

Undergraduate Students' Study Habits and Academic Performance in Chemistry in Universities

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ABSTRACT

This study investigated the correlation between undergraduate students' study habits and academic performance in chemistry in universities. Four research questions and four corresponding null hypotheses were answered and tested respectively. The research design employed for the conduct of this study was correlational design. The population of the study was made up of all the levels 100-400 chemistry students in the three universities in Rivers State. A sample of two hundred and seventy three (273) levels 100-400 chemistry students was drawn from the population of the study using the stratified random sampling technique. The researcher made use of two instruments to conduct this research. The two instruments the researcher used to collect data were "student study habit questionnaire and students' chemistry performance grade inventory. The two instruments were validated by experts in the field of chemistry. The test retest method was used to obtain a reliability coefficient of 0.78. The data collected was analyzed at 0.05 significant level using linear regression analysis. The finding of the study showed that there was a positive strong relationship between students' attendance to lecture and performance in chemistry, efficiency in delivery of assignment and performance in chemistry, commitment to personal preparatory studies and performance in chemistry, use of library facilities and performance in chemistry. The result also showed that there was a significant relationship between all the study habit variables considered in this study and undergraduate students' performance in chemistry. It was concluded that all the variables of the study habits considered in this study had a positive relationship with students' academic performance in chemistry though in a varied strength and also that a significant relationship exist between students' study habits and academic performance in chemistry. Based on the findings, it was recommended that undergraduate students should be committed to regular and punctual attendance to lectures, efficient in delivery of assignment, personal preparatory studies and use of library facilities.

Keywords: Students, chemistry, academic performance, study habits, correlation

STUDY HABITS AND ACADEMIC PERFORMANCE IN CHEMISTRY AMONG UNDERGRADUATES

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KEY FINDINGS:



LECTURE ATTENDANCE

Strong positive correlation with performance ($r = 0.590$)

Accounts for 34.8% of students' performance



ASSIGNMENT EFFICIENCY

Very strong correlation ($r = 0.81$)

Contributes 69.1% to performance



PERSONAL PREPARATORY STUDY

Strong relationship ($r = 0.550$)

Influences 30.2% of academic outcome



LIBRARY UTILIZATION

Strong positive link ($r = 0.60$)

Explains 43.6% of performance variation

CONCLUSION: Each study habit examined significantly influences chemistry performance. Regular class attendance, timely assignment submission, personal study, and library use all boost academic outcomes - some more than others.

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INTRODUCTION

Chemistry is referred to as the central science which plays a pivotal role in bridging the physical sciences with the life sciences and engineering. It serves as a foundational course in various academic programs, particularly in fields such as medicine, biology, environmental science, and chemical engineering. However, many undergraduate students experience significant challenges in mastering chemistry concepts and achieving satisfactory academic performance. The complexity of chemistry, with its intricate theories, mathematical applications, and laboratory practices, necessitates effective study habits to succeed in this discipline. The essence of enrolling in any academic pursuit is to succeed. There are habits which are essential for any academic pursuit to be successful. Dimkpa and Onuah (2022) asserted that one of the factors that contribute to the success of students in academic is students' study habits.

Study habit is a variable in academic which students are expected to come to terms with in order to achieve academic excellence. Good (2018) defined study habit as the students' way of study. Going by this definition, it literally means that positive study habits produce positive academic performance while negative study habits lead to academic failure. In Nigeria, there are so many factors that influence the ability of students to cultivate positive study habit. Study habits are learning tendencies that enable students to work privately. Udoma (2022) described study habit as the adopted way and manner a student plan his private readings after classroom learning so as to attain mastery of the subject.

Chemistry is an activity subject. Hence, the way it is being thought is important in aiding the students acquire basic chemical knowledge, skills and attitude that will improve their performance and retention of chemical concept in order to solve different problems in life. It therefore becomes imperative that chemistry students should develop and practice good study habits. Good study habits are assets to learners because these habits assist students to attain mastery in area of specialization and consequent excellent performance, while compromised study habits constitute constraints to learning and achievement which leads to failure. However, since study habits are associated with academic performance, Calte (2024) is of the view that it is in the interest of both the students and instructional personnel to provide students with instruction on effective study habits or skills.

