.4048
		Faculty of Law	-8.9445E-02	.1088	.996	-.4268	.2479
		School of Pharmacy	-.2158	9.794E-02	.403	-.5196	.088
		Institute of Language Studies	.1809	.1066	.749	-.1497	.5116
	Faculty of Informatics	Faculty of Business & Economics	.2048	.1154	.699	-.1530	.5626
		Faculty of Technology	6.210E-02	.1169	1.000	-.3004	.4246
		Faculty of Science	.1292	.1189	.976	-.2396	.4981
		Faculty of Education	5.723E-03	.1211	1.000	-.3698	.3812
		Faculty of Social Science	-5.6240E-02	.1124	1.000	-.4048	.2923
		Faculty of Law	-.1457	.1394	.981	-.5781	.2867
		School of Pharmacy	-.2721	.1311	.491	-.6788	.1347
		Institute of Language Studies	.1247	.1377	.993	-.3025	.5519
	Faculty of Law	Faculty of Business & Economics	.3505	.1118	.045*	.0360	.6974
		Faculty of Technology	.2078	.1134	.661	-.1439	.5595
		Faculty of Science	.2749	.1155	.295	-.0834	.6332
		Faculty of Education	.1514	.1177	.936	-.2137	.5165
		Faculty of Social Science	8.945E-02	.1088	.996	-.2479	.4268
		Faculty of Informatics	.1457	.1394	.981	-.2867	.5781
		School of Pharmacy	-.1264	.1281	.987	-.5236	.2708

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Institute of Language Studies	.2704	.1348	.539	-.1477	.6885
	School of Pharmacy	Faculty of Business & Economics	.4769	.1014	.000*	.1625	.7912
		Faculty of Technology	.3342	.1031	.032	.0145	.6538
		Faculty of Science	.4013	.1054	.004*	.0744	.7282
		Faculty of Education	.2778	.1078	.196	-.0566	.6122
		Faculty of Social Science	.2158	9.794E-02	.403	-.0880	.5196
		Faculty of Informatics	.2721	.1311	.491	-.1347	.6788
		Faculty of Law	.1264	.1281	.987	-.2708	.5236
		Institute of Language Studies	.3967	.1262	.044*	.0521	.7883
	Institute of Language Studies	Faculty of Business & Economics	8.014E-02	.1097	.998	-.2602	.4205
		Faculty of Technology	-6.2581E-02	.1113	1.000	-.4079	.2827
		Faculty of Science	4.555E-03	.1135	1.000	-.3474	.3565
		Faculty of Education	-.1190	.1157	.983	-.4779	.2400
		Faculty of Social Science	-.1809	.1066	.749	-.5116	.1497
		Faculty of Informatics	-.1247	.1377	.993	-.5519	.3025
		Faculty of Law	-.2704	.1348	.539	-.6885	.1477
		School of Pharmacy	-.3967	.1262	.044*	-.7883	-.0521
CGPA	Faculty of Business & Economics	Faculty of Technology	-.1673	7.406E-02	.368	-.3970	.0624
		Faculty of Science	-.1007	7.716E-02	.930	-.3401	.1386
		Faculty of Education	-8.8970E-02	7.966E-02	.972	-.3361	.1581
		Faculty of Social Science	-.2515	6.816E-02	.007*	-.4629	-.0401
		Faculty of Informatics	-.1445	.1053	.908	-.4711	.1821
		Faculty of Law	-.3070	.1010	.060	-.6202	.0611
		School of Pharmacy	-.4455	9.149E-02	.000*	-.7292	-.1617
		Institute of Language Studies	-3.1769E-02	9.906E-02	1.000	-.3390	.2755

