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Academic Performance of Students in the Polytechnic and its Influencing Factors: A Gender Based Analysis

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Abstract
The study conducted a comparative analysis of the academic performance of male and female student in the polytechnic using Federal polytechnic Ilaro as a case study. Particularly Estate management and valuation students and Quantity Surveying students form the basis of this study. The comparism was done using the mean cumulative grade point average of final year student result for a period of six consecutive academic sessions. It was discovered that male student performed better in Estate management and valuation department whereas female student that studied Quantity surveying performed better than their male counterpart. A further analysis was carried out to assess factors influencing academic performance of polytechnic students. A structured questionnaire in likert scale was given to final year students of the two departments under review, one hundred (100) questionnaires was given to the students to collate their perception. The filled questionnaire were then gathered, analyzed with SPSS software, processed with mean, percentages, Mann-Whitney U test and presented in tables. The study revealed that complex course content, mode of subject delivery and financial problems top the list amongst 18 variables examined. It was also discovered that no significant difference exist on students' perception of factors influencing academic performance based on gender. Suggestions were proffered on how to make academic performance of all gender components better.
***Keywords*:** *Academic performance, Gender, Influencing factors, Polytechnic, Student.*

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I. INTRODUCTION

A nation's development is hinged on educational level of its citizens. Skills, attitude and knowledge needed by individuals to enable them function and cope efficaciously with their environment is a process that is embedded in education which as well lead to increase in productivity and enhanced life quality by means of guaranteed acquisition of knowledge and skills (Farooq, Chaudhry, Shafiq & Berhanu, 2011; Umar, Yagana wali, Ali & Mohammed, 2015). Human activities evolve around education especially in this era of technology and globalization, people are now aware of the advantages and importance of education, this is evident in the increasing number of students seeking admission into tertiary institutions.

One of the most persistent barriers in the country's educational system relating to students academic standing in most tertiary institutions especially in sciences and environmental science related courses is gender issues which could mean gender equality or gender imbalances connoting male and female entitled and enjoying equal rights and opportunities in all sphere of human endeavors (Usoro, Akpan & Udoetuk, 2014). Gender performs an important function in the numbers of students who choose and are admitted into some course of study especially science based department. It is believed that male students perform well academically in science oriented courses than female students (Adigun, Onihunwa, Irunokhai, Sada & Adesina, 2015).

Academic performance of students implies the effort of the students in examination. There are different factors affecting the academic performance of students, these ranges from socio-economic characteristics such as encouragement from the family and environment to student's capability and level of excellence of education obtained (Faisal, Shinwari, & Hussain, 2017). Johnson and Elder, (2004) identified student factors, family factors, school factors and peer factors affecting academic performance of the students. Farooq *et al.* (2011) identified age, gender, geographical belongingness, ethnicity, marital status, socio economic status, parent's education level, parental profession, language, income and religious affiliations as factors affecting student's academic performance.

Voyer and voyer (2014) submitted that the females outperformed the male in the same field while Awofala (2011) and Oluwalogbohunmi (2014) opined male students performed better than females. Students' academic performance plays a crucial role in turning out the best skillful and knowledgeable graduates as

manpower for the nation's economic and social development as well as becoming well informed leaders in the society (Humaida, 2017).

Juma and Simatwa (2014) strongly believed that gender is a major factor influencing students' academic performance female students lag behind their male counterparts due to social and cultural expectations that exert unnecessary pressure on female, such as household tasks, which in turn affects their academic flexibility and accomplishment.

Another major factor considered by scholars which affects academic performance is the learning environment. According to Faisal et al (2017) learning environment must be physically and psychosocially safe. There should be provision of security in the classroom and the school. There should be readily accessible, safe, private, sanitary restroom with separate areas for male and female. There is also need for policy formulation and implementation or protection of female students from their male counterpart's harassment, sexual abuse, intimidation and other forms of violence.

