



**ANALYSIS OF FACTORS MILITATING AGAINST THE ACHIEVEMENT OF
BIOLOGY EDUCATION STUDENTS IN BIOLOGY METHOD COURSES IN THE
UNIVERSITY OF JOS, PLATEAU STATE**

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ABSTRACT

This study analyzes the factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. A sample of 100 Undergraduate Biology Education students were involved. The study adopted the survey research design. A 20 item researcher designed instrument titled Biology Method Questionnaire (BMQ) was used. This questionnaire was used to elicit information from the respondents. Two research questions were answered and two hypotheses were tested at 0.05 significance. At the end of the study, the following findings were made; The factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state includes; lack of interest in biology education as a course, clash of lecture time table, volume of course contents, timing of lecture period and the class size. There is a significant difference between the UTME and the DE students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos. The difference is in favour of the DE students. However, there is no significant difference between the male and female students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos. There is also no significant difference between the 300 level and the 400 level biology education students in the factors militating against the achievement of students in biology method courses in the University of Jos. Recommendations from the findings are; The University of Jos through its Faculty of Education should open career units dedicated to creating awareness on the prospects of biology education. Time table officers in the Faculty of Education University of Jos should ensure that clashes in lecture time tables are minimized. Lecturers of biology method courses should narrow the contents to accommodate only relevant topics.

KEY WORDS: Achievement, Analysis, Militating, Biology Method



1.0

INTRODUCTION

In every Nation of the world, education has been considered to be the corner - stone for development. It forms the basis for literacy, skill acquisition, technological advancement and ability to harness human and material resources towards the achievement of societal goals. In Nigeria, education is perceived as an instrument for achieving national objectives. According to the National Policy on Education (FRN, 2014), education is an “instrument per excellence” for the achievement of national development. Through education, the society grows and develops by bringing about the desired societal changes. The knowledge acquired covers subjects such as humanity, arts and the sciences. The sciences are captured under science education.

The role of science education in the development of any nation cannot be overemphasized. It is the baseline for any technological advancement. The impact of science can be felt in every sphere of human endeavour. Adeyinka (2022) defined Science is a human activity concerned with understanding the working of things in the environment. Although the significant role of science in the development of the society has been universally acknowledged, literature replete with evidences of persistent poor achievement of students in sciences in public examinations, such as the West African examination council and national examinations council. This poor achievement also applies to Biology. There are three subjects which are classified as core sciences by the National Policy on Education. These are Biology, Chemistry and Physics.

Biology is a branch of science which studies life. Professionals in biology are called biologists. Biology according to Udenusa (2023) is a branch of science which studies living organisms and how they interact with each other and their environment. It examines the structure, function, growth and origin of living and non-living things. The content of the subject provides an opportunity to present science in areas of medicine, Agriculture, Biotechnology, Genetics, engineering, food production industries and environmental studies. It is a basic human science that has always involved the interest of learners at any level. It involves the understanding, composition, function and survival of living things and their interactions in nature. Biology is the science of life and all its manifestations. It is an area of science that is concerned with the study of living organisms, their forms, structure their behavior, their functions, their origin, development



and their relationships with their environment. Biology comprised of several sub-topics like excretion, genetics and reproduction.

The methods in the teaching of biology can only be learned by training the student teachers in Biology Method Courses. The Biology Methods courses create an avenue for the student teachers to acquire the necessary skills that prepares them for the teaching career in Biology. However, there have been reported cases of underachievement in the Biology Method courses. This could be attributed to several factors. In the process of taking Biology Method as a course, the student teachers are trained in different methods of teaching. Method of teaching is a determinant factor of learning experience. It has direct bearing on students' understanding of a subject and academic achievement in any subject (Weil 2023). Achievement in biology varies from one student to another. It however has no regard for gender. The role of students' gender in achievement cannot be over looked. According to Soade (2022) the issue of gender has remained an important issue and it is very relevant in education because it has been linked to achievement and participation in certain profession. In view of the fact that instructional strategy is a great determinant in students' achievement, it is therefore important that students' interaction and instructional strategy should be carefully determined and supported by the teachers concerned.

