CORRELATION BETWEEN ADMISSION QUALIFICATIONS OF MUCG GRADUATES AND INTERMEDIATE AND FINAL RESULTS

BY

PROFESSOR O.A.Y. JACKSON

MR. C.A. HESSE

MATHEMATICS AND STATISTICS DEPARTMENT

METHODIST UNIVERSITY COLLEGE GHANA

DANSOMAN, ACCRA

CHAPTER ONE

1.0   INTRODUCTION

University education fundamentally focuses on the development of a broad minded and academically sound person through the acquisition of knowledge and skills for the good of humanity and a rewarding placement in society. It is for these reasons that thousands of people seek to have university education. However, a lot more people who apply each year for admission are refused entry for various reasons. Among these is the entry qualification of the student.

Selection of students into the universities in Ghana depends mainly on their grades achieved in school leaving examinations such as SSCE, A' level, HND, and other diplomas. Few studies have validated such selection measures including that of McManus I. C. (1998), with quite unclear theoretical underpinning.

Nevertheless, success in university academic performance is the focal point of all educational activities which receive much attention from stakeholders. Prediction of academic performance remains unclear as there are so many intricately related factors associated with academic achievements. This achievement could best be described as situational as said by Momoh –Olle J. Y. (1992).

To attain quality university education, it is important that university institutions conduct periodic assessment of students to measure their performance and accomplishment in relation to how they have excelled in an academic subject, and taking into consideration the type of qualification and experience they had before being admitted to study a particular programme.

One single best way of assessing students is through examination. It is an academic exercise designed to obtain information about those who are examined. Tyler (1971) and Nunally (1972) defined examination as a standardized situation designed to elicit a sample of an individual's behavior. Fagbamiye (1998) described examination as a tool for measuring and judging the standard of education in a country. For the university it serves as the basis of selecting qualified

students and a means of measuring academic success. However, it is important to note that academic success is also predicted by the assessment of other variables.

Studies by Yoloye (1991), Okpala, Onocha and Oyedeji (1993), Afolabi (1998), Bandele (1998) and Ojerinde (2000) revealed that assessment involves such activities as gathering of valid information on attainment of educational objectives, analyzing and modeling information to aid judgment on effectiveness of an educational programme.

Research indicates that examination predict at best 20% of the variance of success (Beatty, Greenwood, & Linn, 1999; Schrader, 1978; Schwan, 1988). Many studies establish lower relationships, and others continue to show little or no relationship (Carver & King, 1994; Dalton, 1976; Fleming & Manning, 1998; Morrison & Morrison, 1995; Thacker & Williams, 1974). These studies suggests that 80% of students success or failure is explained by other factors such as institutional efforts (Hurtado, Milem, Clayto-Pederson, & Allen, 2000; Lowman & Spuck, 1975), noncognitive factors (Sedlacek, 1998), or psychological contructs (Steele & Aronson, 1995).

Other studies suggests that the power of standardized examinations that serves as entry qualifications in to universities as predictors of academic success varies dramatically for different groups of students. By race/ethnicity, age and gender ('common sense,' 1997; Hathaway, 1984; Rosser, 1992).

1.1.   ANALYSIS OF THE PROBLEM

Prediction of academic performance in universities still remains a complex task. A number of studies on this subject have generated a lot of rebuttals. Nwosu and Madvewesi (1975), Baloguu (1976) sheared views on a study that entry grades of a student could not predict his/her academic achievements at school. Rather, academic performance depends on the experience which influences students learning at the university.

Contrarily, Flowers (1966), Burstal (1970) and Pidgeon (1970) concluded in their study that there is significant relationship between entry grades and final performance of students in the university especially in education theory.

It is in view of this that this research seeks to analyze the relationship between entry qualification and final performance of university graduates of MUCG. The findings are expected to compliment the argument on academic success and its predictors.

1.2 OBJECTIVE OF THE STUDY

The primary objective is to study the entry qualification of MUCG by various categories and the correlation with their final degree (Performance). Other factors that predict performance would be considered.

1.3 SIGNIFICANCE OF THE STUDY

Information on students' qualifications into tertiary establishment has always been a major issue in Ghana. It is the basis for which they gain admission to their choice of institution. It is therefore important to undertake a thorough study of these qualifications so that universities can admit the best of new entrants. A correlation of these qualifications and their final performance will help management to make important decisions as to what categories of students to admit and what is to be the minimum qualification required for admission.

1.4 HYPOTHESIS:

This work is designed to find out the relationship between academic performance/success(CGPA) and some other predictors namely best six aggregates score in SSCE, English score in SSCE, Math score in SSCE, Science score in SSCE and the combination of English, Math and Science.

