

Determinants of Students' Academic Performance in Higher Learning Institutions in Tanzania

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Abstract

A cross-sectional survey was opted to investigate the determinants of academic performance among undergraduate students at Mkwawa University College of Education in Tanzania. A random sample of 304 first year students in the academic year 2014/2015 was selected for the survey. The study used secondary sets of data including students' academic performance in terms of Grade Point Average, entry points, grades of communication skills, and background information which included participants' age, sex and degree programmes. The data were analysed quantitatively using SPSS version 20. The results show a positive and significant relationship between entry points and final academic performance: $r = .201$, $n=304$, $p < .05$. This means that higher levels of entry points are associated with higher scores of students' academic performance. Also, there was a positive correlation between performance in communication skills and students' academic performance: $r = .451$, $n=244$, $p < .05$. However, gender did not have any significant impact to either final academic performance or communication skills scores. Furthermore, the analysis from one-way between groups analysis of variance showed that the choice of degree programme has significant impact on students' final academic performance. With regard to scores in communication skills, no significant difference was found in respect of students' degree programme. This study concludes that academic performance in higher learning institutions is partly determined by how well students achieve at pre-university level, personal determination and social-economic factors. Recommendations for both theory and practice are given for considerations.

Key Words: academic performance; cross sectional survey; higher learning institutions; Tanzania

1. Introduction

Higher education in Tanzania has experienced a rapid expansion and growth in the recent past. Students' enrolment in Universities and University Colleges has increased from 123,434 in the academic year 2009/2010 to 218,959 in the academic year 2013/2014 equivalent to 177.4% increase with females constituting 36% and males 64% of the total enrolment (TCU, 2015). Mkwawa University College of Education (MUCE) is one of the public University colleges established in 2006 as a response to the growing demand for secondary school teachers after successful implementation of the Primary Education Development Programme (PEDP) and Secondary Education Development Programme (SEDP). Since its establishment, the enrolment of students has increased significantly. For example, in 2006/2007 academic year there were a total of 853 students of which males were 574 females were 279 and in the 2015/2016 academic year the total enrolment was 3882 which is an increase of 455% in the span of ten years³.

Students commencing tertiary education enter through a number of traditional and alternative academic pathways (Anderton, Evans & Chivers, 2016). The entry qualifications for university admission differ from one institution to another and may depend on the programme requirements.

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³ https://aris2.udsm.ac.tz/admission_process/ug/reports.php. Downloaded on 6th October 2015 at 9:39 am.

As a result, tertiary institutions experience a broad range of students, varying in demographic, previous education, characteristics and academic achievement. In order to ensure that all students who meet the required qualifications are admitted, Tanzania has established a Central Admission System (CAS) and a University Qualification Framework (UQF) for university admission (TCU, 2012). All students who perform above average in high school are eligible for university admission. In addition, students from science programmes are admitted with lower grades in their high school examination than their fellow in arts programmes. The minimum admission requirements for degree programmes at MUCE are 2.0 points from three subjects in science programmes and 5.0 points from three subjects in arts and humanities programmes before 2016 and 4.0 points from three subjects in science programmes and 5.0 points in arts and humanities programmes from 2016 (TCU, 2015; 2016). The government through the National Examinations Council of Tanzania introduced a new grading system for secondary schools effective from 2014 which has been highly criticised by the public for its inability for addressing quality issues in education.

Demographic markers such as age (Sheard, 2009), socioeconomic status (Li & Dockery, 2014), gender (Sheard, 2009) and High School performance (Hoffman & Lowitzki, 2005; Richardson, Abraham, & Bond, 2012) have previously been investigated as predictors for academic performance across a range of university degrees. Studies on the effect of age have been inconsistent, with both positive and negative reported correlations for academic success (Naderi, Abdullah, Aizan, Sharir, & Kumar, 2009; Sheard, 2009). However, a study in Australia using input-output analysis found that a 20 year old undergraduate student has the highest probability of completing a course, and that the age of commencement is a strong indicator of academic performance (Shah & Burke, 1996). The inconsistencies may be explained by variations across degree, university and country.

A recent trend in the academic performance among students both in the sciences and humanities for both males and females at MUCE has experienced a sharp decline. For example, during the 2014/2015 about 7% of all the students failed and carried over courses to a subsequent academic year compared to 7.3% in the 2013/2014 academic year, 4.3% in the 2012/2013 academic year and 2.9% in the 2011/2012 academic year⁴ (Figure 1).

