



## Exploring the Nexus: Investigating the Interplay between Study Habits and Academic Excellence among Pre-Service Biology Teachers

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### Abstract

The paper examines “Study Habits and educational attainment of Pre-Service Biology in Federal College of Education, Zaria”. The investigation sets two objectives, two research questions and two hypotheses. The investigation used a descriptive survey research design. The population of the study in this context comprises all the NCE III Biology/Integrated Science students in Federal College of Education, Zaria, Kaduna State with 3,242 students’ population and a sample of 580. The instrument that was used to collect the data for this research was a structured questionnaire. The data obtained were analysed using frequency, percentage, mean, standard deviation and t-test using Statistical Packages for Social Sciences version 20.0. The study found that there is a notable gap between study habits on time allocation to study and students’ academic performance of pre-service teachers in Federal College of Education, Zaria with a exact significance level of 0.0013 and t-calculated (8.831). The investigation rejected the null hypothesis and accepted that there are notable distinctions in study habits on time allocation to study and student academic performance of pre-service teachers in the Federal College of Education, Zaria. The inquiry recommended that the students should be properly screened on their level of academic performance and study habits by the teachers/lecturers through the use of standardized study habits. This will enable them pinpoint students with problems with study habits to institute compulsory courses and academic advice for underachievers to improve their study habits and educational attainment in Biology. Biology lecturers should develop a habit of using different methods of teaching biology so that they will carry all the students along since there are individual differences.

**Keywords:** Study Habits, Pre-Service Teachers, Academic Performance, Biology,

### Introduction

Education and knowledge constitute some of the most esteemed virtues that humanity yearns for. These seemingly parallel notions are crucial as every society has historically utilized knowledge and education to enhance or evolve its societal frameworks. It is for this rationale that substantial resources are allocated to the educational sector. Education serves a pivotal function in the maturation of an individual learner. The assimilation of novel information and how one interacts with the educational environment transform an individual into a comprehensive learner. It must remain unequivocally clear in our cognition that a key principal objectives of education is to prepare students with the skills to devise solutions to complex issues, foster independent growth, apply acquired knowledge from academic settings to real-world scenarios, and comprehend concepts in a manner that renders them beneficial to personal life; learning cannot be achieved merely through verbal instruction or observation; consistent practice is essential. Accomplished students implement a time management framework to establish effective study routines. This approach enables students to form a foundational awareness and a deeper comprehension of how their existing study practices influence their academic achievements. Similarly, it provides them with a more concentrated and lucid understanding of how specific behaviours associated with their academic endeavours affect their study habits (Zaharah et al., 2011). Call (2012) asserts that science represents both the pursuit and application of knowledge and

comprehension regarding the natural and social realms, adhering to a systematic methodology grounded in empirical evidence. Moreover, science embodies a cognitive approach far beyond merely being a collection of knowledge. Furthermore, science does not purport to deliver absolute truths; instead, it operates as a systematic mechanism. It represents a methodology aimed at enhancing one's understanding of nature, serving as a system for evaluating hypotheses against the universe and discerning their validity (Braide, 2018).

Consequently, this awareness facilitates a more profound comprehension of oneself as a student, particularly given that collegiate life is often characterized by a series of developmental adjustment challenges for both parents and educational institutions, thereby contributing to the enhancement of educational quality. This will motivate individuals to pursue further research concerning the research habits of pre-service educators, specifically within the teacher training institutions. (Egbule, 2016).

The acquisition of education inherently entails the attainment of knowledge. Taking into account the elucidation of the concept of study habits, it can be articulated that study habits denote the systematic approaches employed by an individual to acquire knowledge. As referenced in Braide (2018), Hussain posits that study habits represent the predispositions that learners have cultivated concerning autonomous study over time. Given that habits reflect individual uniqueness, study routines encompass the activities that pertain to an individual's academic endeavours. Study habits constitute the methodologies employed to implement and practice the competencies of learners within the learning processes aimed at achieving mastery of the subject matter. The function of study habits is to catalyze learning. A student's academic disposition is significantly influenced by his or her study habits. Study habits encompass the diverse attitudes, methodologies, techniques, and strategies that individual learners adopt during their studying endeavours. Individual behaviour is governed by habits; thus, the various methodologies or techniques that students employ in their studying processes are what delineate their academic achievement.

