

A Comparative Study of Performance of Male and Female Students in Engineering Drawing at Ladoke Akintola University of Technology, Ogbomosho

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Abstract: The importance of engineering drawing cannot be overemphasized, as it is one of core courses in engineering curriculum. Hence, adequate and in-depth knowledge of the subject is required to become a successful engineer. This study was carried out to determine, if there were significant differences in the performance of male and female students in engineering drawing at Ladoke Akintola University of Technology, Ogbomosho. Secondary data in form of the results or scores for the past five years were collected from the examination officers of various departments, through the permission of their heads of departments. Essentially, cumulative grade point average (CGPA) of the students was used. Data were analysed using means and standard deviations at 95 % confidence level. Data were further subjected to t-test analyses through the employment of Chi-square tests. The trends performance of students based on gender, courses, and as well as years of study were also investigated. The mean scores of 2.725 and 2.6 were obtained for female students for the period of five years in MEE 201 (Engineering Drawing I) and MEE 202 (Engineering Drawing II) respectively, while the corresponding mean scores for male students were 3.0 and 2.925. Statistics revealed that, there was no significant difference in the overall performance between the male and female students in engineering drawing. The results of ANOVA test further showed that, whether based on gender, courses and years, there were no significant differences in the trend of performance of both female and male students. The study concluded that, the males are not academically superiors to females and that gender analysis of performance is not on biological differences.

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Key words: Engineering drawing, female students, gender, male students, performance

1.0 Introduction

Engineering drawing is a compulsory course for all students offering one kind of engineering course or the other in the universities, polytechnics and colleges of technology all over the world, Nigeria inclusive. An engineering student cannot become a successful engineer without adequate and in-depth knowledge of engineering drawing. Adebisi and Oladeji (2008) defined engineering drawing as the non-oral language being employed to give precise technical information, which fully describe the shape, size, dimension, degree of finish, tolerances, assembly arrangement and other details about a component or assemblage. This could be in form of a structure (e.g. a bridge or a building); a machine element (e.g. a block making machine, a vice clamp or an aircraft engine); an electrical component (e.g.

circuits for electronics); pipe networks and so on. The role of engineering drawing in technological development cannot be overemphasized, as it is a means of communication through which relevant information are given. The importance of engineering drawing is also a challenge to every student studying the subject for it is mainly on technology that the prosperity of Nigeria depends. Good technology will also boost our agriculture, and this will guarantee the production of food for the growing population, the generation of employment and the foreign exchange earnings (Anyanwu et al., 1998).

Engineering drawing is faced with many difficulties in Nigerian higher institutions, even though the subject is given a place of prominence in the engineering curriculum. One of the difficulties being faced by engineering students is inability to

comprehend the subject as majority of them lack “inner eyes” (Adebiyi and Oladeji, 2009). Another major problem is lack of teaching aids on topics like sectioning, assembly drawings, development and pattern among others (Arumala, 2001). Poor knowledge in allied subjects such as technical drawing, mathematics and space geometry at secondary level also contributes in no small measure to poor performance of students in engineering drawing (Adebiyi and Oladeji, 2009). Adhimabi and Heneveld (1995) indicated that teachers believed that males are academically superior to females in a work on factors affecting female participation in education in some developing countries of Africa. However, the work carried out by Adeyinka (2010) countered this view in his study, where a comparative study of male and female students, were conducted in agricultural science and biology in Kwara State College of Education, Ilorin. The result of his study showed that, there was no significant in the overall performance between the male and female students in the 2002 set.

The main objective of this study was to compare the performance of male and female students in MEE 201, which is engineering drawing I and MEE 202, which is engineering drawing II and to ascertain whether or not biological differences necessarily determine what males and females are able to do in engineering drawing.

The study went further to investigate the trend of performance of students based only on gender, courses, as well as years of study.

2.0 Materials and Methods

This study was conducted among the engineering students of Ladoke Akintola University of Technology, Ogbomosho (LAUTECH). LAUTECH

is located in Ogbomosho and was established in 1990. The university was jointly owned by Oyo and Osun States in the south-west geo-political zone of the country and was state best university in Nigeria for four consecutive years. The university has a population of about twenty six thousand and it is heterogeneously inhabited by many Nigerian tribes namely: Yoruba, Ibo, Hausa, and other minority tribes. The university has six faculties and the main religions practised within the university are Christianity and Islam.