The main hypothesis to be tested is:

H_0: There is no correlation between final performance and entry qualification. Against

H_1: Final performance is positively correlated to entry qualification.

1.5   METHODOLOGY

Archival data of entry qualifications of graduates of MUCG was collated. These qualifications were grouped in the following category:

- SSCE holders
- HND holders
- A – Level
- Mature Students

These data sets were further grouped according to the year of admission. Starting from the first group admitted to MUCG in 2000 to the fifth batch admitted in 2005.

SSCE grades for this group of students were recomputed with the best grade scoring a weight of six and the worst grade scoring one.

In other words the higher the aggregate of the weight of your grade the better your entry qualification.

The corresponding final cumulative grade point average (FCGPA) of the above group of students is obtained from the broad sheet containing final degree classes and FCGPA's. Their actual FCGPA was recorded against their SSCE aggregates.

Pearson Product – Moment Correlation coefficient was used to draw conclusion on the strength of the relationship between the variables. Other tests of significance were also conducted to establish the accuracy of our conclusion.

1.6   LIMITATION OF THE STUDY

The main challenges encountered in the course of the study are:

1. Limited number of independent variables (factors) that were used in the prediction, even though final performance has a lot of factors that determines it.

2. Poor record keeping by the Admission unit of the Academic office was one of the major set backs we faced.

3. Since this study was an exploratory type, it required longitudinal data that was very difficult to generate. It turned out that not all data were complete. Hence more in-depth analysis was not possible.

4. For a start only SSEC as an entry qualification was studied.

1.7   DEFINITION OF TERMS

a. Grade Point (GP): Each letter grade is assigned a point. The number of (grade) points earned by a student, for each course completed, is computed as the product of the number of credits for the course and the grade point equivalent of the letter grade obtained in that course.

b. Cumulative Grade Point Average (CGPA): The student's cumulative grade point average is calculated by dividing the total number of Grade Points obtained, up to any specified time, by the total number of credits of all courses for which the student has registered up to that time.

c. Final Grade Point Average (FGPA): The Final Grade Point Average is the CGPA for all courses as weighted under (a) above calculated up to the end of the student's academic programme.

d. Academic Success / Performance in the context of the study is defined as the FCGPA achieved by a student.

e. Senior Secondary Certificate Examination (SSCE): Is a standardized examination conducted by WAEC for Senior High School leavers. It is one of the entry qualifications needed for admission into Universities.

f. Correlation:

CHAPTER TWO

REVIEW OF LITERATURE

2.1 EMPIRICAL EVIDENCE OF RELATIONSHIP BETWEEN ACADEMIC SUCCESS AND ENTRY QUALIFICATIONS

This study explores the relationship between entry standardized tests and cumulative grade point average (CGPA) as an indicator of success. Examining student success on CGPA demonstrates the limited usefulness of these standardized entry qualifications. In all, if the tests are overemphasized in the admission context, they contribute to a significant loss of talent.

Smith D G. & Garrison G. (2005) highlighted on the controversies about the use of affirmative action in admission decision. The argument is of two views. One emphasizing access for students who have been denied entrance historically to public universities and the other insisting on academic indicators of merit, particularly tests to determine selection procedure. In Ghana universities look out for the best grades in standardized tests as the basis for admission. At their core, many of these policy discussions rely on the assumption that the tests are valid measures of academic merit and thus are fair and important factors in deciding admission.

In most West African countries, particularly Ghana, universities requires specific entry qualification as the basis for admission. Among these entry qualifications are holders of SSSCE/WASSSCE with up to aggregate 24 in six subjects including English language, Mathematics and Science. Students of this category form the vast majority that gains entry in the universities. The West African Examination Council (WAEC), established in 1952 conducts these standardized tests and awards certificates based on the results of the examinations conducted (Nwana,1982; Oluwatayo, 2004).

A study that sought to find out whether the conduct of SSCE by WAEC is satisfactory or not showed that the subjects' rating of WAEC was relatively satisfactory, scoring above 50% ratings. This result negates the impression that the conduct of SSCE by WAEC is not satisfactory (Oluwatayo J.A, 2009).

Existing research shows that many factors come to play on the relationship between secondary school performances as a predictor of college performance. In the United States, research has shown that the Scholastic Aptitude Test (SAT), an entry requirement into college is a strong predictor of success (Camara & Echternacht 2000).

At the graduate level, specifically the Masters in Business Administration (MBA), Wright and Palmer (1994) found that students often come from varied academic background and their performance in an MBA program is usually predicted by their undergraduate GPA. Yang and Lu (2001) also drew a similar conclusion after studying four variables namely language (English), GMAT quantitative score, GMAT verbal score and undergraduate GPA. Of note was that, undergraduate GPA was the best predictor of academic performance in an MBA program.