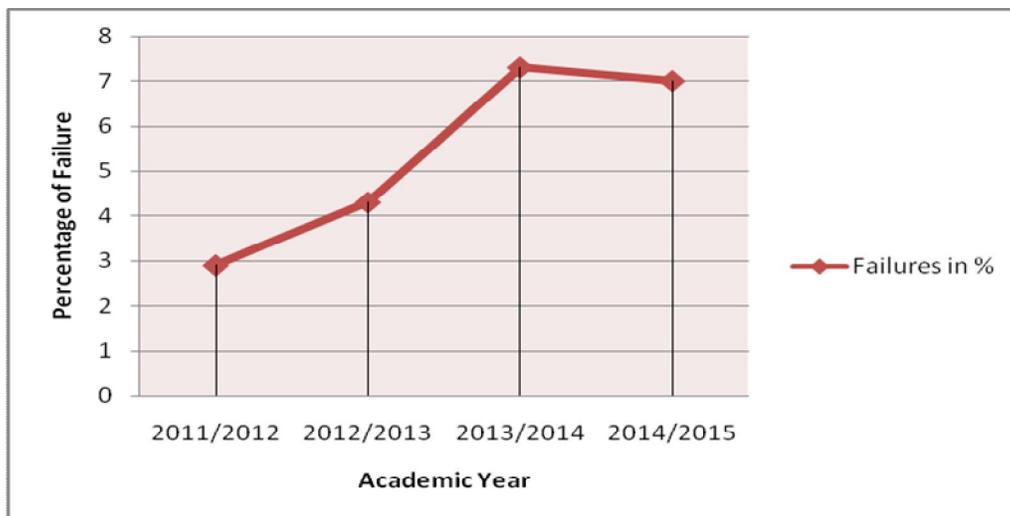


Figure 1: Failure rate for 2011/2012-2014/2015

In addition, the pass rate has been declining for the past four years. For example, the pass rate stood at 90% in the 2014/2015 academic year compared to 91.8% in the 2013/2014, 94.7% in the 2012/2013 and 96.8% in the 2011/2012 (Figure 2).

⁴ https://aris2.udsm.ac.tz/academics/global_summary.php

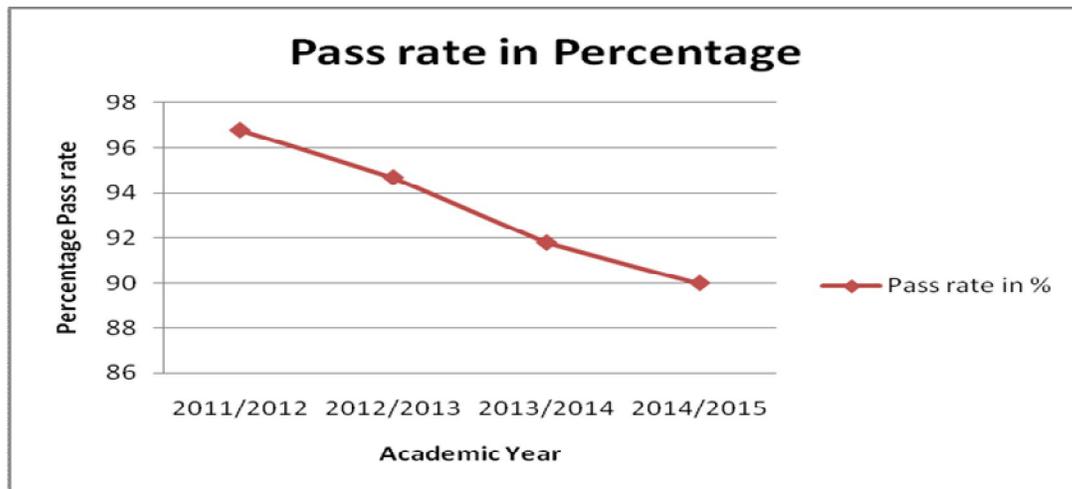


Figure 2: Pass rate for 2011/2012 – 2014/2015 academic years

In terms of degree classification, there were 14 first class honours degree in the 2011/2012 academic year, four (4) in the 2012/2013 academic year, one in the 2013/2014 and three in the 2014/2015 academic year. In addition, the number of students discontinued from studies for failing increased from 0.1% in 2011/2012 to 2.3% in the 2014/2015 academic year. Figure 3 describes degree classification for past four years (Figure 3).