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
	Faculty of Technology	Faculty of Business & Economics	.1673	7.406E-02	.368	-6.2424E-02	.3970
		Faculty of Science	6.657E-02	7.899E-02	.996	-.1785	.3116
		Faculty of Education	7.831E-02	8.144E-02	.989	-.1743	.3309
		Faculty of Social Science	-8.4225E-02	7.022E-02	.957	-.3020	.1336
		Faculty of Informatics	2.276E-02	.1066	1.000	-.3080	.3535
		Faculty of Law	-.1397	.1024	.911	-.4572	.1778
		School of Pharmacy	-.2782	9.304E-02	.069	-.5667	1.040E-02
		Institute of Language Studies	.1355	.1005	.917	-.1762	.4472
	Faculty of Science	Faculty of Business & Economics	.1007	7.716E-02	.930	-.1386	.3401
		Faculty of Technology	-6.6568E-02	7.899E-02	.996	-.3116	.1785
		Faculty of Education	1.174E-02	8.427E-02	1.000	-.2496	.2731
		Faculty of Social Science	-.1508	7.349E-02	.507	-.3787	7.716E-02
		Faculty of Informatics	-4.3805E-02	.1088	1.000	-.3813	.2937
		Faculty of Law	-.2063	.1046	.563	-.5308	.1182
		School of Pharmacy	-.3447	9.553E-02	.009	-.6410	-4.8446E-02
		Institute of Language Studies	6.894E-02	.1028	.999	-.2499	.3878
	Faculty of Education	Faculty of Business & Economics	8.897E-02	7.966E-02	.972	-.1581	.3361
		Faculty of Technology	-7.8311E-02	8.144E-02	.989	-.3309	.1743
		Faculty of Science	-1.1743E-02	8.427E-02	1.000	-.2731	.2496
		Faculty of Social Science	-.1625	7.611E-02	.449	-.3986	7.355E-02
		Faculty of Informatics	-5.5548E-02	.1106	1.000	-.3986	.2875
		Faculty of Law	-.2181	.1065	.510	-.5483	.1122
		School of Pharmacy	-.3565	9.756E-02	.008	-.6591	-5.3890E-02
		Institute of Language Studies	5.720E-02	.1047	1.000	-.2675	.3819
	Faculty of Social Science	Faculty of Business & Economics	.2515	6.816E-02	.007*	4.010E-02	.4629

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Faculty of Technology	8.422E-02	7.022E-02	.957	-.1336	.3020
		Faculty of Science	.1508	7.349E-02	.507	-7.7160E-02	.3787
		Faculty of Education	.1625	7.611E-02	.449	-7.3547E-02	.3986
		Faculty of Informatics	.1070	.1026	.982	-.2113	.4253
		Faculty of Law	-5.5516E-02	9.818E-02	1.000	-.3600	.2490
		School of Pharmacy	-.1939	8.841E-02	.410	-.4682	8.028E-02
		Institute of Language Studies	.2197	9.622E-02	.352	-7.8727E-02	.5182
	Faculty of Informatics	Faculty of Business & Economics	.1445	.1053	.908	-.1821	.4711
		Faculty of Technology	-2.2763E-02	.1066	1.000	-.3535	.3080
		Faculty of Science	4.380E-02	.1088	1.000	-.2937	.3813
		Faculty of Education	5.555E-02	.1106	1.000	-.2875	.3986
		Faculty of Social Science	-.1070	.1026	.982	-.4253	.2113
		Faculty of Law	-.1625	.1268	.937	-.5558	.2308
		School of Pharmacy	-.3009	.1194	.222	-.6713	6.941E-02
		Institute of Language Studies	.1127	.1253	.993	-.2759	.5014
	Faculty of Law	Faculty of Business & Economics	.3070	.1010	.060	-6.1123E-03	.6202
		Faculty of Technology	.1397	.1024	.911	-.1778	.4572
		Faculty of Science	.2063	.1046	.563	-.1182	.5308
		Faculty of Education	.2181	.1065	.510	-.1122	.5483
		Faculty of Social Science	5.552E-02	9.818E-02	1.000	-.2490	.3600
		Faculty of Informatics	.1625	.1268	.937	-.2308	.5558
		School of Pharmacy	-.1384	.1156	.957	-.4970	.2201
		Institute of Language Studies	.2753	.1217	.365	-.1022	.6527
	School of Pharmacy	Faculty of Business & Economics	.4455	9.149E-02	.000*	.1617	.7292
		Faculty of Technology	.2782	9.304E-02	.069	-1.0396E-02	.5667