Study habits are commonly referred to as regular patterns in approaching study tasks. These patterns are made up of a combination of one or more individual tactics or techniques such as note taking (Ahmadat & Frupala, 2021). When these techniques are used deliberately in particular study situations, they are called study strategies. Study habits refer to the activities carried out by learners during the learning process of improving learning. Study habits are intended to elicit and guide one's cognitive

processes during learning. Study habits are learning tendencies that enable students work privately. Study habits encompass a range of behaviours and strategies that students adopt to enhance their learning processes, including time management, motivation, note taking, class delivery of assignment, resource utilization, and revision techniques. Research has consistently shown that positive study habits are crucial for academic success across various disciplines. In the realm of chemistry, effective study methods can facilitate deeper comprehension of core topics such as stoichiometry, chemical kinetics, and thermodynamics, as well as improve students' problem-solving skills and their ability to conduct experiments. The existing literature highlights a strong correlation between study habits and academic performance of students (Egbujiro & Ajagun, 2019; Uche, 2020; Okore et al. (2023); Enekwechi & Ezeanya, 2021; Abaliku, 2023). Students who engage in active learning strategies, such as self-testing, group study, and elaborate note-taking, tend to achieve higher grades compared to their peers who rely solely on passive learning techniques, such as rote memorization. However, despite the abundance of research across various discipline, there is a noticeable gap in studies specifically exploring the relationship between undergraduate students' study habits and their performance in chemistry courses. Various factors contribute to the variations in study habits among undergraduate students, including personal motivations, socio-economic status, prior knowledge of the course, and access to academic resources (Amaefuna, 2021).

Additionally the digital era has transformed traditional study habits, providing students with diverse learning tools that may either enhance or detract from their academic performance. While technology offers opportunities for interactive learning and access to online resources, it also introduces potential distractions that can impede effective studying. The increasing integration of technology into education provides both opportunities and challenges. Students may utilize digital resources to enhance their study habits, yet this may also lead to distractions that could negatively affect their academic performance in chemistry (Odum & Amadi, 2023).

Furthermore, educational institutions are increasingly tasked with improving students learning outcomes amid rising enrollment numbers and limited academic support resources. Identifying the study habits that correlate with better academic performance in chemistry is essential for developing effective teaching strategies and interventions that can help students navigate the challenges of the discipline. This research study aimed to bridge the gap in the current literature by investigating the specific study habits that have a significant impact on undergraduate students' academic performance in chemistry. By understanding the nuances of the relationship, educators can implement targeted approaches to support students' learning processes, ultimately improving their academic

success in chemistry and fostering a stronger foundation for further studies in science-related fields. In recent years, educational stakeholders have increasingly recognized the critical role of study habits in influencing academic performance of undergraduate students especially in chemistry which require not only understanding of theoretical concepts but also the application of these concepts in practical scenarios. Despite the acknowledged importance of good study habits, there exist considerable variability in how students approach their chemistry coursework, which may directly impact their academic performance. Research indicates that effective study habits are associated with higher academic achievement. However, the relationship between specific study habits and performance in chemistry remains under-explored. This research therefore, was aimed to investigate specific study habits that most positively correlate with academic performance of students in chemistry. The specific study habits that this study investigated were students' attendance to class instruction, students' efficiency in delivery of assignments, students' commitment to personal preparatory study, and use of library facilities.

The aim of this study was to explore how various dimensions of university students' study habits influence their academic performance in chemistry. Specifically, it sought to examine the extent to which class attendance, timely and efficient assignment submission, dedication to personal preparatory studies, and the utilization of library resources relate to students' achievement in the subject.

