

Empirical Analysis on Gender Disparity toward Their Performance in Business Mathematics-I Examination in Tertiary Institution, Lagos State, Nigeria

Ajala Bolarinwa

Lagos State Polytechnic
School of Part Time Studies(Day),
Surulere Campus, Surulere
Lagos State, Nigeria.

Bisira Hamed

Lagos State Polytechnic
Department of Mathematics
Sagamu road, Ikorodu, Lagos State, Nigeria.

Barrah Jennifer

Federal Inland Revenue Service, Return processing and payment unit Processes
Lateef Jakande Sreet, beside LTV 8, Ikeja, Lagos, Nigeria.

Abstract

Mathematics course has been seen as a scary course among gender and yet it forms the bedrock of all courses across all discipline. The poor performances in mathematics education starting from primary school through tertiary institution as become a great concern to all stakeholders. This paper therefore looked at the impact of gender in the success rate of Business Mathematics I examination using the different academic programmes: Full Time; Part Time studies and the influence of Part Time jobs on their performances. The findings revealed that the female students performed better than the male students in most cases which is contrary to most research works. The study of the strength of the relationship between the genders is very weak in School of Part Time Studies-Day, School of Part Time Studies- Regular, School of Part Time Evening and School of Part Time Studies-Annexes but negatively high in the Full Time programme.

Keywords: Business Mathematics I, Gender, Performance, Academic Programmes, Distance Learning

Introduction

Business Mathematics-I is been taught in the polytechnic among the student of Business administration, Accountancy, Banking and Finance, Marketing e.t.c as it affect all aspects of human life at different stages. For example, the earliest civilization of mankind came through mathematical manipulations. This is seen as the language used to describe the problems encountered in business operation. It is a subject that is related to set theory, break even analysis, simple interest, solution of equation as applied in Economics, matrices, sequences, indices, linear programming e.t.c.

However, the attitude of student to mathematics education from primary school through tertiary institution should be of great importance to the society at large. Awokoya (1975), Fafunwa (1980), jointly agreed in different works that we live in a world of science and technology has which forms an integral part of the world innovation, therefore for any country to be relevant; it must base the effective study of mathematics in her educational system. In this study, we will provide data on the performance of students in Business Mathematics-I examination as it relates to a particular department in NDI for first semester, 2010/2011 academic session. The emphasis of this work is to study the disparity of gender attitude toward their performance in Business Mathematics-I in Lagos State Polytechnic, Ikorodu, Lagos State, Nigeria, The Lagos State Polytechnic operates four different academic programmes under their Distance learning programmes namely: School of Part Time Studies- Day, School of Part Time Studies- Regular, School of Part Time Studies- Annex and School of Part Time Studies- Evening aside the regular full time programme

Literature Review

The students' performance in mathematics examination depends on their level of interest in the subject. By close examination of students attitude and the influence of their environment on their performance in mathematics across gender depends on how much interest they have in the course. Clearly all students across all discipline in higher institution take mathematics courses either in their first year or second year. According to Barth (2002), the percentage of students completing algebra II in high school, the minimum content typically required to enroll in college level mathematics, has grown from 40% to 62% between 1982 and 1998.

Looking at the influence of gender on performance in mathematics tests, Mitchelmore (1971) cited in Agnes *et.al* (2009) acknowledges the superiority of males over females when he noted that in all tests, boys obtained higher scores than girls at 1% level of significance Also, Maccoby and Jackline (1975), Fischer and Walker (1972), Grambs (1972), Comber Keeves (1973), Fin et al (1979), Fennema and Sherman (1977) and Tyler (1961) in separate studies found out that boys clearly perform better than girls in mathematics test.

According to human and social psychologists, they viewed the term performance or achievement in varying ways. On the effect of attitude and consistent overt behavior, that can be manifested by an individual through a pattern of performance in a given task, Linn (1965), Anderson (1942), Akpan (1989) all agreed that the lack of straight line relationship between student attitude and their consistent action is not real. They concluded that if an individual is not influenced by fear or other external influences, the individual would always produce consistent action or behavior which will reflect his attitude towards the object of interest. This is to say that if a student has an unfavorable attitude such as fear, lack of instructional material, lack of good textbooks, e.t.c towards a subject, then this will reflect in his performance on that subject of interest. Hence, attitude predicts behavior. Thus, it can be perceived that the difficulties in passing mathematics examinations, by some student are as a result of their poor attitude towards the subject.

Methodology

The aim of this paper is to study the disparity of gender attitude toward their performance in Business Mathematics and to find out the relationship existing among gender, type of academic programme and students' performance in Business Mathematics examination. The relevant data for this study were obtained from mathematics department of Lagos State Polytechnic for 2010/2011 academic session. The sample size of this study was 500 male and 500 female students. Thereafter, random sample size that is proportional to the population in each stratum were selected across the different departments that offered Business Mathematics-I in ND I using stratified random sampling method.

Data Analysis

The means and standard deviations from the total raw score for each were compared 5% level of significance. The statistical tools used were the t-test for independent t-tests and Karl Pearson's moment of correlation. The data were analyzed using SPSS and EXCEL package.