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
		Faculty of Science	.3447	9.553E-02	.009*	4.845E-02	.6410
		Faculty of Education	.3565	9.756E-02	.008*	5.389E-02	.6591
		Faculty of Social Science	.1939	8.841E-02	.410	-8.0280E-02	.4682
		Faculty of Informatics	.3009	.1194	.222	-6.9407E-02	.6713
		Faculty of Law	.1384	.1156	.957	-.2201	.4970
		Institute of Language Studies	.4137	.1139	.009*	6.026E-02	.7671
	Institute of Language Studies	Faculty of Business & Economics	3.177E-02	9.906E-02	1.000	-.2755	.3390
		Faculty of Technology	-.1355	.1005	.917	-.4472	.1762
		Faculty of Science	-6.8943E-02	.1028	.999	-.3878	.2499
		Faculty of Education	-5.7200E-02	.1047	1.000	-.3819	.2675
		Faculty of Social Science	-.2197	9.622E-02	.352	-.5182	7.873E-02
		Faculty of Informatics	-.1127	.1253	.993	-.5014	.2759
		Faculty of Law	-.2753	.1217	.365	-.6527	.1022
		School of Pharmacy	-.4137	.1139	.009*	-.7671	-6.0260E-02

\* The mean difference is significant at the .05 level.

## APENDIX E: COMPARISONS OF THE TWO GROUPS WITH RESPECT TO SEX

### *E-1 Comparison of Female Students of the Two Groups*

#### E-1.1.1 Group Statistics for Preparatory Female and Freshman Female Students of Business and Economics Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep.bus. female students	15	2.0673	0.7083	0.1829
	fresh.bus. female students	21	2.3159	0.7359	0.1606
SEM2GPA	prep.bus. female students	13	2.0546	0.5764	0.1599
	fresh.bus. female students	19	2.3068	0.6203	0.1423
Cumulative GPA	prep.bus. female students	13	2.1723	0.4531	0.1257
	fresh.bus. female students	19	2.3186	0.6735	0.1545

#### E-1.1.2 Independent Samples Test for Preparatory Female and Freshman Female Students of Business and Economics Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	0.187	0.668	-1.015	34	0.317	-0.2485	0.245	-0.7464	0.2493
SEM2GPA	0.176	0.678	-1.162	30	0.255	-0.2522	0.2171	-0.6955	0.1912
Cumulative GPA	3.441	0.073	-0.683	30	0.5	-0.1463	0.2142	-0.5838	0.2913

#### E-1.2.1 Group Statistics for Preparatory Female and Freshman Female Students of Technology Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep.Technology female students	16	1.7306	0.7075	0.1769
	fresh. Technology female students	8	2.1331	0.8291	0.2931
SEM2GPA	prep.Technology female students	13	1.81	0.4142	0.1149
	fresh. Technology female students	7	1.9136	0.8285	0.3131
Cumulative GPA	prep.Technology female students	13	1.9208	0.3132	0.0869
	fresh. Technology female students	7	2.1015	0.7807	0.2951

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	0.244	0.627	-1.242	22			0.227	-0.4025
SEM2GPA	8.749	0.008	-0.377	18	0.71	-0.1036	0.2746	-0.6806	0.4733
Cumu. GPA	10.636	0.004	-0.744	18	0.466	-0.1808	0.243	-0.6912	0.3297

E-1.3.1 Group Statistics for Preparatory Female and Freshman Female Students of Social Science Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Social Sc female students	26	2.4485	0.4684	0.0919
	fresh. Social Sc female students	11	2.103	0.6977	0.2104
SEM2GPA	prep. Social Sc female students	26	2.2419	0.5505	0.108
	fresh. Social Sc female students	11	2.0091	0.689	0.2077
Cumu. GPA	prep. Social Sc female students	26	2.3612	0.4613	0.0905
	fresh. Social Sc female students	11	2.0563	0.6371	0.1921

E-1.3.2 Independent Samples Test for Preparatory Female and Freshman Female Students of Social Science Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	0.919	0.344	1.766	35			0.086	0.3454
SEM2GPA	1.12	0.297	1.091	35	0.283	0.2328	0.2134	-0.2004	0.6661
Cumu. GPA	0.226	0.638	1.637	35	0.111	0.3048	0.1862	-0.0732	0.6828

