

GENDER DIFFERENCE IN STUDENTS ACADEMIC PERFORMANCE: A T-TEST APPROACH

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Abstract: Academic Performance is a measurement of a degree of success in performing specific tasks in a subject or area study by student after a learning experience. This study aimed at determining whether there is a gender difference in student's academic performance, in Statistics Department Adamawa State Polytechnic, Yola, based on two session results. The data obtained were subjected to t-test statistics to test the hypotheses at 0.05 level of significance. The findings of the study revealed that, gender has significant difference on student's academic performance in both 2014/2015 and 2015/2016 academic session in favour of males' student. Therefore it was recommended that the polytechnic should address the issue on the need for gender equality in the department in terms of enrolment to have equal chance for female students to do well as their male counterpart.

Keywords: Gender difference, Academic performance, T-test.

1. INTRODUCTION

The world is becoming more and more competitive. Quality of performance has become the key factor for personal progress. Parents desire that their children climb the ladder of performance to as high a level as possible. This desire for high level of achievement puts a lot of pressure on students, teachers, parents and schools and in general the education system itself. In fact, it appears as if the whole system of education revolves round the academic performance of students, though various other outcomes are also expected from the system. Thus a lot of time and effort of the schools are used for helping students to achieve better in their scholastic endeavours. The importance of scholastic and academic performance has raised important questions for educational researchers [5].

Academic performance refers to an expression used to represent student scholastic standing [1].

Researchers in the field of education to gravel gender gap (inequality) in academic performance have recorded much. Observation had shown that there are differences between male and female in the pattern of education. These difference in participation and performance between male and female were found in several different subject examinations at schools [7].

Most researchers on gender difference in academic performance revealed that there is difference between boys and girls. Studies by [3] and [7] observed that there are differences between the males and females when it comes to mathematics spatial and verbal abilities.

[4] and [6] confirmed the above statement by observing that females should superiority especially in measures of verbal fluency (vocabulary, listening, speaking, comprehension, fluency and spelling) and that male should superiority in mathematical and spatial abilities. Contrary to this observation however, [2] observed that U.K and Scotland have enjoyed formal "gender parity" in education for number of years. The proportion of boys and girls achieving top grades at 18 (A-

level) is broadly equal though girls seem to be gaining a slight advantage over the boys. Hence the study seeks to examine the gender difference in students' academic performance in statistics department Adamawa State polytechnic Yola.

The following null hypotheses were tested;

H_0^I : There is no significant gender difference in academic performance of males and females in 2014/2015 academic session.

H_0^{II} : There is no significant gender difference in academic performance of males and females in 2015/2016 academic session.

2. METHODS

2.1 Study Area

The area of study is Adamawa State located in the North Eastern part to Nigeria, which was carved out of the former Gongola State on the 17th August 1991, with headquarters in Yola. It is bordered by Borno and Yobe State in the North, Gombe State in the West, Taraba State in the South and the Republic of Cameroun from the East (along Nigerian international border). It lies between latitude 8^o N and 11^o and longitude 11.5^o and 13.5^oE. It covers a land mass of 39,742.12 square Kilometres that is about 4.4% of the land area of Nigeria. It has a population of 3,168,101 based on the 2006 census. The state has 21 local Government areas and 50 State Development Areas (Adamawa State Government House Dairy, 2014).

2.2 Study Population

The population study comprises of all NDII statistics students in Adamawa State Polytechnic, Yola who completed 2014/2015, and 2015/2016 academic session. A total of 112 students were selected for the study.

2.3 Source of Data

The data used in this research work was obtained from exams and records Statistic Department, Adamawa State polytechnic Yola.

2.4 Method of data analysis

The data obtained were analysed using T-test statistic via MINITAB package.

Test Statistics

$$T = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}} \quad \text{at } \alpha = 0.05 \text{ level of significance}$$

Where;

\overline{X}_1 = mean performance of males

\overline{X}_2 = mean performance of females

S_1^2 = variance of males

S_2^2 = variance of females

N_1 = number of males

N_2 = number of females

Decision Rule

If $|T_{cal}| \leq |T_{tab}|$ / reject the null hypothesis (i.e. H_0) otherwise accept.

3. RESULTS

Table 3.1 Descriptive and t-test results of Gender difference in Academic Performance among ND II Statistics Student for 2014/2015 Academic Session

Gender	N	Mean	SD	T	DF	P-Value	Remark
Male	31	2.63	0.61	3.04	54	0.004	Significant
Female	26	2.17	0.53				

Table 3.1 shows the descriptive statistics of students' academic performance among gender; it reveals that the male students had slightly higher mean score of 2.63, with a standard deviation of 0.61 in academic performance associated to the female counterparts who had a mean score of 2.17, with a standard deviation of 0.53 in academic performance score. The t-test result reveals that there was statistically significant difference [$t(54)=3.04$, $p=0.004$] existed between gender and Academic performance in this academic session in favour of male students. Given that, statistical significant difference was established, the null hypothesis was rejected.

Table 3.2 Descriptive and t-test results of Gender difference in Academic Performance among ND II Statistics Student for 2015/2016 academic session

Gender	N	Mean	SD	T	DF	P-Value	Remark
Male	35	2.57	0.54	2.78	58	0.003	Significant
Female	25	2.21	0.37				

Table 3.2 shows the descriptive statistics of students' academic performance among gender; it reveals that the male students had slightly higher mean score of 2.57, with a standard deviation of 0.54 in academic performance associated to the female counterparts who had a mean score of 2.21, with a standard deviation of 0.37 in academic performance score. The t-test result reveals that there was statistically significant difference [$t(58)=2.78$, $p=0.003$] existed between gender and Academic performance in this academic session in favour of male students. Given that, statistical significant difference was established, the null hypothesis was rejected.

4. CONCLUSION AND RECOMMENDATION

Based on the findings of these studies, it was revealed that both in 2014/2015 and 2015/2016 academic sessions' shows that male students perform better than the female students. Therefore it was recommended that the polytechnic should address the issue on the need for gender equality in the department in terms of enrolment to have equal chance for female students to do well as their male counterpart

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