Research Questions

1. What is the relationship between students' attendance to class instruction and academic performance in chemistry?
2. What is the relationship between students' efficiency in delivery of assignment and academic performance in chemistry?
3. What is the relationship between students' commitment to personal preparatory studies and academic performance in chemistry?
4. What is the relationship between students' use of library facilities and academic performance in chemistry?

Hypotheses

The following four null hypotheses were tested at 0.05 significant level.

H₀₁: There is no significant relationship between students' attendance to class instruction and academic performance in chemistry.

H₀₂: There is no significant relationship between students' efficiency in delivery of assignment and academic performance in chemistry.

H₀₃: There is no significant relationship between students' commitment to personal preparatory studies and academic performance in chemistry.

H₀₄: There is no significant relationship between students' use of library facilities and academic performance in chemistry.

METHODOLOGY

Research design

The study employed a correlational research design, deemed appropriate for examining the statistical relationship between students' study habits and their academic performance in chemistry. This non-experimental design enabled the researcher to assess the direction and strength of association between naturally occurring variables without manipulation or intervention, aligning with the objectives of the study.

Population of the study

The target population comprised all undergraduate chemistry students across levels 100 to 400 in the three publicly recognized universities situated in Rivers State, Nigeria. These institutions represent a significant cross-section of chemistry education in the region and offer a relevant base for assessing study behavior and academic outcomes among undergraduates.

Sample and sampling technique

A sample of two hundred and seventy-three (273) chemistry students spanning levels 100 to 400 was selected from the population using the stratified random sampling technique. The stratification was based on academic level to ensure proportional representation across each stratum (100, 200, 300, and 400 levels), thereby enhancing the representativeness and generalizability of the findings. Randomization within each stratum minimized selection bias.

Instruments for data collection

Two research instruments were developed and utilized for data collection in this study:

1. Students' Study Habit Questionnaire (SSHQ)
2. Students' Chemistry Performance Grade Inventory (SCPGI)

The SSHQ was a structured self-report instrument designed to measure the various dimensions of students' study habits as they relate to academic performance in chemistry. The questionnaire contained twenty (20) items divided into two sections:

- (i) Section A gathered demographic data, including gender, academic level, and age.
- (ii) Section B assessed four critical domains of study habits:

- (iii) Items 1–5: Class attendance behavior
- (iv) Items 6–10: Assignment completion and punctuality
- (v) Items 11–15: Engagement in personal preparatory studies
- (vi) Items 16–20: Utilization of library facilities

Each item in Section B was rated using a modified 4-point Likert scale, with response options designated as:

- (i) Strongly Agree (4)
- (ii) Agree (3)
- (iii) Disagree (2)
- (iv) Strongly Disagree (1)

The second instrument, the SCPGI, was a researcher-designed grade inventory matrix. It was used to extract students' chemistry grades from institutional academic records, focusing on a single core chemistry course for each academic level. This approach ensured consistency and standardization in the measurement of academic performance.

Validity of the instruments

To establish the validity of the instruments, both the SSHQ and SCPGI were subjected to expert review for face and content validity. Two senior lecturers with specialization in chemistry education and educational measurement and evaluation independently assessed the instruments for item clarity, relevance, construct representation, and alignment with the research objectives. Based on their recommendations, modifications were made to refine ambiguous items and improve the construct coverage. This iterative validation process enhanced the credibility and content robustness of the instruments.

Reliability of the instruments

The reliability of the SSHQ was assessed using the test-retest method, which evaluated the instrument's stability over time. The questionnaire was administered twice to 20 undergraduate chemistry students from a university not involved in the main study. The interval between the two administrations was two weeks. The responses were analyzed using the Pearson Product Moment Correlation (PPMC), yielding a correlation coefficient of $r = 0.80$, which indicated a high level of internal consistency and temporal stability. Similarly, the reliability of the SCPGI was established through expert scrutiny and preliminary pilot testing, resulting in a reliability coefficient of $r = 0.78$, confirming its adequacy for capturing academic performance data reliably.