With regard to undergraduate performance, there are three notable studies which examine admission criteria. Morgan, Tallman, and Williams (2003) examined whether GPA for a set of core (or required) courses could explain upper-level GPA better than the GPA attained in non-core courses. They concluded that a combination of these measures provided a better standard for admission than did either alone.

Butler, Finegan, and Siegried (1994) clearified that first year university calculus tend to be associated with performance in economics and other numerical courses. Westerman, Nowicki, & Plante (2002) also suggested that student-classroom environment fit is a significant predictor of both performance and satisfaction in university management courses. Mathematics has always gained a place as criteria for admission. Some literatures suggest that mathematics may often serve as symbolic rather than practical purpose. Others claim mathematics is used as a 'weeder' to limit program enrolment but a Professor of mathematics at the University of Toronto claimed in 1980 that the function of mathematics with regard to admission is to sustain social stratification through the selection of well disciplined students (Hacker 1990).

The findings of Rahinel R. et al (2009) raise questions about a number of assumptions regarding admission requirement and performance. They found that overall high school performance is significantly related to performance in college and no single course was, although calculus and English do have a minor impact on performance. Their overall conclusion however indicated that, at the very least, the assumption that mathematics as a good predictor of performance needs

to be re-examined. Not only does their evidence suggest that it is not a good predictor but also that other subjects, such as English, are at least as good (or as bad).

There are many reasons why it is important to consider the extent to which admission requirements are linked to academic performance. One is clearly the danger of exclusion of those qualified for program success and admission of those who may not be suitable for the program. Such irregularities would dilute the reputation of the university and its students (Steindl 1990). Reliability of the admission basis, then serves practical and principal-based purposes for the university, for the industry's health, for the students themselves and for the robust security of societal values such as meritocracy and distributive justice.

2.2 SOME THEORETICAL DEFINITIONS

Koutsoyiannis A. (2004) defined correlation as the degree of relationship existing between two or more variables. When the relationship is between two variables, it is called simple correlation and the relationship is between three or more, it is called multiple correlation. In the case of a simple correlation, it is assumed that the two variables are random in nature. Their measurements $\{(x_i, y_i); i=1,2, \ldots n\}$ are observations from a population having the joint density function $f(x,y)$.

In theory and as explained by Walpole, Myers, Myers and Ye (2007), it is assumed that the joint probability density function (p.d.f) of the two random variables X and Y is approximately a bivariate normal with p.d.f ;

$$f(x,y) = \frac{1}{2\pi\sigma_X\sigma_Y\sqrt{1-\rho^2}}$$
$$\times \exp\left\{-\frac{1}{2(1-\rho^2)}\left[\left(\frac{x-\mu_X}{\sigma_X}\right)^2 - 2\rho\left(\frac{x-\mu_X}{\sigma_X}\right)\left(\frac{y-\mu_Y}{\sigma_Y}\right)\right.\right.$$
$$\left.\left. + \left(\frac{y-\mu_Y}{\sigma_Y}\right)^2\right]\right\}$$

$$where -\infty < x < \infty, -\infty < y < \infty \text{ and } E(X) = \mu_X, Var(X) = \sigma_X^2, E(Y)$$
$$= \mu_Y, Var(Y) = \sigma_Y^2 \text{ and } \rho^2 = 1 - \frac{\sigma^2}{\sigma_Y^2} = \beta^2\frac{\sigma_X^2}{\sigma_Y^2}$$

The parameter ρ (rho) is called the population correlation coefficient. It measures the degree of linear relationship between the two variables X and Y. The values of rho can be shown to be $-1 \leq \rho \leq 1$. When $\rho = 1$, the X and Y have a perfect linear relationship, meaning X increases as Y increases. When $\rho = -1$ then X and Y has a perfect relationship. This means that as X increases, Y decreases.

Also if $\rho > 0$, then as X increases, Y also increases, and if $\rho < 0$, then as y decreases, x also increases. If $\rho = 0$, then there is no linear relationship between X and Y. But some form of relationship might exist other then linear.

To obtain a sample estimate of ρ, n pairs of measurements (x_i, y_i) are made on the two random variables X and Y. An estimate of ρ can be deduced as:

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2 \sum_{i=1}^{n}(Y_i - \bar{Y})^2}}$$

$$r = \frac{S_{xy}}{\sqrt{S_{xx}S_{yy}}}$$

The estimate r is called the Pearson product-moment correlation coefficient of in short the sample correlation coefficient. The measure ρ of linear association between the two variables X and Y is estimated by r, the sample correlation coefficient. A value of r near -1 or +1 shows linear relationship. Avalue close to zero means that the linear association between X and Y is weak and when it's close to 1 the relationship is strong.