Evidence abounds to show that, teaching and learning Biology Method Courses in the University of Jos has been faced with challenges which prevent many students from performing well in semester and sessional examinations. According to (Soade 2022) a vast number of factors are responsible for the students' poor performance in Education Courses. These factors include interest in the teaching profession, clashes in lecture time table, difficult biological concepts, teaching strategy, level of organization and abstract level of concepts. Various concepts abound in the Biology Method Courses. These concepts include old and new instructional strategies, lesson plan, continuous assessment, table of specification and evaluation. Despite the importance of Biology to human development in Nigeria, research findings have shown poor students' achievement in Biology especially in West African Examination council. According to the West African examination council Chief Examiner's Reports (2020-2023) reveal that there is poor performance of students in biology. This poor performance can be traced to poor teaching method. The teaching method can only be learnt in Biology Method Courses. A poor achievement in



Biology Method Course will lead to poor teaching by the trainee teacher. If the rate of this failure is allowed to continue, there is going to be problem of manpower development in science education in Nigeria, especially in the field of medicine, pharmacy, nursing, which biology is a major requirement in getting admission into such fields. There is need to apply new pedagogy in the classroom to curtail the rate of students' failure in examinations. These pedagogical skills can only be acquired in Biology Method Courses. The foregoing therefore underscores the need to carry out an analysis of factors militating against the achievement of biology education students in biology method courses in the University of Jos.

The aim of this study is to carry out an analysis of factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. Specifically, the study was guided by the following objectives:

- i. The factors militating against the achievement of UTME and DE biology education students in biology method courses in the University of Jos, Plateau state.
- ii. The factors militating against the achievement of the Male and the Female biology education students in biology method courses in the University of Jos, Plateau state.
- iii. The factors militating against the achievement of the 300 Level and 400 Level biology education students in biology method courses in the University of Jos, Plateau state.

The following research questions were formulated to guide the study

- i. What are the factors militating against the achievement of UTME and DE biology education students in biology method courses in the University of Jos, Plateau state?
- ii. What are the factors militating against the achievement of the Male and the Female biology education students in biology method courses in the University of Jos, Plateau state?
- iii. What are the factors militating against the achievement of the 300 Level and 400 Level biology education students in biology method courses in the University of Jos, Plateau state.



The following hypotheses were tested at 0.05 level of significance in the study.

- i. There is no significant difference between the UTME and the DE biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.
- ii. There is no significant difference between the Male and the Female biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.
- iii. There is no significant difference between the 300 Level and 400 Level biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.

2.0

METHODOLOGY

The study adopted the descriptive survey research design using the questionnaire technique. Survey design is procedure in quantitative research in which questionnaires are administered to a group of respondents to elicit information. This research focused attention on a cross sectional survey which deals with opinions and perception of the respondents. The Population of the study were all the undergraduate biology education students in the University of Jos, Plateau State. This is made of 422 students (182 males and 240 females). The researcher randomly but conveniently selected a sample of respondents available in the Department. The respondents were chosen to represent the variables. 70 students were chosen from the UTME while 30 was from the DE students. This means that each of the admission mode is represented.

This number also captures the gender and levels of study (300 and 400 levels). This implies that one hundred (100) respondents were conveniently chosen. A proportionate stratified sampling technique was employed to select the students. The procedure adopted in proportionate stratified random sampling is by dividing the population by stratum. This implies that the population was divided based on some specific characteristics mainly the variables in the study. In this study, the variables included mode of admission (UTME and DE), students' gender (Male and Female) and Levels of study (300 and 400 levels). This is then followed by using simple random sampling to draw a sample from the sub units called stratum of the population.