For the purpose of this study, the descriptive method of survey was used. Secondary data in form of the results or scores for the past five years were collected from the examination officers of various departments through the permission of their heads of departments. Data were analysed using means and standard deviations at 95 % confidence level. Data were further subjected to t-test analyses through the employment of Chi-square tests. The method was used because it is considered to be the most appropriate method of comparing means of two groups, which are subjected to the same conditions (Ogunleye, 2009; Oladeji, 2011). The trends of performance of students based on gender, course, and as well as years of study were also investigated.

All the statistical analyses were performed on a micro-computer using SPSS 11.0 (Statistical Package for Social Science, 2002).

3.0 Results and Discussion

The results of performance of both female and male students in the two courses examined over the period of five years were presented in Table 1.

Table 1: Computed mean scores of students for 5 years

Academic Year	Students' Performance in	
	MEE 201	
	Female	Male
	Mean score of 10 students	Mean score of 20 students
2005/2006	2.50	2.3125
2006/2007	2.875	3.4375
2007/2008	2.75	2.8750
2008/2009	2.50	3.0625
2009/2010	3.00	3.3125
MEE 202		
2005/2006	3.25	2.3750
2006/2007	2.50	2.8125
2007/2008	2.25	2.8125
2008/2009	2.00	3.3125
2009/2010	3.00	3.3125

From Table 1, the means for yearly performance for both female and male students for five years were

computed; the results were presented in Table 2.

Table 2: Means of Yearly Performance of both Female and Male Students

Year	MEE 201	MEE 202
2005/2006	2.40625	2.8125
2006/2007	3.15625	2.65625
2007/2008	2.8125	2.53125
2008/2009	2.78125	2.65625
2009/2010	3.15625	3.15625

The mean scores were further subjected to t-tests and the results were presented in Tables 3.

Table 3: Results of Chi-square tests in MEE 201 and MEE 202

Course	At one tail		Remarks	At two tails		Remarks
	t cal	t-crit		t cal	t-crit	
MEE 201	0.130	1.94	No significant difference	0.26	2.44	No significant difference
MEE 202	0.151	1.89	No significant difference	0.30	2.36	No significant. difference

It can be seen that from the results of t-tests in both courses examined, there is no significant difference between the performance of female and male students, in the two engineering courses i.e. in MEE 201 and MEE 202 as t calculated at both one tail and two tails are less than t-critical for both courses at 5 %

Table 4: ANOVA Test

Source of Variation	SS	Df	MS	F	P-value	F crit.
Years	0.787109	4	0.196777	1.244595	0.343962	3.25916
Gender/course	0.503125	3	0.167708	1.060737	0.401912	3.4903
Error	1.897266	12	0.158105			
Total	3.1875	19				

From Table 4, it can be seen that there is no significant difference in the performance of students in two courses over the years. It is also evident that whether based on gender, or course, there were no significant differences in the trend of performance either between the female and male students or among the students in general. These are because; the P values calculated are all less than the values of F critical. The results of this study seem to agree with the reports of Buckland and Joyce (1996) and Yahaya (2005) that gender analysis of performance is not on biological differences. This study also agreed with

significant level. To investigate the trend of performance of the students based on gender, course levels, and as well as years of study, the data were further subjected to Analysis of Variance (ANOVA), the results of which were presented in Table 4.

the work of Adeyinka (2010), where the researcher concluded that, there was no significant difference in the overall performance between the male and female students in the agricultural science and biology in Kwara State College of Education, Oro in the 2002 set. The work of Aolat (2010) also gave similar results. However, the results of this study contradicted the views of some teachers, who believed that males are academically superior to females in some developing countries of Africa as expressed by Adhimabi and Heneveld (1995).

Conclusions

From the results and findings of this study, the following inferences can be drawn:

- i. The gender of a student does not have anything to do with his/her academic performance.
- ii. Male students are not academically superior to their female students' counterparts.
- iii. There were no significant differences in the trend of performance either between the female and male students or among the students in the two courses of engineering drawing examined over the period of years.

Recommendations

Based on the findings of the study, the following recommendations are hereby suggested:

- i. The students irrespective of their sexes should be encouraged to offer any course they like
- ii. Thus, both government and teachers should motivate students in this regards

SHORT PROFILE OF THE AUTHORS

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