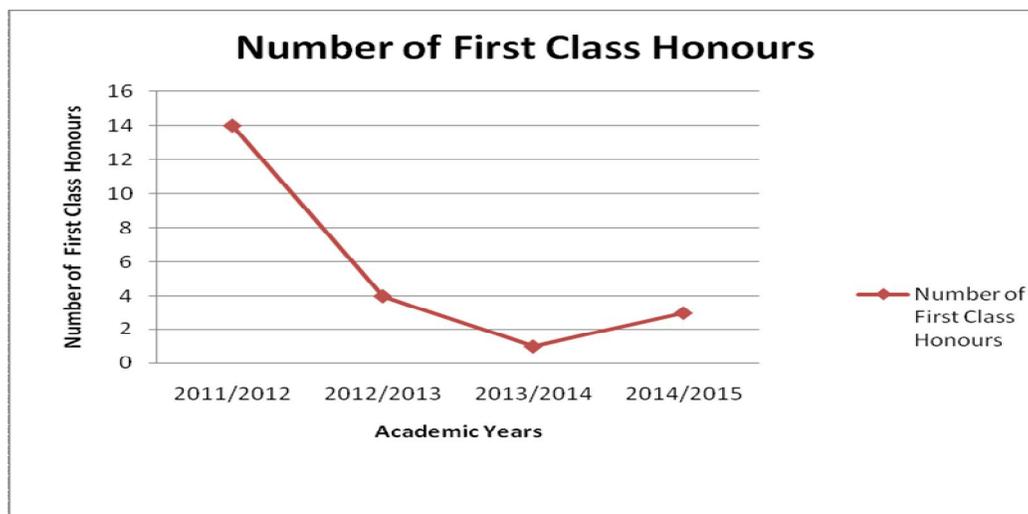


Figure 3: First Class Honours for 2011/2012-2014/2015 academic years

Klomegah (2007) in a study on predictors of academic performance of university students found that there was a strong positive correlation between self-efficacy and course grade and a strong and positive correlation between high school GPA and academic performance. Also, Kyoshaba (2009) revealed the existence of a significant relationship between students' 'A'-level and Diploma admission points and academic performance, but there was no relationship between mature age points and academic performance.

Moreover, Hall and Marchant (2000) in their study on predictors of academic performance of teacher education students in Ireland and England revealed that prior academic achievement, age and time spent in studying had positive contributions to students' first year academic performance. Regassa (1999) investigated factors affecting academic performance of students at Kotebe College of teacher education and revealed that school overall score, age and sex were significant predictors of first year semester average score. A study by Komba and Kafanabo (2012) found that the type of school attended at both CSEE and ACSEE levels and type of degree programme enrolled at University had insignificant influence on the predictive validity of the communication skills examination.

Furthermore, Zacharia (2007) examined the influence of personal characteristics, gender; type of school attended prior to university, A-level performance and parental occupation on examinations performance among

undergraduate students at the University of Dar es Salaam and found that the most important factor that determined the degree of performance in examinations for male students was age. In addition, the study found that most students who obtained good grades at A-level did not perform well at university level due to change in teaching methodology from spoon-feeding in high schools to lecturing in higher learning institutions. A study conducted by Mukyanuzi (2008) on statistical analysis of factors affecting subject performance at the University of Dar es Salaam revealed that large class size affected subjects performance, and age of instructor related positively to higher grades. The study also found that a course that had many tests performed poor.

The foregoing review has shown a plenty of studies about determinants of university students' academic performance. Nevertheless, very few studies have investigated the variation in determinants of academic performance in terms of sex, age, and degree programmes. It is very clear that students who join the Mkwawa University College of Education come from diverse backgrounds. These differences might give rise to educational opportunities, expectations, needs and varied academic potentials. Although there is a notable trend of declining students' academic performance at the College, there is no comprehensive study that has been carried out to establish the determinants of academic performance. Besides, little is known about the extent to which students' entry qualifications, sex, age, loan status, continuous assessment (CA) and communication skills scores affect academic performance. As the enrolment for first year students has been increasing steadily, the situation is expected to worsen if no measures to restrain the situation are put in place. Therefore, the present study is destined to investigate the determinants of academic performance among undergraduate students at Mkwawa University College of Education through testing the following hypotheses:

- i. There is no positive and significant relationship between students' entry qualifications and final academic performance.
- ii. There is no positive and significant relationship between performance in communication skills and students' final academic performance.
- iii. Students' overall academic performance and communication skills scores do not significantly differ by sex and degree programmes.