In interpreting the quantity r, it is important to note the value r^2. It is called the sample coefficient of determination. It is computed as;

$$r^2 = \frac{S_{xy}^2}{S_{xx}S_{yy}} = \frac{SSR}{S_{yy}}$$

The sample coefficient of determination r^2 represents the proportion of the total variation in the values of the variable Y that can be accounted for or explained by a linear relationship with the values of the random variable X.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1   Procedure for Data Collection

Archival data of entry qualifications of graduates of MUCG was collated. These qualifications were grouped in the following category:

- SSCE holders
- HND holders
- A – Level
- Mature Students

The data sets were further grouped according to the year of admission and date of congregation. The following table gives the various year of congregation and date of admission for SSCE holders.

YEAR OF ADMISSION	NUMBER ADMITTED	YEAR OF CONGREGATION	NUMBER GRADUATED
2000/2001	213	2004	54
2001/2002	198	2005	160
2002/2003	133	2006	142
2003/2004	228	2007	190
2004/2005	560	2008	423

SSCE grades for this group of students were recomputed with the best grade (A) scoring a weight of six and the worst grade (F) scoring one.

SCALING AND WEIGHTING OF GRADES

Grade	A	B	C	D	E	F
Weight	6	5	4	3	2	1

In other words the higher the aggregate of the weight of a grade the better the entry qualification.

The corresponding final cumulative grade point averages (FCGPA) of the above group of students are obtained from the broad sheet containing final degree classes and FCGPA's. Their actual FCGPA was recorded against their SSCE aggregates.

FINAL PERFORMANCE (DEGREE CLASS)

FCGPA	3.6 +	3.25 – 3.59	2.50 – 3.24	2.00 – 2.49	1.50 – 1.99
Class	1st	2nd upper	2nd lower	3rd	Pass

3.2   RESEARCH INSTRUMENTS

Traditional predictive studies on the relationship between dependent and independent variables employ some form of multiple regressions. This tool looks at the ability of a singe variable measure or some combination of measures to predict an educational outcome. For this reason a multiple regression model is fitted for our data sets. Minitab statistical software was used in running the regression. Pearson correlation coefficient was also computed using the same software.

Graphs and tables are used to visually depict the relationships between our variables. As Smith et al. (2002) assert in their study of the use of graphs in the 'hard' and 'soft' sciences, 'graphs represents an especially potent and persuasive type of visual device' (p. 751). The data is considered in a number of ways, example obtaining percentage of success from each grouping and comparing with the population.

3.3   SAMPLING PROCEDURE

Due to the challenges involved in the data collection, a stratified random sampling approach was adopted. The data sets were grouped into various strata called admission year group. There are five of these year groups. For the first part of the analysis, 56 graduates of the 2002/2003 of the admission year group were selected. Their entry SSCE grades were obtained together with their individual FCGPA. This group represents about 42% of a population of 133 in the above year group.

3.4   VARIABLES UNDER CONSIDERATION

1. Final cumulative Grade Point Average (FCGPA): This is the response variable in the study. It is assumed to be a good measure of academic performance / success.
2. Best six aggregate of SSCE results (Best6): This is the main predictor in the study. The values of this data are assumed to be free of error.
   Other independent variables that may be discussed in the course of the analysis include:
   a.   SSCE English grades
   b.   SSCE Math grades
   c.   SSCE Science grades
   d.   Average of English, Math and Science grades
   e.   Previous Knowledge in a programme

CHAPTER FOUR

## ANALYSIS AND PRESENTATION OF RESULT

4.1   INTRODUCTION

This chapter displays the results after critical analysis of the data was made. As indicated in the previous chapter, the Minitab statistical package aided in establishing some of these results. Data gathered for the study was grouped according to admission year. Preliminary analysis showcased some basic statistics concerning these various year groups with particular emphasis on SSCE qualifications.

4.2   ADMISSION HISTORY OF MUCG

Methodist University College Ghana (MUCG) from its inception in the year 2000 through to the beginning of the 2004 academic year, admitted about 772 "qualified" applicants for enrollment in various degree programmes. Students gain admission to MUCG base on their entry qualification. Some of these entry qualification required by MUCG are good passes in SSCE, better classes in HND, A – Level grades in addition to an entrance exams conducted by MUCG for mostly mature students and other Diploma from recognized institutions. It is important to note that majority of these students admitted are SSCE holders. SSCE qualification takes about fifty percent (50%) of all entry qualifications to MUCG. The bar chat below gives a pictorial view of number of students admitted by various academic years.