Amusan, Tunji-Olayeni, and Adedeji (2016) laid emphasis on the atmosphere of learning as a significant dimension of acquiring knowledge. Atmosphere of learning was categorized into three: the natural learning atmosphere, virtual learning atmosphere and Electronic learning atmosphere. Beyond the social structure learning environment have effect on pattern and extent of knowledge impartation. Due to the aforementioned, the research aims to carry out a comparative study of the academic performance of male and female student in the polytechnics. It further assesses the students' perception on factors influencing academic performance and tested if there is any significant difference in this perception.

II. RESEARCH METHODOLOGY

The study employed a survey research design, this involves analysis of both secondary and primary data. Secondary data analysis entails collection and analysis of final year results of the two departments for a period of six consecutive academic sessions.

The primary data involves the use of questionnaire to solicit information from final year students (ND II and HND II) of Estate Management and Valuation Department and Quantity Surveying Department on factors influencing students' academic performance in the polytechnic. A purposive sampling technique is suitable in this regard. This research uses the Krejcie and Morgan (1970) table of determining sample size from the population with 95% confidence level, 5% margin error and a population of 104 students, the table gave a sample size of 83 students. This is represented in Table 1.

Table 1: Sample size

Department	Population	Sample	Percentage
Estate Management & Valuation	36	29	34.6
Quantity Surveying	68	54	65.4
Total	**104**	**83**	**100**

The analysis is confined to simple percentage, frequency distribution and mean.

III. RESULT AND DISCUSSION

3.1 Male and female Academic Performance between 2014/2015 and 2019/2020 academic session.

This analysis was carried out by examining the mean Cumulative Grade Point Averages (C.G.P.A) of the Final year (ND II and HND II) students in Estate Management and Valuation Department as well as Quantity Surveying Department between 2014/2015 and 2019/2020 academic session. The outcome of this investigation is dipicted in figure 1.