Study habits represent the learning inclinations that empower students to engage in private study. These habits are characterized by methods such as summarization, writing notes, outlining, or material location, which students utilize to facilitate efficient learning of the pertinent materials. The designation "study habits" suggests a relatively stable method of studying. Paivio (2014) asserts that study habits reflect the proclivity of students to engage in study when opportunities present themselves. In light of globalization and technological progress, education is perceived as a critical foundation for all human activities. It assumes a pivotal function through investing in people and is fundamentally associated with personal well-being and prospects for enhanced living standards. Education ensures the attainment of competences that empower individuals to enhance their productivity and improve their standard of living. Moreover, success, as the term implies, is aspired to by all; however, it does not readily materialize without effort; one must strive for it through diligence and hard work. The institutions of schools, teacher training institutions, vocational schools, and universities hold no value in the absence of students (Owens, 2018).

### Statement of the Problem

The degree to which a student achieves academic excellence or performs proficiently in their educational pursuits is significantly influenced by the nature of the scholarly research habits they cultivate and employ, particularly within the contemporary context of our colleges of education. A pupil who creates and follows strong study habits is inclined to achieve higher academic success relative to a colleague who practices poor study techniques. Individuals enrolled in educational academic programs are cognizant of their objective to attain success, which ultimately benefits not only the individual student but also extends to their family and the broader societal framework. It is an acknowledged principle that education plays a role in liberation, knowledge, and facilitating social ascension. In light of the critical significance of study habits and the scholastic achievement of pre-service teachers specializing in Biology at FCE, Zaria, it is anticipated that those participating in any NCE program should exert considerable effort to excel in their examinations. Regrettably, student performances in examinations, particularly during the first and second semesters, have been subpar. Studying holds substantial importance, as no educational process, activity, or circumstance can yield effective learning outcomes without diligent study practices. A prominent difficulty that resonates throughout the Nigerian education landscape is the sustained lack of success among students in their first-, second-, or third-year evaluations (Ajayi, 2012).

This phenomenon may be intricately linked to the recent dismal learning outcomes exhibited by students in their examinations. Other problems of study habits are poorly organized or non-existent study schedules and ineffective study techniques like cramming at the expense of understanding. A major difference between secondary schools and tertiary institutions study habits is that at secondary school, a student is expected to learn what he is taught. That is to say, there is a close monitoring and supervision of his study activities. In addition in our colleges of education today, a student is expected to learn independently, this means he/she has greater freedom about how he/she uses his time and resources. The amount of assistance given to student teacher teachers in Biology is usually given the course outline through the handbook in general terms. The information contained in the handbook is supplemented by textbooks, lectures, tutorials, practical and other formal learning situations.

### Objectives of the Study

- a. To investigate the impact of study habits on the academic achievement of pre-service educators at the Federal College of Education, Zaria.
- b. To analyse the interplay between study habits and time management in influencing the educational attainment of pre-service teachers at the Federal College of Education, Zaria.
- c. To evaluate the correlation between study habits and gender differences in the scholastic achievement of prospective Biology teachers at the Federal College of Education, Zaria.

### Research Questions

The following research questions guided the investigation:

- a. How does the study habit of pre-service teachers impact their learning outcomes?
- b. To what extent does study habit influence the association between time allocation for studying and the educational attainment of pre-service teachers?
- c. In what ways does study habit contribute to gender differences among pre-service Biology teachers?

### Research Hypotheses

- a. There is no significant correlation between the study habits and learning outcomes of pre-service teachers.
- b. There is no significant correlation between study habits, time allocation for studying, and the academic performance of pre-service teachers.
- c. Study habits do not significantly contribute to gender differences among pre-service Biology teachers.

### Significance of the Study

It is anticipated that this research will furnish valuable insights for governmental bodies, lecturers, guardians, institutions, scholars, pupils, and communities to contemplate the diverse elements that may assist students in realising their academic objectives. While aiming for this target, they can analyse the potential of fusing these features into the educational framework, possibly culminating in improved academic achievement among students in educational environments.

In addition, the fact that the inquiry is conducted in the Federal College of Education, Zaria, shares a lot of similarities with many other counterparts. In this connection, this study provides a valuable reference for other Colleges, Polytechnic or other tertiary institutions of learning to reflect upon the study habits as they affect the learning outcomes of trainee teachers in Federal College of Education, Zaria.

### Methodology

The paper employed a descriptive survey design by administering a questionnaire to a sample of individuals. Simple Random sampling method was used to select a sample size of all NCE III Students in Federal College of Education, Zaria with a sample size of 234 students (120 male and 114 female).

## Results

Findings of the study are presented in the Table below:

**Research Question One:** Do study habits affect the academic performance of pre-service teachers in the Federal College of Education, Zaria?