Method of data collection

Data collection was carried out with the assistance of three trained research assistants. The SSHQ was administered in person to the selected participants during scheduled

class hours to ensure maximum response rate. Respondents completed and returned the questionnaires on the spot to prevent loss or damage. The SCPGI was used to retrieve the chemistry grades of the sampled students from institutional academic records, with necessary permissions obtained from relevant authorities to access such data.

Method of data analysis

The data collected from the SSHQ and SCPGI were collated and analyzed using inferential statistical techniques. Specifically, simple linear regression analysis was employed to determine the extent and nature of the relationship between students' study habits and their academic performance in chemistry. The regression model allowed for the prediction of academic performance based on identified study behavior metrics. All statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 25.0, with significance levels set at $p < 0.05$.

RESULTS

Research Question 1: What is the relationship between students' attendance to class instruction and academic performance in chemistry?

The data in (Table 1) showed the relationship between students' attendance to class instruction and academic performance in chemistry. The table showed that the coefficient of relationship between students' attendance to class instruction and academic performance in chemistry was 0.590 which indicated a strong positive relationship while the R-squared value of 0.348 indicated that students' attendance to class instruction accounted for about 34.8% of their academic performance in chemistry.

Table 1: Summary of relationship between students' attendance to class instruction and academic performance in chemistry

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.590 ^a	0.348	0.346	3.19516

a. Predictors: (Constant), Students' Attendance to Class Instruction

Research Question 2: What is the relationship between students' efficiency in delivery of assignment and academic performance in chemistry?

The data in (Table 2) showed the relationship between students' efficiency in delivery of assignment and academic performance in chemistry. The table showed that the coefficient of relationship between students' efficiency in delivery of assignment and academic performance in chemistry is 0.831 indicating a very strong positive relationship while the R-squared value of 0.691 indicated that students' efficiency in delivery of assignment accounted for about 69.1% of their academic performance

Table 2: Summary of relationship between students' efficiency in delivery of assignment and students' academic performance in chemistry

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.831 ^a	0.691	0.691	2.19765

a. Predictors: (Constant), Students' Efficiency in Delivery of Assignment.

in chemistry.

Research Question 3: What is the relationship between students' commitment to personal preparatory studies and academic performance in chemistry?

The data in Table 3 showed the relationship between students' commitment to personal preparatory studies and academic performance in chemistry. The table showed that the coefficient of relationship between students' commitment to personal preparatory studies and academic performance in chemistry was 0.550 indicating a strong positive relationship while the R-square value was 0.302 indicating that students' commitment to personal preparatory studies accounted for about 30.2% of their academic performance in chemistry.

Table 3: Summary of the relationship between students' commitment to personal preparatory studies and academic performance in Chemistry.

Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate
1	0.550 ^a	0.302	0.300	3.30410

a. Predictors: (Constant), Students' Commitment to Personal Preparatory Studies.

Research Question 4: What is the relationship between students' use of library facilities and academic performance in chemistry?

The data in Table 4 showed the relationship between students' use of library facilities and academic performance in chemistry. The table showed that the coefficient of relationship between students' use of library facilities and academic performance in chemistry was 0.660 indicating a strong positive relationship while the R-squared value was 0.436 indicating that students' use of library facilities accounts for about 43.6% of their academic performance in chemistry.

Table 4: Summary of Pearson product moment correlation on the relationship between students' use of library facilities and academic performance in chemistry.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.660 ^a	0.436	0.435	2.97064

a. Predictors: (Constant), Students' Use of Library Facilities

H₀₁: There is no significant relationship between students' attendance to class instruction and academic performance in chemistry.