E-1.4.1 Group Statistics for Preparatory Female and Freshman Female Students of Law Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Law female students	6	2.3333	0.9229	0.3768
	fresh. Law female students	8	2.95	0.5682	0.2009
SEM2GPA	prep. Law female students	5	2.53	0.7782	0.348
	fresh. Law female students	8	2.9112	0.6256	0.2212
Cumulative GPA	prep. Law female students	5	2.512	0.8418	0.3764
	fresh. Law female students	8	2.9322	0.5699	0.2015

E-1.4.2 Independent Samples Test for Preparatory Female and Freshman Female Students of Law Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	1.923	0.191	-1.549	12	0.147	-0.6167	0.3981	-1.4839
SEM2GPA	0.639	0.441	-0.976	11	0.35	-0.3812	0.3905	-1.2408	0.4783
Cumulative GPA	1.754	0.212	-1.082	11	0.302	-0.4202	0.3885	-1.2752	0.4348

E-1.5.1 Group Statistics for Preparatory Female and Freshman Female Students of School of Pharmacy

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Pharmacy female students	16	2.2381	0.4676	0.1169
	fresh. Pharmacy female students	6	2.6667	0.3978	0.1624
SEM2GPA	prep. Pharmacy female students	15	2.2193	0.4152	0.1072
	fresh. Pharmacy female students	6	2.4444	0.4389	0.1792
Cumulative GPA	prep. Pharmacy female students	14	2.2693	0.3652	0.0976
	fresh. Pharmacy female students	6	2.5455	0.3942	0.1609

E-1.5.2 Independent Samples Test for Preparatory Female and Freshman Female Students of School of Pharmacy

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	0.002	0.966	-1.984	20	0.061	-0.4285	0.216	-0.8791	0.022
SEM2GPA	0.231	0.636	-1.105	19	0.283	-0.2251	0.2036	-0.6513	0.2011
Cumu. GPA	0.044	0.837	-1.515	18	0.147	-0.2762	0.1822	-0.6591	0.1067

E-1.6.1 Group Statistics for Preparatory Female and Freshman Female Students of Institute of Language Studies

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	Prep.. female language stu.	16	2.1363	0.4729	0.1182
	Fresh. female language stu.	10	2.485	0.6174	0.1952
SEM2GPA	Prep. female language stu.	14	2.2136	0.5343	0.1428
	Fresh. female language stu.	8	2.6745	0.6533	0.231
Cumu. GPA	Prep. female language stu.	14	2.24	0.4096	0.1095
	Fresh female . language stu.	8	2.6252	0.4954	0.1751

E-1.6.2 Independent Samples Test for Preparatory Female and Freshman Female Students of Institute of Language Studies

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	0.3	0.589	-1.627	24	0.117	-0.3487	0.2143	-0.7911	0.0936
SEM2GPA	0.262	0.614	-1.797	20	0.087	-0.4609	0.2565	-0.996	0.0741
Cumu. GPA	0.03	0.864	-1.968	20	0.063	-0.3852	0.1957	-0.7934	0.023

**E-2: Comparison of Male Students of the Two Groups**

**E-2.1.1 Group Statistics for Preparatory and Freshman Male Students of Business and Economics Faculty**

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Bus. male students	54	2.2906	0.6513	0.0886
	fresh. Bus. male students	31	2.4301	0.7646	0.1373
SEM2GPA	prep. Bus. male students	50	2.2564	0.6521	0.0922
	fresh. Bus. male students	29	2.4003	0.6176	0.1147
Cum. GPA	prep. Bus. male students	50	2.323	0.5917	0.0837
	fresh. Bus. male students	29	2.459	0.6142	0.1141

**E-2.1.2 Independent Samples Test for Preparatory and Freshman Male Students of Business and Economics Faculty**

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM2GPA	0.124	0.726	-0.964	77	0.338	-0.1439	0.1493	-0.4412	0.1535
Cumu. GPA	0.197	0.659	-0.971	77	0.335	-0.136	0.14	-0.4149	0.1429