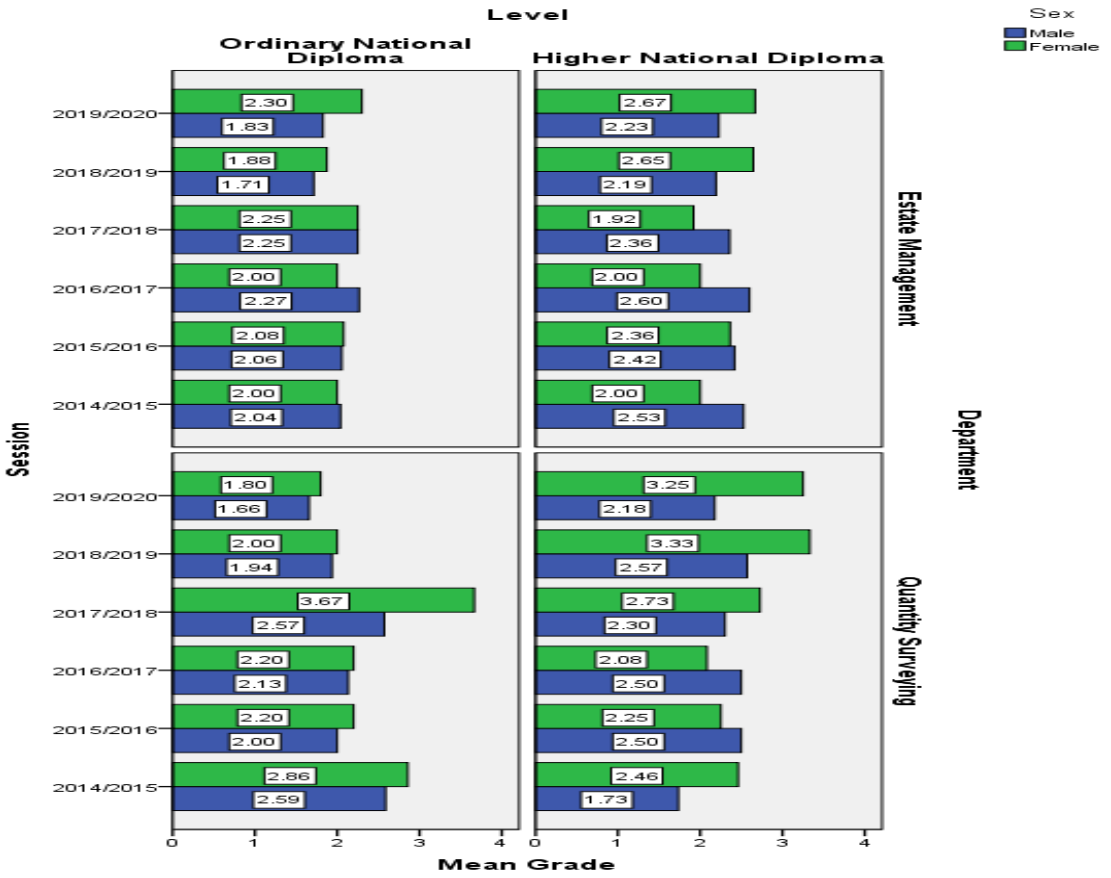

Figure 1: Male and Female Academic Performance between 2014/2015 and 2019/2020 academic sessions.

Data from Estate Management and Valuation Department and also Quantity surveying department shows that the female students performed better than their male counterpart at the Ordinary National Diploma level except for 2016/2017 session where the male students in Estate management performed a little better than the female. At the Higher National Diploma Level, in Estate Management Department the male performed better than the female in four academics sessions out of the six sessions examined (2014/2015, 2015/2016, 2016/2017 and 2017/2018). However, the reverse is the case in Quantity Surveying Department where it is observed that the female performed better in four sessions among the six sessions examined (2019/2020, 2018/2019, 2017/2018 and 2014/2015). The outcome of this research is in line with previous researches such as Voyer and voyer (2014); Awofala (2011) and Oluwalogbohunmi (2014). It can be deduced that students academic performance based on gender is not fixed, in other words, it cannot be said that male always performed better than females and vice-versa.

3.2 Factors influencing students' academic performance

Structured questionnaires were distributed to final year students in Estate management and valuation department as well as Quantity Surveying department based on the sample size earlier determined. Their perceptions were sort on 18 variable representing factors influencing students' academic performance in the polytechnic. A scale of 1 to 5 was employed for questionnaire in likert scale, with 1 indicating strongly disagree (SD) 2 indicating disagree (D) 3 indicating neither agree nor disagree (N), 4 indicating agree (A) and 5 being strongly agree (SA). Their response was processed using mean. The result is as presented in table 2.

Complex course content having mean index figure (4.10) top the list, then mode of subject delivery (4.08) and financial problems (4.07) followed it. However age difference (2.23), external interference (3.06) and poor learning environment (3.11) were the three least factors respectively. It is not surprising that complex course content ranked highest in this research as polytechnic students have only four years duration to study what their university counterparts will study for five years coupled with extensive practical. Likewise mode of subject delivery because of the work load on lecturers to cover the syllabus they tend to brush through the contents in order to be able to meet up. It is also a general believe that polytechnics are for the poor or middle class, that explains why financial problems is surfacing as a major factor affecting students performance.

Table 2: Factors influencing students' academic performance

Factors influencing academic performance	Mean	Rank
Complex Course Content	4.10	1
Mode of subject delivery	4.08	2
Financial Problem	4.07	3
Complex curriculum	3.99	4
Educational background	3.98	5
Lack of Basic Study Materials	3.93	6
Psychological problem	3.92	7
Family problem	3.77	8
Course dissatisfaction	3.71	9
Teachers challenge	3.63	10
Emotional disturbance	3.59	11
Intelligence Quotient	3.55	12
Attention to details	3.51	13
Emotional Maturity	3.48	14
Social Engagement	3.13	15
Poor learning Environment	3.11	16
External interference	3.06	17
Age Difference	2.23	18

Findings of this study is in clear disparity with findings of Amusan et.al.(2016), this shows that exist a clear disparity between factors influencing academic performance of polytechnic students and that of university students.