The data in Table 5 showed the coefficient of relationship which exist between students' attendance to class instruction and academic performance in chemistry. From Part A, the F-statistic showed that there is a significant relationship between students' attendance to class instruction and academic performance in chemistry $F_{1,272}=205.064$, $p<.05$. Therefore, the null hypothesis one was rejected at 0.05 alpha level. The regression equation $y=8.329-1.385x$ in Part B indicated that an increase in students' attendance to class instruction will lead to an increase in their academic performance in chemistry. Also, in Part B, the column labelled t under students' attendance to class instruction (14.320) confirmed the significance of F-statistic with Sig<0.05.

Table 5: Summary of regression analysis on the relationship between students' attendance to class instruction and academic performance in chemistry.

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2093.514	1	2093.514	205.064	0.000 ^b
1 Residual	3930.491	272	10.209		
Total	6024.005	273			

a. Dependent Variable: Academic Performance in chemistry
b. Predictors: (Constant), Students' Attendance to Class Instruction

Table 5 Contd.

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B Lower Bound Upper Bound
	B	Std. Error	Beta			
(Constant)	8.329	1.859		4.480	0.000	4.674 11.984
1 Students' Attendance to Class Instruction	-1.385	0.097	0.590	-14.320	.000	1.194 1.575

a. Dependent Variable: Academic Performance in chemistry

H₀₂: There is no significant relationship between students' efficiency in delivery of assignment and academic performance in chemistry.

The data in Table 6 showed the coefficient of relationship which exist between students' efficiency in delivery of assignment and academic performance in chemistry. From Part A, the F-statistic shows that there is a significant relationship existing between students' efficiency in delivery of assignment and academic performance in chemistry $F_{1,272}=862.296$, $p<.05$. Therefore, the null hypothesis two was rejected at 0.05 alpha level. The regression equation $y=4.597-1.626x$ in Part B indicated that an increase in students' efficiency in delivery of assignment will lead to an increase in their academic performance in chemistry. Also, in Part B, the column labelled t under students' efficiency in delivery of assignment (29.365) confirmed the significance of F-statistic with Sig<0.05.

H₀₃: There is no significant relationship between students' commitment to personal preparatory studies and academic performance in chemistry.

Table 6: Summary of regression analysis on the relationship between students' efficiency in delivery of assignment and students' academic performance in chemistry.

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4164.590	1	4164.590	862.296	0.000 ^b
1 Residual	1859.415	272	4.830		
Total	6024.005	273			

a. Dependent Variable: Academic Performance in chemistry
 b. Predictors: (Constant), Students' Efficiency in Delivery of Assignment

Table 6 Contd.

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Beta	Lower Bound
(Constant)		4.597	1.036		4.436	0.000	2.559	6.634
1 Students' Efficiency in Delivery		1.626	0.055	0.831	29.365	0.000	1.517	1.734

a. Dependent Variable: Academic Performance in chemistry

Table 7: Summary of regression analysis on the relationship between students' commitment to personal preparatory studies and academic performance in chemistry.

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	1820.932	1	1820.932	166.797	0.000 ^b	
1 Residual	4203.073	272	10.917			
Total	6024.005	273				

a. Dependent Variable: Academic Performance in Chemistry
 b. Predictors: (Constant), Students' Commitment to Personal Preparatory Studies

Table 7 Contd.

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error				Beta	Lower Bound
(Constant)		14.961	1.549		9.659	0.000	11.916	18.007
1 Students' Commitment to Personal Preparatory Studies		1.055	0.082	0.550	12.915	0.000	0.894	1.215

a. Dependent Variable: Academic Performance in chemistry

The data in (Table 7) showed the coefficient of relationship which exist between students' commitment to personal preparatory studies and academic performance in chemistry. From Part A, the F-statistic shows that there is a significant relationship between students' commitment to personal preparatory studies and academic performance in chemistry $F_{1,272}=166.797$, $p<.05$. Therefore, the null hypothesis three was rejected at 0.05 alpha level. The regression equation $y=14.961-1.055x$ in Part B indicated that an increase in students' commitment to personal preparatory studies will lead to an increase in their academic performance in chemistry. Also, in Part B, the column labelled t under students' commitment to personal preparatory studies (12.915) confirmed the significance of F-statistics with $Sig<0.05$.