Figure 1.   Admission for the various academic years2000/2001 to 2008/2009
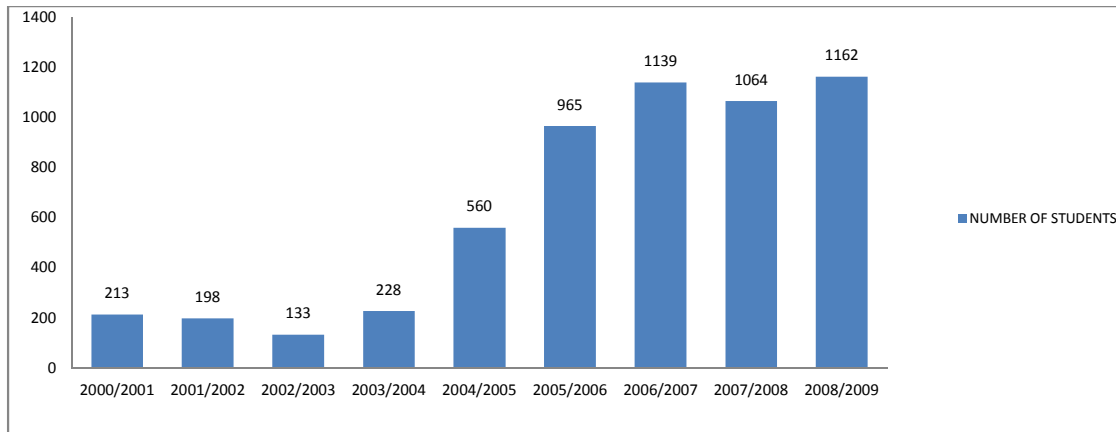
From the chart above, it can be seen that in the first four years of MUCG, admission of students was very low. Just like a life cycle, the initial stages are always confronted with challenges. Between 2000/2001 and 2001/2002 academic years where admission fell by 7.57% and further reduced by 32.82% between 2001/2002 and 2002/2003 academic years, MUCG then begin to make strives and increased its admission in the subsequent year by 71.42%. Thereafter over the last four years admission of students into MUCG has been on the increase except 2006/2007 and 2007/2008 academic years where admission fell slightly by 6.58%.

4.3   BASIC DESCRIPTIVE STATISTICS OF SSCE RESULTS BY ADMISSION YEAR GROUPS

Composition of students in MUCG is of diverse groups and background with varying entry qualification. It will be of much interest to know that out of the number admitted each year, a higher percentage of students admitted are SSCE holders. But due to improper record keeping, it was quite difficult to get the exact component of SSCE holders from the total number of students admitted.

However, some moderate percentage was traced and analyzed. The table below gives the descriptive statistics of best six aggregate of SSCE results.

Table 4.1

Year Groups	Count of SSCE	% of SSCE	Mean Aggregate	S.E Mean	Std. Dev.	Min. Agg.	Max. Agg.
2000/2001	30	14.10	22.367	0.522	2.859	16	28
2001/2002	106	53.54	20.226	0.313	3.226	10	30
2002/2003	65	48.87	20.631	0.302	2.434	15	25
2003/2004	121	53.07	20.430	0.288	3.167	10	27

In the 2000/2001 academic year, MUCG admitted 213 students with various entry qualifications. The data available shows that 14.1% of this group is SSCE holders. They have an average aggregate of best six subjects to be 22.367 (22) with an error margin of 0.522. Meaning the estimated mean aggregate of best six subjects will always lie between the interval of 21.845 and 22.889.

A standard deviation of 2.859 indicates the spread of the aggregates around the mean. In other words, this value tells us the extent of the deviation of the aggregates from the mean. The SSCE entry qualification for the 2000/2001 academic year has aggregate 16 as the best result and 28 as the worst aggregate.

The 2001/2002 academic year group is one of the focal point of this study. The SSCE holders composed of about 53.54% of the total category of students admitted. The range of aggregate of best six subjects for this group is 20. Aggregate 10 is the best while aggregate 30 is way beyond the minimum required qualification.

However, on the average, aggregate of best six result is 20.226 (20) with a standard deviation of 3.226.

For 2002/2003 and 2003/2004 year groups, the mean aggregate of best six subject is 20.631 (21) and 20.430 (20) respectively. The table above shows the range of these aggregates.