Result

Table I: Result of independent t-test analysis of the influence of sex on academic achievement of NDI students.

| Gender | Mean | SD | t-value | Df | Correlation |
|----------------|-------|--------|---------|-----|-------------|
| Male (N=500) | 45.55 | 11.365 | -0.185 | 998 | 0.287 |
| Female (N=500) | 45.56 | 11.252 | | | |

(Critical t = 0.674)

Table II: Result of independent t-test analysis on the influence of gender on type of academic programmes.

| SCHOOL | Gender | Mean | SD | t- value | Df | Correlation |
|--------|-----------------|-------|--------|----------|-----|-------------|
| SPTS-D | Male N=180 | 51.61 | 12.209 | -0.310 | 380 | 0.034 |
| | Female N=202 | 51.99 | 11.655 | | | |
| SPTS-R | Male N=230 | 39.63 | 7.856 | 0.378 | 458 | 0.061 |
| | Female N=230 | 39.37 | 6.900 | | | |
| SPTS-A | Male N=45 | 50.82 | 6.926 | -1.498 | 76 | -0.175 |
| | Female N=33 | 53.55 | 9.131 | | | |
| SPTS-E | Male N=34 | 43.03 | 7.461 | -0.232 | 62 | 0.086 |
| | Female N=30 | 43.47 | 7.596 | | | |
| FT | Male N=11 | 56.55 | 14.862 | 2.784 | 14 | -.583 |
| | Female N=5 | 43.0 | 4.243 | | | |

Note: SPTS-D: School of Part Time Studies- Day, SPTS-R: School of Part Time Studies- Regular, SPTS-A: School of Part Time Studies- Annexes, SPTS-E: School of Part Time Studies- Evening, FT: Full Time

Table III: Result of the relationship among the genders across the different schools

| VARIABLES | CORRELATION | DISCUSSION |
|---------------------------------|-------------|---------------------------------|
| SPTS-D (MALE) VS SPTS-R(FEMALE) | 0.077 | Very Weak Relationship |
| SPTS-D (MALE) VS SPTS-A(FEMALE) | -0.134 | Very Weak Negative Relationship |
| SPTS-D (MALE) VS SPTS-E(FEMALE) | 0.231 | Weak relationship |
| SPTS-D (MALE) VS FT (FEMALE) | -0.331 | Moderate Negative Relationship |
| SPTS-R (MALE) VS SPTS-A(FEMALE) | 0.015 | Very Weak Relationship |
| SPTS-R (MALE) VS SPTS-E(FEMALE) | -0.184 | Very Weak Negative Relationship |
| SPTS-R (MALE) VS SPTS-D(FEMALE) | -0.006 | Very Weak Negative Relationship |
| SPTS-R (MALE) VS FT(FEMALE) | 0.379 | Moderate Relationship |
| SPTS-A (MALE) VS SPTS-R(FEMALE) | 0.197 | Very Weak Negative Relationship |
| SPTS-E (MALE) VS SPTS-R(FEMALE) | 0.066 | Very Weak Relationship |
| SPTS-E (MALE) VS SPTS-D(FEMALE) | -0.158 | Very Weak Negative Relationship |
| SPTS-E (FEMALE) VS FT(MALE) | 0.565 | High Relationship |
| SPTS-E (MALE) VS SPTS-A(FEMALE) | 0.196 | Very Weak Negative Relationship |
| SPTS-A(MALE) VS FT(FEMALE) | -0.101 | Very Weak Negative Relationship |
| SPTS-A (MALE) VS FT(FEMALE) | 0.358 | Moderate Relationship |
| SPTS-A (MALE) VS SPTS-E(FEMALE) | 0.157 | Very Weak Negative Relationship |
| SPTS-A (FEMALE) VS FT(MALE) | -0.093 | Very Weak Negative Relationship |
| SPTS-D (MALE) VS FT(FEMALE) | -0.331 | Moderate Negative Relationship |
| SPTS-D (FEMALE) VS FT(MALE) | 0.027 | Very Weak Relationship |
| SPTS-R (FEMALE) VS FT(FEMALE) | 0.171 | Very Weak Relationship |

Discussion

Table I: The result of the analysis shows that, there is no significant difference in the overall performance of student in Business Mathematics-I across genders in all the schools put together, though the female students obtained a higher mean mark than the male student

This result is contrary with those of Fememe and Sherman (1977), Grambs (1972), Comber and Keeves (1973), Tyler (1961), Fin et al. (1979) and Maccoby and Jacklin (1975) who all observed that in nearly all cases reported, males outscored females in mathematics tests.

The study of the strength of the relationship between the genders according to Cohen (1988) is very weak.

Table II: The result of the analysis shows that, there is no significant difference in the performance of student in Business Mathematics-I across genders in three schools; namely: School of Part Time Studies- Day, School of Part Time Studies- Regular and School of Part Time Studies- Evening. Though female students obtained a higher mean mark than the male student in School of Part Time Studies- Day and School of Part Time Studies- Evening while male students obtained a higher mean mark than the female students in School of Part Time Studies- Regular.

This result is contrary with those of Fememe and Sherman (1977), Grambs (1972), Comber and Keeves (1973), Tyler (1961), Fin et al. (1979) and Maccoby and Jacklin (1975) who all observed that in nearly all cases reported, males outscored females in mathematics tests.

Meanwhile, there is a significant difference in the performance of student in Business Mathematics-I in the School of Part Time Studies- Annexes and Full Time programme of the school, though male students obtained a higher mean mark than the female student in the Full Time programme while female students obtained a higher mean mark than the student in the School of Part Time Studies- Annexes. The study on the strength of the relationship between the genders according to Cohen (1988) is very weak in School of Part Time Studies- Day, School of Part Time Studies- Regular, School of Part Time Evening and School of Part Time Studies- Annexes but negatively high in the Full Time programme.

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