**E-2.2.1 Group Statistics for Preparatory and Freshman Male Students of Technology Faculty**

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Technology male students	42	2.5824	0.6396	0.0987
	fresh. Technology male students	41	2.7464	0.5803	0.0906
SEM2GPA	prep. Technology male students	39	2.6905	0.6326	0.1013
	fresh. Technology male students	41	2.4467	0.556	0.0868
Cum. GPA	prep. Technology male students	39	2.6744	0.5633	0.0902
	fresh. Technology male students	41	2.6039	0.5259	0.0821

E-2.2.2 Independent Sample T-test for Preparatory and Freshman Male Students of Technology Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	0.19	0.664	-1.222	81			0.225	-0.164
SEM2GPA	0.298	0.587	1.833	78	0.071	0.2438	0.133	-0.021	0.5086
Cumu. GPA	0.006	0.941	0.579	78	0.564	0.0705	0.1218	-0.172	0.3129

E-2.3.1 Group Statistics for Preparatory and Freshman Male Students of Science Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Science male students	46	2.4898	0.4963	0.0732
	fresh. Science male students	34	2.68	0.5871	0.1007
SEM2GPA	prep. Science male students	44	2.2805	0.4541	0.0685
	fresh. Science male students	31	2.6856	0.5437	0.0977
Cumu. GPA	prep. Science male students	42	2.4162	0.4389	0.0677
	fresh. Science male students	31	2.6863	0.5405	0.0971

E-2.3.2 Independent Samples Test for Preparatory and Freshman Male Students of Science Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
	SEM1_GPA	1.283	0.261	-1.567	78			0.121	-0.1902
SEM2GPA	1.199	0.277	-3.505	73	0.001	-0.4052	0.1156	-0.6355	-0.1748
Cumu. GPA	2.199	0.143	-2.355	71	0.021	-0.2701	0.1147	-0.4988	-0.0414

**E-2.4.1 Group Statistics for Preparatory and Freshman Male Students of Education Faculty**

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep.edu. male students	52	2.401	0.5423	0.0752
	fresh.edu. male students	19	2.2879	0.3373	0.0774
SEM2GPA	prep.edu. male students	49	2.5238	0.5263	0.0752
	fresh.edu. male students	17	2.5315	0.4042	0.098
Cumulative GPA	prep.edu. male students	48	2.5048	0.4867	0.0702
	fresh.edu. male students	17	2.4171	0.3572	0.0866

**E-2.4.2 Independent Samples Test for Preparatory and Freshman Male Students of Education Faculty**

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	3.473	0.067	0.848	69	0.399	0.113	0.1332	-0.1528	0.3788
SEM2GPA	2.651	0.108	-0.055	64	0.956	-0.0071	0.1404	-0.2881	0.2727
Cumulative GPA	2.44	0.123	0.68	63	0.499	0.0877	0.1291	-0.1702	0.3456

**E-2.5.1 Group Statistics for Preparatory and Freshman Male Students of Social Science Faculty**

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Social Sc male students	61	2.7051	0.4966	0.0636
	fresh. Social Sc male students	45	2.7512	0.5635	0.084
SEM2GPA	prep. Social Sc male students	60	2.648	0.572	0.0738
	fresh. Social Sc male students	44	2.7017	0.5664	0.0854
Cumulative GPA	prep. Social Sc male students	60	2.679	0.4869	0.0629
	fresh. Social Sc male students	44	2.7425	0.4815	0.0726

E-2.5.2 Independent Samples Test for Preparatory and Freshman Male Students of Social Science Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means				Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Lower			Upper	
SEM1_GPA	1.675	0.198	-0.446	104	0.656	-0.0461	0.1033	-0.251	0.1588	
SEM2GPA	0	0.982	-0.475	102	0.636	-0.0537	0.1131	-0.278	0.1705	
Cumu. GPA	0	0.996	-0.66	102	0.511	-0.0635	0.0962	-0.2543	0.1273	