2. Methods

This study employed a cross-sectional survey design under quantitative approach. The design enabled the collection of data from a wide range of participants within a very short period of time (Cohen, Manion & Morrison, 2011). The research design allowed using data on frequency of a phenomenon to investigate the relationship between variables of interest. The population of the study involved 1279 first year students enrolled during the 2014/2015 academic year. This means all students in the following specializations, namely, Bachelor of Education in Arts (B.Ed. Arts), Bachelor of Education in Science (B.Ed. Science), Bachelor of Arts with Education (B.A. Education) and Bachelor of Science with Education (B.Sc. Education) formed the study population. The list of the students was generated from the Academic Registration Information System (ARIS), a database maintained by the University of Dar es Salaam. A sample size of 304 was determined using a formula by Israel (1992) using a marginal error of 0.05. Having determined the sample size, a computer table of random numbers was used to select random numbers from the list which represents the students who participated in the study.

$$n = \frac{N}{1 + N(e)^2}$$

Where; n = the sample size,
N = the population size (households),
e = the level of precision

Secondary sets of data including age, sex, entry points, and students' academic performance in terms of grade point average (GPA), communication skills grades and degree programmes were obtained from the students' files at the Admissions Office through documentary analysis and from students' examination uploads generated from the ARIS. A permit to access students' information was obtained from the College Management.

The data were coded and entered into the SPSS. Both descriptive and inferential statistics were performed. Specifically, mean and standard deviation were calculated to determine characteristics of the sample. Spearman

correlation coefficient was performed to determine the strength of relationship between variables of interest. Independent sample t-tests and chi-square tests were used to determine mean differences in the scores along sets of variables including sex, entry points, and degree programmes.

3. Results and Discussion

3.1 Participants' Characteristics

Three hundred and four (304) first year students registered in the 2014/2015 academic year from four degree programmes randomly selected were involved in the present study. Of which 214 (70.4%) were males and 90 (29.6%) were females. In terms of age, 28 (9.2%) were 20 years old and below, 73 (23.9%) ranged between 24 and 34 years of age while majority of the participants 203 (66.8%) ranged between 21 and 23 years of age. In terms of degree programmes, 190 (62.5%) were from the Bachelor of Arts with Education which also constitutes the largest group of students admitted in the 2014/2015 academic year, 60 (19.7%) were from the Bachelor of Science with Education, 29 (9.5%) from the Bachelor of Education in Science and 25 (8.2%) from the Bachelor of Education in Arts (cf. Table 1).

Furthermore, 263 (86.5%) of the participants had an access to loan facility from the Higher Education Students' Loans Board while only 41 (13.5%) had self-sponsorship or scholarship. The entry points varied across degree programmes. Participants admitted with entry points ranging between 2 and 5 constituted 27 (8.9%), participants with entry points between 5.5 and 8.5 constituted 82 (27%), while 188 (61.8%) had entry points ranging between 9 and 12 and 7(2.3%) comprised of the participants with entry points ranging between 12.5 and 15.5. Moreover, majority of the participants 166 (56%) had a Grade Average Point (GPA) of 2.7-3.4 which is classified as a lower second class, followed by 64 (21.1%) who had a GPA of 2.0-2.6 which is classified as a pass degree, 61 (20.1%) had an upper second GPA ranging between 3.5 and 4.3, and 13 (4.3%) of the participants had attained a GPA of 0-1.9 which is a fail class. It was notable that none of the participants had attained a first class GPA (cf. Table 1).

In addition, 85 (28%) of the participants had at least 1-3 supplementary examinations, 9 (3%) had more than three supplementary examinations and 210 (69%) had no supplementary examinations. Also, 13(4.3%) of the participants were discontinued from studies on academic grounds. Of the discontinued students, 10 (4.7%) were males and 3 (3.3%) were females. Moreover, majority of the students from the Bachelor of Science with Education (BSc. Ed) 9(15%) were discontinued from studies followed by 3 (1.6%) from the Bachelor of Arts with Education (B.A. Ed.) Also, majority of the students 11 (14.2%) discontinued from studies ranged between the age of 21 and 22 years (cf. Table 1).

