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Gender Influence on Academic Achievement in Computer Studies among Senior Secondary School Students in Enugu Education Zone, Enugu State

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Abstract: This study explored the effect of gender on the academic performance of senior secondary school students in computer studies within the Enugu East Education Zone, Enugu State. Adopting a causal-comparative research design, the study targeted a population of 8,470 students, from which a sample of 187 students (92 males and 95 females) was drawn using multi-stage sampling. Data collection utilized a Computer Studies Achievement Test, validated by experts in Science Education and Measurement & Evaluation, achieving a reliability coefficient of 0.94 using Kuder-Richardson Formula 20 (K-R20). Research questions were analyzed using means and standard deviations, while hypotheses were tested with independent t-tests at a 0.05 significance level. Findings indicated that male students outperformed female students in computer studies, though no significant achievement differences were observed between genders in public and private schools. The study recommends encouraging female students to engage confidently in computer studies and calls for equitable learning opportunities regardless of gender.

Keywords*: Gender, Academic Achievement, Computer Studies, Senior Secondary School*.

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I. INTRODUCTION

Education serves as the cornerstone for a nation's socio-economic development, shaping both individuals and society at large (FRN, 2014). At the secondary level, education acts as a bridge to higher learning and plays a vital role in personal growth and national advancement (Osonwa et al., 2013). In the era of rapid technological progress, integrating digital literacy into secondary education is indispensable. Recognizing this, the Nigerian Educational Research and Development Council (NERDC) incorporated computer studies into the national curriculum to align with global trends.

Computer studies, or computer science, delves into the theoretical and practical aspects of computing (Obasoro, 2012). Proficiency in this field is increasingly essential, as digital skills are now pivotal across sectors. Continuous assessment of student performance in computer studies ensures the curriculum remains effective and relevant (Millis, 2013).

Academic achievement, reflecting students' mastery of subjects, is influenced by numerous factors, including gender, learning environments, and socio-economic conditions (Nwadinigu & Azaka-Obieke, 2012). Gender, shaped by societal norms, often affects academic experiences and outcomes (Akpochafo, 2011). This study seeks to explore how gender impacts student performance in computer studies within the Enugu East Education Zone.

In light of the increasing integration of technology into education, understanding how gender influences academic achievement in computer studies has become crucial. This study seeks to bridge the knowledge gap by examining gender-based differences in performance among senior

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secondary school students, aiming to inform strategies that promote equity and inclusivity in computer education.

➢ *Purpose of the Study*

The study aims to:

- Compare the academic achievement of male and female students in computer studies.
- Analyze gender-based differences in academic performance across public and private schools.

➢ *Research Questions*

- Is there a difference in the academic achievement of male and female students in computer studies?
- Does school ownership (public vs. private) influence the academic performance of male and female students in computer studies?

➢ *Research Hypotheses*

- There is no significant difference in the academic achievement of male and female students in computer studies.
- There is no significant difference in academic performance between male and female students in public and private schools.

II. METHODOLOGY

A causal-comparative design was utilized for this study. The research was conducted across public and private senior secondary schools in the Enugu East Education Zone, covering Enugu East, Enugu North, and Isi Uzo Local Government Areas. A sample of 187 students was selected through multi-stage sampling. The Computer Studies Achievement Test (CSAT) served as the data collection tool. It underwent validation by experts and yielded a reliability coefficient of 0.94 (K-R20). Data analysis involved descriptive statistics (mean, standard deviation) and inferential statistics (independent t-tests) at a 0.05 significance level.

III. RESULTS

➢ *Research Question 1: Is there a Difference in the Academic Achievement of Male and Female Students in Computer Studies?*

Table 1: Achievement Mean Score of Male and Female Senior Secondary School Students in Computer Studies

Gender	N	Mean	Mean difference	SD
Male	95	64.34	2.55	8.10
Female	92	61.79		7.42

The table 1 above reveals that male students had a mean score of 64.34 (SD = 8.10), while female students had a mean score of 61.79 (SD = 7.42), indicating a higher performance among male students.

➢ *Research Question 2: Does school ownership influence gender-based academic achievement?*

Table 2: Achievement Mean of Male And Female Senior Secondary School Students in Computer Studies in Public and Private Schools.

	Male			Female			
School Ownership	N	Mean	SD	N	Mean	SD	Mean difference
Public School	43	64.84	8.31	38	62.53	7.38	2.31
Private School	52	63.92	7.99	54	61.28	7.48	2.64

In public schools, male students scored an average of 64.84 (SD = 8.31), while females scored 62.53 (SD = 7.38). In private schools, males had a mean of 63.92 (SD = 7.99), and females scored 61.28 (SD = 7.48). While male students consistently outperformed their female peers, the differences were marginal.

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➢ *Test of Hypotheses*

Table 3: T-test of the Academic Achievement Mean Scores of Male and Female Senior Secondary School Students in Computer Studies

	F	Sig.	T	df	p-value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Score	.846	.359	2.236	185	0.027	2.54336	1.13742	.29937	4.78735

The result of the data analysis presented in table 4 revealed that there is significant difference in the mean achievement scores of male and female senior secondary school students in computer studies. This is because, the t-test calculated value of 0.0027 is less than 0.05 alpha value. Based on this, the hypothesis that there is no significant difference in the mean achievement scores of male and female senior secondary school students in computer studies was rejected.

Table 4: T-test of the Academic Achievement Mean Scores of Male and Female Senior Secondary School Students in Public and Private Schools

	F	Sig.	t	df	p-value	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Public School	.148	.701	1.760	104	0.081	2.64530	1.50263	-.33447	5.62507
Private School	.929	.338	1.316	79	0.192	2.31089	1.75551	-1.18336	5.80514

The result of the data analysis presented in table revealed that there is no significant difference in the mean achievement scores of male and female senior secondary school students in computer studies in public schools. This is because, the t-test calculated value of 0.081 is greater than 0.05 alpha value. Based on this, the hypothesis that there is no significant difference in the mean achievement scores of male and female senior secondary school students in computer studies in public schools was not rejected.

Similarly, the result of the data analysis presented in table revealed that there is no significant difference in the mean achievement scores of male and female senior secondary school students in computer studies in private schools. This is because, the t-test calculated value of 0.192 is greater than 0.05 alpha value. Based on this, the hypothesis that there is no significant difference in the mean achievement scores of male and female senior secondary school students in computer studies in private schools was not rejected.

IV. DISCUSSION OF FINDINGS

The study's results align with findings from Ezeudu and Obi (2013), who reported male students outperforming females in science subjects. Contrarily, Attah and Ita (2017) found no significant gender-based performance differences in English Language. These discrepancies highlight the complexity of gender dynamics in education.

V. CONCLUSION

The study concludes that while male students tend to perform better in computer studies, the differences are not influenced by school ownership. Encouraging female participation in computer studies and promoting gender-equitable teaching strategies can help bridge the performance gap.

RECOMMENDATIONS

In view of the findings from this study, the following recommendation were made

- Schools should foster inclusive learning environments that encourage both male and female students to engage actively in computer studies.
- Educators should receive training on gender-sensitive teaching approaches to minimize biases.
- Initiatives aimed at boosting female students' confidence in technology-related subjects should be implemented.
- Educational policymakers should prioritize gender equity in curriculum development and implementation.

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