The research instruments that was used for this study is the researcher designed questionnaire titled Biology Method Questionnaire (BMQ). This questionnaire was used to elicit information from the respondents on the factors militating against the achievement of Biology education students in Biology Method courses in the University of Jos, Plateau state. Sibausa, (2023) defined questionnaire as a research instrument which consists of a sequence of questions for the purpose of collecting information from a selected sample of respondents.

3.0 RESULTS AND DISCUSSION

3.1 Results

The research questions were analyzed using the mean score as statistical technique while the hypotheses were tested using the t-test at 0.05 level of significance.

Research Questions

Three research questions were formulated and answered during the study. They are as follows:

Research Question One: What are the factors militating against the achievement of UTME and DE biology education students in biology method courses in the University of Jos, Plateau state?

Table 1 shows that the UTME students had mean scores of 92.36 in the factors militating against the achievement of biology education students in biology method courses while the DE students had a mean score of 34.30.

Table 1: The Mean and Standard Deviation scores of the UTME and DE students in the Analysis of Factors Militating against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Group	N	Mean(x)	SD
UTME	70	92.36	9.412
DE	30	34.30	2.220



Research Question Two: What are the factors militating against the achievement of the Male and the Female biology education students in biology method courses in the University of Jos, Plateau state?

Table 2 revealed that the male students had a higher but not significant mean score of 74.57 than the female students with a mean score of 74.53 in the factors militating against biology education students' achievement in biology method courses.

Table 2: The Mean and Standard Deviation scores of the Male and the Female students in the Analysis of Factors Militating against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Gender	N	Mean (x)	SD
Male	58	74.57	8.701
Female	42	74.53	8.009

Research Question Three: What are the factors militating against the achievement of the 300 level and 400 level biology education students in biology method courses in the University of Jos, Plateau state?

Table 3 revealed that the 400 level students had a higher but not significant mean score of 74.32 than the 300 level students with a mean score of 74.30 in the factors militating against biology education students' achievement in biology method courses.



Table 3: The Mean and Standard Deviation scores of the 300 level and 400 level Biology Education Students in the Analysis of Factors Militating Against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Level of study	N	Mean (x)	SD
300 level	46	74.30	8.60
400 level	54	74.32	8.07

Hypothesis One (H₀₁)

There is no significant difference between the UTME and the DE biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.

The analysis on table 4 shows the t-test analysis of the mean scores of the UTME and DE biology education students. The UTME students had a mean score of 92.36 with standard deviation scores of 8.412 Those of the DE on the other hand had a mean score of 34.30 with a standard deviation of 2.220. The degree of freedom for both is 118 and the calculated t-value obtained is -11.711 with a P-value of 0.002. Since the P-value is less than 0.05, it shows that there is significance. The hypothesis one which says that there is no significant difference between the UTME and the DE biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state is therefore rejected.

Table 4: t-test Results of Sample Analysis for the UTME and DE students in the Analysis of Factors Militating against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Group	N	Mean (x)	SD	t-cal	df	P-value	Decision
UTME	70	92.36	8.412	-11.711	118	0.002	Reject H ₀₁
DE	30	34.30	2.220				

P<0.05

Hypothesis Two (H₀₂)



There is no significant difference between the Male and the Female biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.

The analysis on table 5 shows the t-test analysis of the scores of the male and female biology education students in the factors militating against the achievement of students in biology method courses. The male students had a mean score of 74.57 with a standard deviation of 8.70 while the female had a mean score of 74.53 with a standard deviation of 8.09. The degree of freedom for both genders is 58 and the calculated t-value obtained is -0.481 with a P-value of 0.06. Since the P-value is greater than 0.05, it shows that there is no significance. The hypothesis two which says that there is no significant difference between the Male and Female students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state is therefore accepted.