**Table 1: Analysis of study habit affects the academic performance of pre-service science teachers**

Statement	SD	D	A	SA	Mean	Std.
Poor study habit adversely affects the learning outcomes of trainee teachers in FCE, Zaria	10	24	97	97	3.23	0.81
Inadequate financial support harms the performance of trainee biology teachers in FCE, Zaria.	12	25	20	171	3.54	0.89
Inadequate Guidance and counselling about study habits leads to the low educational attainment of trainee teachers in FCE, Zaria.	15	56	54	103	3.07	0.98
Lack of interest in one's field of study may cause poor study habits, affecting the scholastic performance of trainee biology teachers in FCE, Zaria	25	50	38	115	3.07	1.08
Extra-curricular activities may lead to poor study habits which could affect trainee Biology teachers in FCE, Zaria.	16	63	75	74	2.91	0.94
<b>Average Responses Mean</b>	16	44	57	112	3.16	0.94

From Table 1: The respondents perceived that poor study habit adversely affects the academic attainment of trainee teachers in FCE, Zaria with a mean rate of 3.23. Inadequate financial support hurts the performance of trainee biology teachers in FCE, Zaria with a mean rate of 3.54. Inadequate guidance and counselling about study habits led to the low academic achievement of trainee teachers in FCE, Zaria with a mean rate of 3.07. Lack of interest in one's field of study may cause poor study habits, affecting the scholastic achievement of trainee biology teachers in FCE, Zaria with a mean rate of 3.07. Extra-curricular activities may lead to poor study habits which could affect trainee Biology teachers in FCE, Zaria with a mean rate of 2.91

**Research Question Two:** Does study habit affect the relationship between time allocation to study and students' learning outcomes of pre-service teachers in the Federal College of Education, Zaria?

**Table 2: Analysis of study habit affects the relationship between time allocation to study and student's academic attainment of pre-service teachers in FCE Zaria**

Statement	SD	D	A	SA	Mean	Std.
Too many extracurricular activities affect the trainee teachers teaching academic performance.	13	23	93	99	3.22	0.85
Insufficient study time is the major factor affecting the academic performance of trainee teachers in FCE, Zaria.	23	41	23	141	3.24	1.07
Study habits of trainee teachers have a direct relationship with time allocation to study in FCE, Zaria,	13	44	39	132	3.27	0.96
Adequate time allocation to study leads to good study habits of trainee teachers in FCE, Zaria.	16	28	18	166	3.46	0.96
The academic performance of pre-service teachers solely relies on time allocation to study in FCE, Zaria.	9	33	73	113	3.27	0.85
<b>Average Responses Mean</b>	15	34	49	130	3.29	0.94

From Table 2: The respondents perceived that too many extracurricular activities affect the pre-service teaching academic performance with a mean rate of 3.22. Insufficient study time is the major factor affecting the academic performance of pre-service teachers in FCE, Zaria with a mean rate of 3.24. Study habits of pre-service teachers have a direct relationship with time allocation to study in FCE, Zaria with a mean rate of 3.27. Adequate time allocation to study leads to good study habits of pre-service teachers in FCE, Zaria with a mean rate of 3.46. The educational attainment of pre-service teachers solely relies on time allocation to study in FCE, Zaria with a mean rate of 3.27

**Research Question Three:** Does study habit affect gender difference among pre-service Biology teachers in Federal College of Education, Zaria?

**Table 3: Does study habit affect gender difference of pre-service Biology teachers in Federal College of Education, Zaria?**

Statement	SD	D	A	SA	Mean	Std.
There is a substantial gap between the study habits of male and female pre-service teachers in FCE, Zaria	1	17	41	169	3.66	0.63
The gender of pre-service teachers has nothing to do with study habits.	12	29	84	103	3.22	0.86
Pre-service female teachers effectively and efficiently use their study time more than their male counterparts in FCE, Zaria.	14	24	22	168	3.51	0.91
Pre-service male teachers considered Biology to be the course of study more than their female counterparts in FCE, Zaria.	12	16	15	184	3.62	0.85
Effective and efficient concentration on studies by pre-service female teachers motivates the male students to concentrate fully on their studies in FCE, Zaria.	14	42	80	92	3.10	0.91
<b>Average Responses Mean</b>	11	26	48	143	3.4220	0.8320

From Table 3 the respondents perceived that there is a statistically significant gap between the study habits of male and female pre-service teachers in FCE, Zaria with a mean rate of 3.66. The gender of pre-service teachers has nothing to do with study habits with a mean rate of 3.22. Pre-service female teachers effectively and efficiently use their study time more than their male counterparts in FCE, Zaria with a mean rate of 3.51. Trainee male teachers considered Biology to be the course of study more than their female counterparts in FCE, Zaria with a mean rate of 3.62. The effective and efficient concentration of studies by trainee female teachers motivates the male students to concentrate fully on their studies in FCE, Zaria with a mean rate of 3.10.