3.3 Gender based Analysis of Factors Influencing Students Academic Performance in the Polytechnic

3.3.1 Descriptive data

Table 3: Descriptive Statistics of Factors Influencing Students' Academic Performance in the polytechnic by Gender.

Gender	Mean	N	Std. Deviation	Median
Male	63.61	59	7.961	67.00
Female	67.83	24	10.688	68.50
Total	64.83	83	8.977	67.00

Table 3 shows the students reply on gender and factors influencing students' academic performance in the polytechnic by gender. This result was shown from the total values of scores for factors influencing students' academic performance in the polytechnic depicted in Table 2 which were shown by the mean, standard deviation and median of the students. The responses gotten for males show (n = 59, Std. Deviation = 7.961 Md = 67.0) while for females show (n = 24, Std. Deviation = 10.688 Md = 68.5). This implies that on average continuous variables were higher in females than in males.

3 In other to check for any significant difference in students perception based on gender on factors influencing academic performance in the polytechnic, a research hypothesis was formed thus:

H_{01}: There is no significant difference on factors influencing students' academic performance based on gender.

H_{02}: There is a significant difference on factors influencing students' academic performance based on gender.

Mann-Whitney U test was used in testing this hypothesis with $p \leq 0.05$ based on respondent's gender. For the hypothesis to be accepted, the rule is that p-value > 0.05. On the other hand the hypothesis is rejected when the p-value ≤ 0.05.

Prior to using Mann-Whitney U test, the necessary assumptions for its use were considered and met i.e coincidence of samples and independence of observations. The outcome of this investigation is dipicted in Table 3 below.

Table 3:Gender based Analysis of Factors Influencing Students Academic Performance in the Polytechnic

	FACTORS INFLUENCING STUDENTS ACADEMIC PERFORMANCE
Mann-Whitney U	518.500
Wilcoxon W	2288.500
Z	-1.908
Asymp. Sig. (2-tailed)	.056

a. Grouping Variable: Gender

Table 3 presents data on the calculated z-values and the calculated statistical significance of difference between the crossed variables. The z-value of this result is -1.908 with a significant level (*p)* of *p*= .056. The probability value (*p*) is not less than or equal to .05, so the result of this research is not significant. There is no statistically significant difference in the factors influencing students' academic performance in the polytechnic scores based on gender.

The effect size (r) of the factors influencing students' academic performance in the polytechnic can be calculated thus:

$$r = \frac{z}{\text{square roof of } N}$$ where N= total number of cases.(Pallant, 2020)

In this research, z = -1.908 and N = 83; therefore the r value is .21. this will be taken as a small effect using Cohen (1988) criteria of .1 = small effect, .3 = medium effect, .5 = large effect.
The Mann-Whitney U Test shows no significant difference in the factors influencing students academic performance in the polytechnic scores of of males (*Md* = 67, *n* = 59) and females (*Md* = 68.5, *n* = 24), U = 518.5, z = - 1.908, p = .056, r = .21.

Findings of this study is in clear disparity with findings of Juma and Simatwa (2014) which perceives gender as a major factor influencing students academic performance. The study however agrees with the study conducted by Goni, (2015) in the study of gender difference in students' academic performance in colleges of Education in Borno state, Nigeria.

IV. CONCLUSION

From the outcome, it was found that male students that studied Estate management and valuation performed a little better than their female counterpart however, the opposite is the case for male student that studied Quantity surveying between the periods considered as female students performed better.
The study also revealed major factors that influence academic performance of polytechnic students as complex course content, mode of subject delivery, financial problems amongst others. In light of the discoveries of this research, the accompanying suggestions are put forward towards improved academic performance of polytechnic students.

i. Demystifying complex course content/curriculum for easy understanding.

ii. Polytechnics lectures are admonished to ensure adequate and thorough lecture delivery.

iii. Trainings should be conducted for lecturers from time to time and a system of monitoring how lecturers deliver their lectures should be put in place and enforced in the polytechnics

iv. Parents should endeavor to give their children adequate financial backings in order to improve their academic performance.

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