4.4   GRADUATES PRODUCED BY MUCG

From the year 2000 when MUCG was established, it has had seven congregations. The most recent was held in November 2009. The very first congregation was in 2004. This study has particular interest in studying performance of students of MUCG admitted within the first five

years of its establishment. However, other subsequent year of congregation were added to clarify points. From the first to the sixth congregation, MUCG has produced 1,647 graduates. These graduates studied Accounting, Banking and Finance, Marketing, Human Resource Management, Economics, Economics and Mathematics-Statistics, Information Technology and Psychology while in College. Over the period MUCG has produced 472 Accounting graduates representing 28.66% of the total number of graduates. Human Resource Management graduates are the next highest graduates produced (25.05%). Psychology graduates are the least of them all. It's one of the newest programme being studied in MUCG and has 0.43% of the graduates.

The table below gives the number of students graduated with various degree programmes and classes.

Table 4.2

Programme	1st Class	2nd Upper	2nd Lower	3rd Class	Pass	Total
Accounting	52	139	248	32	1	472
Banking& Finance	35	68	144	22	1	270
Marketing	21	80	126	12	1	240
Human Resource	32	122	222	35	1	412
Economics	7	34	68	8		117
Economics& Math-Stats	2	6	10			18
Information Technology	12	21	64	14		111
Psychology		3	3	1		7
Total	161	473	885	124	4	1,647
Percentage	9.77	28.72	53.73	7.53	0.24	

Without any doubt, accounting graduates earn more first class degree than any of the graduates of MUCG. They are the majority of the graduates produced between the year 2004 and 2009. One intriguing observation is the Economics & Mathematics-Statistics graduates. Within this period, the college has produced 18 of them. Their performance is skewed to the right compared to any of the graduates.

Overall, equating performance to classes achieved, graduates of MUCG can be said to have performed well in college. The distribution of their performance is normal, if not slightly skewed to the right. One out of ten graduates of MUCG is likely to be a first class student. And about 90% of the graduates of MUCG stand a chance for further studies in their chosen profession or specialization due to their high performance at college.

Appendix 1 displays charts and tables of performance of Graduates of MUCG by various year groups.

4.5   CORRELATION AMONG THE VARIABLES UNDER STUDY

For the start the research concentrates on the correlation of the variables under study for the 2002/2003 admission year groups. Data on 56 graduates of this group was collated.

Table 4.3

Correlations between the variables: CFGPA, Aggregate of best 6 SSCE subjects, SSCE English Grade, SSCE Math Grade, SSCE Science Grade, Year2 GPA, Year4 GPA, Year3 GPA, Average of English, Math and Science, and Previous knowledge in a subject

```
cfgpa   best6    eng.     math   scien.    year2    year4    year3
best6    0.451

         0.000



eng.     0.111   -0.027

         0.416    0.844



math     0.356    0.329   -0.117

         0.007    0.013    0.389



scien.   0.021    0.329    0.142    0.074

         0.878    0.013    0.295    0.590
```

```
year2     0.728    0.470    0.022    0.361    0.070
          0.000    0.000    0.871    0.006    0.610


year4     0.645    0.113    0.105    0.155   -0.085    0.526
          0.000    0.409    0.441    0.254    0.535    0.000


year3     0.870    0.492    0.092    0.283    0.044    0.583    0.510
          0.000    0.000    0.502    0.034    0.747    0.000    0.000


averg3    0.299    0.382    0.471    0.645    0.654    0.286    0.107    0.254
          0.025    0.004    0.000    0.000    0.000    0.033    0.434    0.058


prevkng  -0.117   -0.250    0.266   -0.212   -0.057   -0.400   -0.145   -0.083
          0.389    0.063    0.047    0.117    0.677    0.002    0.285    0.542


          averg3

prevkng  -0.044
          0.747


Cell Contents: Pearson correlation
              P-Value
```

The study revealed that there is fairly weak and positive correlation between aggregate of best six grades for SSCE qualifications and the cumulative grade point average (CFGPA). A Pearson correlation of 0.451 and a p-value of 0.000 were realized for this relationship. This value means that there is some form of variability between aggregate of best six subjects and CFGPA. The strength of this correlation is fairly weak. However, we can conclude with 5% statistical significance that a better CFGPA is predicted by a better best six aggregate of SSCE subjects.

Each of the strength of the correlation between English & CFGPA and Science & CFGPA are both very weak. In addition, they are both not statistically significant as can be observed from the table of Pearson correlation and p-values above. The relationship between these pairs is positive but cannot be good predictors of performance.

Also, there is a fairly weak and positive correlation between Math grades and CFGPA (Pearson correlation = 0.356 with p-value = 0.007). This relationship is statistically significant at the 5% level. It means that SSCE Math grades can be used to predict final performance.