### Hypotheses Testing

**Research Hypothesis One:** There is no notable distinction between the study habits and learning outcomes of pre-service teachers in the Federal College of Education, Zaria.

**Table 4: t-test analysis of significant differences between the study habits and learning outcomes of pre-service teachers in Federal College of Education, Zaria**

Variable	n	Mean	Std.	Df	t-cal	t-crit	p-value	Remark
Agree	169	3.164	0.940	226	6.1133	1.83	0.000	Significant
Disagree	59	0.836	0.060					

The Table above shows that the probability value (0.000) is less than the 0.05 level of confidence. In other words, the t-calculated (6.1133) lies outside the range of +1.83 to -1.83 hence it is significant. The t-value from the table at a 95% confidence interval is 1.83. Since the p-value is 0.0000. This implies that the value is less than the observed

significance value of 0.05. The investigation accepted there is marked difference between the study habits and academic performance of trainee teachers in the Federal College of Education,

**Research Hypothesis Two:** There is no notable difference between study habits on time allocation to study and student's educational attainment of pre-service teachers in Federal College of Education, Zaria.

**Table 5: t-test analysis of marked differences between study habits on time allocation to study and student's academic performance of pre-service teachers in Federal College of Education, Zaria**

Variable	N	Mean	Std.	Df	t-cal	t-crit	p-value	Remark
Agree	179	3.292	0.938	226	8.831	1.96	.0013	Significant
Disagree	49	0.708	0.062					

The Table above indicated that the exact significance level (0.0013) is less than the 0.05 level of confidence. In other words, the t-calculated (8.831) lies outside the range of +1.96 to -1.96 hence it is significant. The t-value from the table at a 95% confidence interval is 1.964. Since the probability value is 0.0013. This implies that the value is less than the significance level of 0.05. The inquiry accepted that there is substantial gap between study habits on time allocation to study and student's educational attainment of trainee teachers in Federal College of Education, Zaria.

**Research Hypothesis Three:** Study habit has no significant effects on gender difference of trainee Biology teachers in Federal College of Education, Zaria

**Table 6: t-test analysis of Study habit and its significant effects on gender difference of pre-service Biology teachers in Federal College of Education, Zaria**

Variable	N	Mean	Std.	Df	t-cal	t-crit	p-value	Remark
Agree	192	3.422	0.832	226	1.215	1.96	0.063	Not Significant
Disagree	36	0.578	0.168					

The Table shows that the p-value (0.063) is greater than the 0.05 significance level, indicating no statistically significant difference. The calculated t-value (1.215) lies within the range of -1.96 to +1.96. Given the p-value and critical t-value (1.964) at 95% confidence, we fail to reject the null hypothesis. Thus, study habits do not significantly influence gender differences among trainee Biology teachers at Federal College of Education, Zaria.

### Summary of Major Findings

1. A significant difference exists between learning habits and academic performance among pre-service teachers at Federal College of Education (p-value = 0.000, t-value = 6.113).
2. Study habits significantly impact educational attainment among pre-service teachers, with notable differences in time allocation (p-value = 0.001, t-value = 8.831).
3. No significant relationship exists between study habits and gender differences among trainee Biology teachers (p-value = 0.063, t-value = 1.215).

### Discussion

Academic achievement is more directly influenced by students' factors and the major influencing students' factors is lack of satisfaction. Study habit refers to the student's skills in learning the subject. Each individual is unique and they possess their study skills in learning different subjects. It is difficult to generate the learning habits of different individuals because of individual differences.

In this study, it was found that the difference between the learning habit and academic performance of trainee teachers in the Federal College of Education is statistically significant with a p-value (0.000, t-value and t-Cal 6.1133 in relationship to these findings Lahaderne (2015) showed a positive correlation.



The investigation accepted that there is a marked difference between study habits on time allocation to study and students' academic performance of trainee teachers in Federal College of Education, Zaria with p p-value is 0.0013 and t-calculated (8.831).

This study found a significant correlation between learning habits and academic achievement among trainee teachers at Federal College of Education (p-value = 0.000, t-value = 6.113). This finding aligns with Hassanbeigi's (2015) research, which showed that students with higher grade point averages ( $\geq 15/20$ ) had significantly better study habits. Similarly, Cheraghian and Moghadem (2017) reported that most students (80.7%) had relatively satisfactory study habits, and found a positive, albeit weak, relationship between study habits and academic performance.

However, our study revealed no significant relationship between study habits and gender among trainee Biology teachers (p-value = 0.063, t-value = 1.215). This contradicts Numan and Hassan's (2017) findings, which suggested female undergraduates had better study habits than their male counterparts.