Table 5: t-test Results of Sample Analysis for the Male and Female Students in the Analysis of Factors Militating Against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Gender	N	Mean(x)	SD	t-cal	df	P-value	Decision
Male	58	74.57	8.70	- 0.481	58	0.06	Accept HO3
Female	42	74.53	8.09				

P < 0.05

Hypothesis Three (H0₃)

There is no significant difference between the 300 and the 400 Level biology education students in the factors militating against the achievement in biology method courses in the University of Jos, Plateau state.

The analysis on table 6 shows the t-test analysis of the scores of the 300 and 400 level biology education students in the factors militating against the achievement of students in biology method courses. The 300 level students had a mean score of 74.57 with a standard deviation of 8.70 while the 400 level had a mean score of 74.53 with a standard deviation of 8.09. The degree of freedom for both genders is 58 and the calculated t-value obtained is -0.481 with a P-value of 0.06. Since



the P-value is greater than 0.05, it shows that there is no significance. The hypothesis three which says that there is no significant difference between the 300 and 400 level students in the factors militating against their achievement in biology method courses in the University of Jos, Plateau state is therefore accepted.

Table 6: t-test Results of Sample Analysis for the 300 and 400 Level Students in the Analysis of Factors Militating against the Achievement of Biology Education Students in Biology Method Courses in the University of Jos.

Level	N	Mean(x)	SD	t-cal	df	P-value	Decision
300	46	74.57	8.70	- 0.481	58	0.06	Accept H ₀₃
400	54	74.53	8.09				

P < 0.05

3.2

Discussion

The aim of this study was to carry out an analysis of factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. Hypothesis One (H₀₁)

From the analysis and the result of testing this hypothesis, it revealed that there was a significant difference between the UTME and the DE biology education students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. A P-value of 0.002 was obtained and this was less than the 0.05 probability level. This finding conforms to that of Ukedo (2022) who investigated the factors that enhance students' achievement in education courses among biology education students in Rivers state. The finding reveal that there is a significant difference between the UTME and the DE students in the factors influencing achievement in education courses. It also agrees with Abreu, and Ralha (2021) who investigated the factors responsible for underachievement among student teachers of Biology and discovered a significant difference in the modes admission. This report however disagree with that of Olayinka (2020) who conducted a research aimed to investigate the factors that influence students' achievement in education courses in Tai Solarin University. The findings show that there



is no significant difference among the UTME, DE and the Pre-Degree students in the factors influencing achievement and choice of course. It also disagrees with Adamma, Ekwutosim and Unamba (2021) who carried out a study on issues relating to poor performance of education students and discovered that there was no significant difference among UTME and DE students in the issues relating to poor performance among education students.

Hypothesis Two (H0₂)

The analysis and results of testing this hypothesis shows that there was no significant difference between the male and female biology education students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. The findings agree with that of Olayinka (2020) who conducted a research aimed to investigate the factors that influence students' achievement in education courses in Tai Solarin University. The findings show that there is no significant difference among the Male and Female students in the factors influencing achievement in education courses. The finding also conforms with that of Agate (2023) who carried out study on gender factors in performance of education students and discovered that no significant difference exists among the male and female. This finding disagree with that of Ukedo (2022) who investigated the factors that enhance students' achievement and choice of course in Rivers state. The finding reveal that there is a significant difference between the Male and the Female students in the factors influencing the choice of course. The findings also disagree with Bartlow, Machalaba, Karesh, and Fair (2021) who concluded that a significant difference exist between the male and female students factors responsible for failure rate in courses relating to education.

Hypothesis Two (H0₃)

The analysis and results of testing this hypothesis shows that there was no significant difference between the 300 and 400 level biology education students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state. The findings agree with that of Olayinka (2020) who conducted a research aimed to investigate the factors that influence students' achievement in education courses in Tai Solarin University. The findings show that there is no significant difference among the various levels in



the factors influencing achievement in education courses. The finding also agrees with Batta, Ekeanyanwu, Obot and Nda, (2023) whose study reveals that no significant difference exist among education students in factors responsible for failure with respect to levels of study. The finding however agrees with Bodine, Panoff, Voit and Weisstein (2020) who discovered a significant difference among students' level of study in a study on the Agent-based modeling and simulation in mathematics and Biology education.