The average grade of three subjects (English, Math and Science) correlates weakly with final performance. However the relationship is positive and significant.

Second, third and fourth year GPAs' have strong and positive correlation with CFGPA. Their Pearson correlations with CFGPA are 0.728, 0.870 and 0.645 respectively. These predictors are statistically significant at the 5% level when compared with their respective p-values. These values mean that higher GPAs' in second, third and fourth years predict higher performance (CFGPA).

Finally, previous knowledge of a subject has a weak and inverse relationship with FCGPA. Besides, the relationship is not statistically significant at the 5% level. The Pearson correlation between previous knowledge in a subject at secondary school and the FCGPA in a degree programme is -0.117 with p-value of 0.389. The explanation is that the subjects studied at secondary school do not actually determine ones performance in a degree programme in MUCG.

4.6   HYPOTHESIS TESTED

The main hypothesis tested is:

H_0: There is no correlation between final performance and entry qualification. Against

H_1:Final performance is positively correlated to entry qualification.

Aggregate of best six grades in SSCE is the main entry qualification understudy. From table 4.3, the Pearson correlation between aggregate of best six grades in SSCE and CFGPA is 0.451 with

a p-value of 0.000. Since the p-value is obviously less than our significant level (0.05), H_0 is rejected. Therefore there is enough evidence to conclude that final performance is positively correlated to entry qualification at the 0.05 significant level.

4.7   ADDITIONAL RESULTS

The correlation result above indicate that aggregate of best six result, math grades and year 2, 3 and 4 GPAs' have significant relationship with FCGPA. However a fitted model for these variables revealed that aggregate of best six and Math grades could not have been good predictors. They were found to be statistically insignificant when considering their individual contribution in the model. This judgment was drawn when the respective p-values of aggregate of best six and math grades are compared to the 5% significant level. This can be seen from table 4.4 at appendix 1. The analysis of variance table ……

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0   INTRODUCTION

The results of the research are clearly stated and explained in this chapter. References are made to the literatures and theories explained in chapter two to support some of these findings. Later in the chapter a comprehensive conclusion is drawn and due recommendations made to the findings of the study.

5.1   SUMMARY OF FINDINGS

Discoveries from this study were made based on the empirical analysis made in the previous chapter. Some of these findings are in line with other peoples studies similar to ours. The research findings are enumerated as follows:

1. SSCE is the most popular entry qualification to MUCG. It accounts for about 50% of the entry qualifications to MUCG each admission year over the period under study.

2. Aggregate 21 is the average SSCE qualification to MUCG during the first four year of the institution. The best aggregate is 10 and the worst is 30.

3. Not until the 7th congregation, MUCG has graduated about 1, 647 students with various specializations in Accounting, Banking & Finance, Marketing Management, Human Resource Management, Economics, Economics & Mathematics-Statistics, Information Technology and Psychology.

4. Over the period, the Accounting department has graduated the highest number of students. About twenty-nine percent of graduates of MUCG are Accounting degree holders. Humana Resource Management graduates forms about 25.05% of the entire graduates of MUCG. The Psychology department produced the least graduates, 0.43%.

5. For the 1,647 graduates of MUCG, 9.77% of them are first class degree graduates with accounting graduates taking the highest share 32.3%. However majority of the graduates fall within the second class lower division with a percentage of 53.75%. Only a

negligible number 0.24% earned a pass in their programmes. This performance is above average and recommendable.

6. There is a fairly weak and positive correlation between aggregate of best six grades for SSCE qualification and FCGPA. A Pearson moment correlation of 0.451 was obtained.

7. SSCE Mathematics grade and FCGPA correlates positively but weakly. SSCE Math grade accounts for about 13% of the variations in FCGPA.

8. Performances in second, third and forth years in college predicts ones overall performance in college. Year 2, 3 and 4 GPAs' have strong and positive relationship with FCGPA. Their Pearson moment correlation is 0.728, 0.870 and 0.645 respectively.

9. Ones previous knowledge in a subject at the senior secondary school level does not have any significant influence on a graduate FCGPA at MUCG. The study revealed that there is an inverse relationship between these two variables. The correlation is weak and insignificant. A Pearson moment correlation of -0.044 and a p-value of 0.747 was realized.

5.2 DISCUSSION OF FINDINGS

SSCE/WASSCE is no doubt one of the famous standardized tests in West Africa. University institutions in Ghana accept SSCE as a mode of qualification to admit students. The conduct and performance of students in this test is deemed satisfactory as postulated by Oluwatayo J.A, 2009.