### Conclusion

The paper concludes that there is a significant disparity between the study habits and learning outcomes of trainee teachers in the Federal College of Education with a probability level of 0.000 and a t-value of 6.1133. The investigation accepted that there is marked difference between study habit on time allocation to study and student's academic performance of trainee teachers in Federal College of Education, Zaria with a p-value is 0.0013 and t-calculated (8.831) and study habit has no significant effects on the gender of trainee Biology teachers in Federal College of Education, Zaria with p-value (0.062) and t-calculated (1.215).

### Recommendations

Based on the above preceding discussion the paper recommends the following:

- i. The students should be properly screened on their level of educational attainment and study habits by the teachers/lecturers through the use of standardized study habits. This will help them to identify students with problems with study habits to institute compulsory courses and academic advice for underachievers to improve their study habits and educational attainment in Biology.
- ii. Biology lecturers should develop a habit of using different methods of teaching biology so that they will carry all the students along since there are individual differences.
- iii. Management of the Federal College of Education, Zaria should provide a conducive learning environment, ICT services and other facilities that encourage the teaching/learning process for a better understanding of the students.
- iv. Individual counselling and academic advising should be strengthened in our higher institutions to monitor students' progress especially those with problems with study habits.

### References

- Aluja, A., & Blanch, A. (2004). Socialized Personality, Scholastic Aptitudes, Study Habits, and Academic Achievement: Exploring the Link. *European Journal of Psychological Assessment*, 20(3), 157–165. <https://doi.org/10.1027/1015-5759.20.3.157>
- Angkarini, T. (2021). Study Habits of Undergraduate Students During Pandemic of Covid-19. *Journal of Learning and Instructional Studies*, 1(1), 37–51. <https://doi.org/10.46637/jlis.v1i1.5>
- Fabunmi, F., & Folorunso, O. (2010). Poor Reading Culture: A Barrier to Students' Patronage of Libraries Selected Secondary School in Ado Local Government Area of Ekiti-State, Nigeria. *African Research Review*, 4(2). <https://doi.org/10.4314/afrrrev.v4i2.58357>
- Fajardo, J. D. R. (2014). La olvidada "EscuelaJesuitica" en la Italia prerromantica. Dela concienciagriolla al nacionalismoemergente (La Provinciadel Nuevo Reino de Granada). *AntiguosJesuitasEnIberoamerica*, 1(2), 3–33. <https://doi.org/10.31057/2314.3908.v1.n2.17582>

- Kaur, A., & Pathania, R. (2015). Study Habits and Academic Performance among Late Adolescents. *Studies on Home and Community Science*, 9(1), 33–35. <https://doi.org/10.1080/09737189.2015.11885430>
- Lahaderne, K. (2015). A relationship between Study Habits and Academic Achievement among Hostel Living and Day Scholars' University Students. *British Journal of Humanities and Social Sciences*, 3(2).
- Numan, A., & Hassan, S. S. (2017). Effect of study habits on test anxiety and academic achievement of undergraduate students. *Journal of Research and Reflections in Education*, 11(1), 1–14. <https://www.researchgate.net/publication/35285037>
- Owens, S. (2018). *Factors Related to Math Anxiety and Performance of Intermediate Pupils in the District of Caibiran* [Theses].
- Peker Ünal, D. (2021). Factors Affecting Study Habits in Higher Education During the Covid-19 Pandemic. *Anatolian Journal of Education*, 6(2), 109–124. <https://doi.org/10.29333/aje.2021.629a>
- Rezaie Looyeh, H., Seyed Fazelpour, S. F., Reza Masouleh, S., Chehrzad, M. M., & Kazem Nejad Leili, E. (2017). The Relationship between the Study Habits and the Academic Performance of Medical Sciences Students. *Journal of Holistic Nursing and Midwifery*, 27(2), 65–73. <https://doi.org/10.18869/acadpub.hnmj.27.2.65>
- Santos Rego, M. Á., Lorenzo Moledo, M., Priegue Caamaño, D., & Torrado Quintela, J. (2020). Variaciones en los hábitos de estudio en función del género y origen étnico-cultural del alumnado y su relación con el rendimiento escolar. *Revista Complutense de Educación*, 31(2), 163–171. <https://doi.org/10.5209/iced.62000>
- Solano, R. (2018). Programa educativo enfocado a las técnicas y hábitos de estudio para lograr aprendizajes sustentables en estudiantes de nuevo ingreso al nivel superior. *Revista Iberoamericana de Educación*, 76(2), 73–94. <https://doi.org/10.35362/rie7622959>