E-2.6.1 Group Statistics for Preparatory and Freshman Male Students of Informatics Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Informatics male students	8	2.625	0.5396	0.1908
	fresh. Informatics male students	23	2.5203	0.4668	9.73E-02
SEM2GPA	prep. Informatics male students	8	2.5938	0.7725	0.2731
	fresh. Informatics male students	23	2.529	0.4729	9.86E-02
Cumu. GPA	prep. Informatics male students	8	2.5975	0.6125	0.2165
	fresh. Informatics male students	23	2.5242	0.4343	9.06E-02

E-2.6.2 Independent Samples Test for Preparatory and Freshman Male Students of Informatics Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means				Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Lower			Upper	
SEM1_GPA	0.001	0.978	0.526	29	0.603	0.1047	0.1992	-0.3028	0.5122	
SEM2GPA	2.111	0.157	0.282	29	0.78	6.48E-02	0.2299	-0.4054	0.5349	
Cumu. GPA	1.134	0.296	0.37	29	0.714	7.33E-02	0.1984	-0.3324	0.4791	

E-2.7.1 Group Statistics for Preparatory and Freshman Male Students of Law Faculty

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Law male students	13	2.6769	0.6394	0.1773
	fresh. Law male students	12	2.5275	0.4271	0.1233
SEM2GPA	prep. Law male students	13	2.5231	0.5118	0.142
	fresh. Law male students	12	2.5984	0.348	0.1005
Cumulative GPA	prep. Law male students	13	2.6015	0.5538	0.1536
	fresh. Law male students	12	2.5628	0.3467	0.1001

E-2.7.2 Independent Samples Test for Preparatory and Freshman Male Students of Law Faculty

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
SEM1_GPA	1.227	0.279	0.681	23	0.503	0.1495	0.2195	-0.3045	0.6035
SEM2GPA	1.19	0.287	-0.426	23	0.674	-0.0753	0.1766	-0.4406	0.29
Cumulative GPA	1.098	0.306	0.208	23	0.837	0.0387	0.1867	-0.3475	0.4249

E-2.8.1 Group Statistics for Preparatory and Freshman Male Students of School of Pharmacy

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. Pharmacy male students	8	2.4838	1.1725	0.4145
	fresh. Pharmacy male students	24	3.0346	0.4274	0.0872
SEM2GPA	prep. Pharmacy male students	8	3.0012	0.5512	0.1949
	fresh. Pharmacy male students	24	2.9861	0.5079	0.1037
Cumulative GPA	prep. Pharmacy male students	8	2.9625	0.4994	0.1766
	fresh. Pharmacy male students	24	3.0086	0.4286	0.0875

E-2.8.2 Independent Samples Test for Preparatory and Freshman Male Students of School of Pharmacy

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	6.142	0.019	-1.988	30	0.056	-0.5509	0.2771	-1.1169	0.0151
SEM2GPA	0.106	0.747	0.072	30	0.943	0.0151	0.2116	-0.417	0.4473
Cumu. GPA	0.001	0.975	-0.253	30	0.802	-0.0461	0.1821	-0.418	0.3259

E-2.9.1 Group Statistics for Preparatory and Freshman Male Students of Institute of Language Studies

	SEX3	N	Mean	Std. Deviation	Std. Error Mean
SEM1_GPA	prep. language stu. male students	13	2.2569	0.4647	0.1289
	fresh. language stu. male students	7	2.5	0.4796	0.1813
SEM2GPA	prep. language stu. male students	12	2.2917	0.6809	0.1966
	fresh. language stu. male students	6	2.4132	0.5208	0.2126
Cumu. GPA	prep. language stu. male students	12	2.2783	0.5458	0.1576
	fresh. language stu. male students	6	2.529	0.3879	0.1584

E-2.9.2 Independent Samples Test for Preparatory and Freshman Male Students of Institute of Language Studies

	Levene's Test for Equality of Variances		t-test for Equality of Means			Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)			Lower	Upper
SEM1_GPA	0.07	0.794	-1.104	18	0.284	-0.2431	0.2202	-0.7057	0.2195
SEM2GPA	1.702	0.21	-0.383	16	0.707	-0.1215	0.3176	-0.7949	0.5518
Cumu. GPA	1.591	0.225	-0.999	16	0.333	-0.2507	0.2509	-0.7826	0.2812