However, quite a high number of these exams takers fall below the red line for admission into the public universities. This is unfortunate as these traditional universities uses some form of affirmative criteria in selecting qualified students. The over whelming majority are those qualified but are refused admission because their aggregate fall between 15 and 24 and even those who are fortunate enough are not given their preferred programmes. The difficult task then falls on the private universities to offer admission to this category of students. This research revealed that the mean aggregate of SSEC grades to MUCG is 21. The performance of these students is not bad compared to their colleagues in the traditional universities. This means that the private universities puts in much effort in transforming these students who are perceived to be worst off compared to their friends in the public universities.

The study suggest that given the needed support and training, students with low grades of SSCE can perform excellently, even more than those in the public universities. This was evidenced in the case of MUCG. Over the past six years, MUCG graduated 1,647 graduates and about 10% of these graduates did excellently well in their programmes. The vast majority about 54% graduated with a second class lower degree. This performance is indeed comparable to the performance of students in the public universities.

Over the past decade financial institutions have moved into a more prudence business practices which are paying off in profits. These institutions therefore requires business executives such as Financial managers, Accountants, marketing officers, Human relations managers, information technology expects and so on to move its agenda in maximizing profit. MUCG has become one of the stakeholders in this agenda. For the past six years, it has produced 472 degree accounting professionals, 270 banking and finance graduates human resource graduates, 111 information technology expects and many more. These professionals are in high demand since their skills are needed by employers in the financial industry. The pursuance of this honorable agenda by MUCG is in the right direction considering the current trend in employment and the boost of business climate in Ghana.

SSCE/WASSCE seems to be a good predictor of a student's performance in college. An estimate of the Pearson correlation of 0.451 gave a clue about its prediction. A value for coefficient of determination for this correlation is 0.203. This means that about 20% of the variations in FCGPA as an indicator for performance is explained by SSCE entry grades. The remaining 80% of the variations in FCGPA may be caused by other factors such as good lecturing, conducive environment for learning and so on.

More importantly, a student's performance in second, third and final year in college is the determining factor. Their GPA obtained in these years can strongly predict their final performance. Obviously a good GPA in second, third and fourth year will in no doubt predict a good CFGPA. It can be estimated that second year GPA account for about 53% of the variations in final performance whiles year three and four explains 75% and 42% respectively of the variations in CFGPA.

5.3 IMPLICATIONS FROM FINDINGS

SSCE/WASSCE as an entry qualification to MUCG solely does not predict a student's performance. A lot of other factors might account for or influence student's performance. These factors need to be identified and worked on so that the institution and the students could take advantage.

Students must be encouraged to take their course work seriously since their second, third and final year GPAs' determines their final performance. Emphasis must be made on third year GPA as a higher variation in final performance is influenced a lot more by third year GPA.

5.4 CONCLUSION AND RECOMMENDATION

Based on the findings, the following recommendations are being made:

1. A more flexible policy of admitting SSCE graduates should be adopted.
2. In admitting SSCE graduates, a good pass in Mathematics should be one of the main criteria.
3. Other factors that influence learning positively should be looked at. These factores rather played crucial role in developing the student.
4. Good record keeping and archival system should be adopted.

Regression Analysis: fcgpa versus best6, math, year2, year3, year4

```
The regression equation is
cfgpa = - 0.062 - 0.00136 best6 + 0.0151 math + 0.203 year2 + 0.578 year3
        + 0.230 year4


Table 4.4


Predictor      Coef    SE Coef      T      P
Constant     -0.0620    0.2536   -0.24  0.808
best6      -0.001357  0.007134   -0.19  0.850
```

```
math          0.01514   0.01355   1.12  0.269

year2         0.20273   0.06050   3.35  0.002

year3         0.57758   0.06999   8.25  0.000

year4         0.22988   0.08312   2.77  0.008


S = 0.126535   R-Sq = 85.8%   R-Sq(adj) = 84.4%


Analysis of Variance

Source            DF       SS       MS       F        P

Regression         5  4.83044  0.96609   60.34  0.000

Residual Error    50  0.80056  0.01601

Total             55  5.63100
```

Regression Analysis: cfgpa versus best6

```
The regression equation is

cfgpa = 2.33 + 0.0479 best6


Predictor    Coef  SE Coef     T       P

Constant   2.3308   0.2845  8.19  0.000

best6      0.04786  0.01289  3.71  0.000


S = 0.288214   R-Sq = 20.3%   R-Sq(adj) = 18.9%


Analysis of Variance


Source            DF       SS      MS       F       P

Regression         1   1.1454  1.1454   13.79  0.000

Residual Error    54   4.4856  0.0831

Total             55   5.6310
```

Scatterplot of cfgpa vs best6

Residual Plots for cfgpa