Table 1: Participants' background information

	Gender	Age	Degree programme	Number of supplementary	Academic status	Loan status	Entry points	GPA
N	Males = 214 Females = 90	Less than 20 = 3 20-24 = 264 25-29 = 33 30-34 = 4	BA. Ed = 190 B.Sc. Ed = 60 B.Ed Arts = 25 B.Ed Sc = 29	1-3 supp = 85 3+ = 9 None = 210	Discontinued = 13 Continuing = 291	Self = 41 HESLB = 263	2-5 = 27 5.5-8.5 = 82 9-12 = 188 12.5-15.5 = 7	0-1.9 = 13 2.0-2.6 = 64 2.7-3.4 = 166 3.5-4.3 = 61 4.4-5.0 = 00
Total	304	304	304	304	304	304	304	304
%	Males = 70.4 Females = 29.6	Less than 20 = 1 20-24 = 85.1 25-29 = 10.8 30-34 = 4	BA. Ed = 62.5 B.Sc. Ed = 19.7 B.Ed Arts = 8.2 B.Ed Sc = 9.5	1-3 supp = 28 3+ = 3 None = 69	Discontinued = 4.3 Continuing = 95.7	Self = 13.5 HESLB = 86.5	2-5 = 8.9 5.5-8.5 = 27 9-12 = 61.8 12.5-15.5 = 2.3	0-1.9 = 4.3 2.0-2.6 = 21.1 2.7-3.4 = 54.6 3.5-4.3 = 20.1 4.4-5.0 = 00

Hypothesis 1: There is no positive and significant relationship between entry qualifications and students final academic performance

In a two-tailed test, at .05 p -value, Spearman correlation coefficient was run to pair the scores between students' entry points and final academic performance. The results indicated a positive, weak correlation between entry qualifications and academic performance, $r = .201$, $n=304$, $p < .05$. Table 2 summarizes the results.

Table 2: Pearson's Product Moment Correlation Coefficient (r) for Entry Points and Students Academic Performance

		Students' Entry Points	Students' Final GPA
Pearson Correlation		1	.201**
Students' Entry Points	Sig. (2-tailed)	304	.000
	N		304
Students' Final GPA	Person Correlation	.201	1
	Sig. (2-tailed)	304	304
	N		

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

In order to determine the significance of the results and whether or not the null hypothesis is to be rejected, correlation coefficients were compared with the critical values in the Pearson's correlation coefficient Table. In this regard, since observed coefficient correlation value (.201) was greater than the critical value (.000), the researcher rejected the null hypothesis and adopted an alternative hypothesis that there was a statistically significant positive relationship between the entry points and academic performance. This means that higher levels of entry points were associated with higher scores of academic performance, implying that how well a student achieves at pre-university level is associated with their performance at university level.

This study reinforces findings of previous studies on the fact that there is a positive relationship between entry points and undergraduate students final GPA (Ogbonnaya, Okpuruka, Iheanacho & Ndu, 2014; Hall & Marchant, 2000; Aidoo-Buameh & Ayagre, 2013). Based on the literature review, undergraduate students' performance has been attributed to several factors such as university system like infrastructure, quality teaching, time spent, type of school attended at both CSEE and ACSEE, quality teachers, language incompetence and psychological stress. However, this paper urges that despite the fact that there are many factors that affect academic performance, there is a need to consider the quality of students enrolled in higher learning institutions. The quality of enrolled students is measured by the entry points which are used as key indicators in admission processes worldwide. In the year 2014, the Nation has witnessed a tremendous change in enrolment procedures associated with downgrading and changing of pass rates. This has probably resulted into massive failure at university level as majority of students especially in science subjects entered universities with a cut-off points which is relatively lower than their fellows in arts. In addition, in the same year, majority of the students enrolled in higher learning institutions had very low grades in their advanced certificate of secondary education which can be partly linked to the reasons for massive failure. This is because the sample of the participants involved in the present study was among the candidates examined in the new grading system. A study by Islam and Al-Ghassani (2015) revealed high school mathematics score and overall high school score are significant predictors of subsequent performance in Calculus course at college level.

Hypothesis 2: There is no positive and significant relationship between performance in communication skills and students' final academic performance

In order to test the second hypothesis, a Spearman Product Moment Correlation Coefficient (r) was used to determine the association between scores in communication skills and against students' final performance as measured in GPA. The results showed a positive, weak correlation between the two sets of variables: $r = .451$, $n=244$, $p < .05$. Table 3 summarizes the results.