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

The factors militating against the achievement of biology education students in biology method courses in the University of Jos, Plateau state includes; lack of interest in biology education as a course, clash of lecture time table, volume of course contents, timing of lecture period and the class size. There is a significant difference between the UTME and the DE students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos. The difference is in favour of the DE students. There is no significant difference between the male and female biology education students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos. Likewise, there is no significant difference between the male and female biology education students in the factors militating against the achievement of biology education students in biology method courses in the University of Jos.

4.2 Recommendations

From the findings of this study, the following recommendations were made;

1. The University of Jos through its Faculty of Education should open career units dedicated to creating awareness on the prospect of biology education.
2. Time table officers in the Faculty of Education University of Jos should ensure that clashes in lecture time tables are minimized.
3. Lecturers of biology method courses should narrow the contents to accommodate only relevant topics



REFERENCES

- Abreu, C. G., & Ralha, C. G. (2021)** An empirical workflow on factors responsible for underachievement among biology student teachers. *Environmental Modelling & Software*, 107, 281–297.
- Adamma, O. N., Ekwutosim, O. P., & Unamba, E. C. (2021)** Issues relating to poor performance among education students in college of education Nsugbe. *Journal of Research in Education* 2(2), 52–59.
- Agate, W. (2023)** Gender factors in performance of education students and attitude towards learning in Buuri-East, Kenya. *Journal of Multidisciplinary Studies and Research in Education* 5(1), 72–84.
- Bartlow, A. W., Machalaba, C., Karesh, W. B., & Fair, J. M. (2021)** Factors responsible for failure in education courses and students' attitude: Intersection of education, and the environment. *Health Education Journal* 19(2), 214–222.
- Batta, H. E., Ekeanyanwu, N., Obot, C. D., & Nda, I. C. (2023)** Factors for failure and perception of emerging education courses and innovation in Nigeria: Implications for development. *Saudi Journal of Humanities and Social Sciences*, 8(5), 132–145.
- Bodine, E. N., Panoff, R. M., Voit, E. O., & Weisstein, A. E. (2020)** Agent-based modeling and simulation in mathematics and Biology education. *Bulletin of Mathematical Biology*, 82(8), 101–110.
- Adeyinka, G.S. (2022)** Analysis of the Relationship between Science and Achievement and Science and attitude. *Journal of Research in Science Teaching*, 6(3):239-245.
- National policy on education. N.E.R.D.C. Press Yaba Lagos Nigeria.
- Olayinka, N.L. (2020)** Analysis of factors responsible for poor achievement of students' in Education courses. *Journal of Research in Education*, 2(1), 28-35.
- Sibausa, N.O (2023)** Research and analysis: The Tools and the How. *International Journal of Research, Measurement and Evaluation*. 3(1) 93-112
- Soade, E.J. (2022)** Gender' and school type as factors responsible for students' achievement in Nigerian. universities. *Journal of Education and Counselling*, 3(2), 220-228.



Udenusa, O.M. (2023) *College Biology*. Hybrid publishers, Lagos, Nigeria.

Ukedo, T.W. (2022) An investigation of Factors that responsible for students' achievement in Education courses among biology education students in Rivers State. *Journal of Research Education*, 3 (2)166-178

Weil, M.A. (2023) Effects of selected strategies on student's performance in the sciences.
Journal of Research in Science Teaching, 6(3):239-245.

West African Examinations Council (WAEC) (2020). *Chief examiners reports*. Yaba, Lagos.

West African Examinations Council (WAEC) (2021). *Chief examiners reports*. Yaba, Lagos.

West African Examinations Council (WAEC) (2022). *Chief examiners reports*. Yaba, Lagos.

West African Examinations Council (WAEC) (2023). *Chief examiners reports*. Yaba, Lagos.