Table 3: The Pearson's Product Moment Correlation Coefficient (r) for Entry Points and Students' Academic Performance

	Pearson Correlation	Performance in Communication Skills	Students' Final GPA
Performance in Communication Skills		1	.451**
Students' Final GPA			1
	Sig.(2-tailed)	244	.000
	N		304
Person Correlation	Sig. (2-tailed)	.451	
	N	244	304

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

In order to determine significance of the results and whether or not the null hypothesis is to be rejected, correlation coefficients were compared with the critical values in the Pearson's correlation coefficient (cf. Table 3). Since the observed coefficient correlation value (.451) was greater than the critical value (.000), the null hypothesis was rejected and adopted an alternative hypothesis that there was a statistically significant positive relationship between the performance in communication skills and final academic performance. This means that higher scores in communication skills are associated with higher scores of students' academic performance. It is obvious that language of instruction is one of the key factors to learning. In the Tanzanian context, English language is used for both secondary and tertiary levels of education and training, except training which prepares teachers for the lower grades of primary schools. A couple of studies have shown a sharp link between language of instruction and academic performance (Komba & Kafanabo, 2012; Komba, 2008; Vuzo, 2010). Therefore, it can be deduced that students with poor communication skills are more likely to demonstrate failure in terms of comprehending the information and internalizing the concepts taught in classrooms. This factor in a way affect their ability to perform well in various subjects since most of them are taught using English language which is the second language to most of Tanzanians.

Hypothesis 3: Students' overall academic performance and communication skills scores do not significantly differ by sex and degree programmes

Independent sample *t*-tests were conducted to compare academic performance between male and female students. The results showed no significant differences in academic performance between female ($M= 1.89, SD = 0.8$) and male students ($M= 1.83, SD = 0.7$), $t(304) = 1.17, p=.24$. Similarly, there were no significant differences in communication skills scores between female ($M=54.6, SD=7.2$) and male students ($M=55.6, SD= 8.8$). This means that male and female students did differ not statistically in both academic performance and communication skills scores. In addition, a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of degree programmes on students' final academic performance. Students' degree programmes were coded in four categories that is, (1=BA with Education, 2=B.Sc. with Education, 3= B. Ed Arts and 4= B. Ed Science) while academic performance was measured in Grade Point Average as continuous data set. There was a statistically significant difference at the $p<.05$ level for the four degree programmes in the scores measuring academic performance: $F(3,304) = 5.50, p=.001$. The magnitude of effect calculated using the eta squared was .05 (5%), indicating a moderate effect size. Post-hoc comparisons using Tukey HSD Test indicated that the mean score for BA with Education programme ($M=1.99, SD=.69$) was significantly different from B.Sc. with Education programme ($M=1.57, SD=.87$). B.Ed. Arts ($M=2.0, SD=.67$) and B.Ed. Science programmes ($M=2.0, SD=.75$) did not statistically differ from either B.A. with Education and B.Sc. with Education programmes. However, when the analysis was done with respect to scores in communication skills, no significant difference was found.

Conclusions and Recommendations

Academic performance is a product of personal determination, cognitive development and motivation as well as several other correlates. This study sets out to establish empirical evidence on determinants of academic performance among undergraduate students. The results have revealed a positive correlation between entry points and students' final academic performance and a positive correlation between communication skills and students' final academic performance.

In addition, students' academic performance differed significantly across various degree programmes. Surprisingly, 84.7% of the students discontinued from studies were aged between 21 and 22 years. This may imply that younger students are less focused on their academic pursuits than the older ones.

In this study, however, gender did not have any significant impact in either final academic performance or communication skills scores. This study concludes that university students are coming from diverse socio cultural backgrounds; as such they have different educational opportunities, expectations, needs and potentials. The discussion of the findings, compared to the previous studies leads us to the following recommendations. First, entry qualifications especially in sciences should be strengthened in order to place the concept of quality education at the centre of our education system. Secondly, counselling services should be strengthened at the college. This is the age group where a lot of social transformation takes place accompanied by transition stage from family to self caring life styles. Thirdly, the college management should revisit the concept of academic advisory so that each student should work closely with the support of a mentor. This study falls short of relying on a single approach that is quantitative research in ascertaining determinants of academic performance. This has resulted into limited perceived causal information based on the students' and tutors' perceptions and experiences, thus, limiting the credibility of the results. The authors suggest a qualitative study on the same in order to explore participants' perceptions and feelings on the phenomenon.

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