H₀₄: There is no significant relationship between students' use of library facilities and academic performance in chemistry.

The data in (Table 8) showed the coefficient of relationship which exist between students' use of library facilities and

academic performance in chemistry. From Part A, the F-statistic showed that there is a significant relationship between students' use of library facilities and academic performance in chemistry $F_{1,272}=297.630$, $p<.05$. Therefore, the null hypothesis four was rejected at 0.05 alpha level. The regression equation $y=10.986-1.287x$ in Part B indicated that an increase in students' use of library facilities will lead to an increase in an increase in their academic performance in chemistry. Also, in Part B, the column labelled t under students' use of library facilities (17.252) confirmed the significance of F-statistic with $Sig<0.05$.

DISCUSSION

The finding in Table 1 showed that the coefficient of relationship between students' attendance to class instruction and academic performance in chemistry was 0.590 while the R-squared value was 0.348 thus, indicating that students' attendance to class instruction accounted for about 34.8% of their academic performance in chemistry. When subjected to statistical analysis, the

Table 8: Summary of regression analysis on the relationship between students' use of library facilities and academic performance in chemistry.

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2626.496	1	2626.496	297.630	0.000 ^b
Residual	3397.510	272	8.825		
Total	6024.005	273			

a. Dependent Variable: Academic Performance in chemistry
 b. Predictors: (Constant), Students' Use of Library Facilities

Table 8 Contd.

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	10.986	1.391		7.896	0.000	8.250	13.721
¹ Students' Use of Library Facilities	1.287	0.075	0.660	17.252	0.000	1.140	1.434

a. Dependent Variable: Academic Performance in chemistry

F-statistic showed that a significant relationship exist between students' attendance to class instruction and academic performance in chemistry, $F_{1,272}=205.064$, $p<.05$. Therefore, the null hypothesis one was rejected at 0.050 significant level. The regression equation $y=8.329-1.385x$ in Part B, indicated that an increase in students' attendance to class instruction will lead to an increase in their academic performance in chemistry and also a decrease in students' attendance to class instruction will lead to a decrease in their academic performance in chemistry. This finding agrees with that of Joseph and Dada (2022), Apenmom (2020).

The data in Table 2 showed that the coefficient of relationship between students' efficiency in delivery of assignment and academic performance in chemistry is 0.831 while the R-squared value is 0.691 indicating that students' efficiency in delivery of assignment accounts for about 69.1% of their academic performance in chemistry. When subjected to statistical analysis, the F-statistic showed that there is a significant relationship between students' efficiency in delivery of assignment and academic performance in chemistry $F_{1,272}=862.296$, $p<.05$. Therefore, the null hypothesis two was rejected at 0.05 significant level. The regression equation $y=4.597-1.626x$ in Part B, indicated that an increase in students' efficiency in delivery of assignment will lead to an increase in their academic performance in chemistry and also a decrease in students' efficiency in delivery of assignment will lead to a decrease in their academic performance in chemistry. This finding is in line with Bongoka (2022) whose research findings revealed that students who participate in assignment and take home project/home work performed academically better than students who do not participate in assignment and take home project/home work. When students participate in assignment and take home project/home work, it increases their academic performance because teachers mark the assignments and homework which exposes the students' weaknesses and strength in the subject. The weaknesses of students are then remediated by the teacher using innovative instructional strategies.

The third finding of this study showed that the coefficient of relationship between students' commitment to personal preparatory studies and academic performance in chemistry was 0.550 while the R-squared value is 0.302 which indicated that students' commitment to personal preparatory studies accounts for about 30.2% of their academic performance in chemistry. When this finding was subjected to statistical analysis, the F-statistic showed that a significant relationship exist between students' commitment to personal preparatory studies and academic performance in chemistry $F_{1,272}=166.797$, $p<.05$. Therefore, the null hypothesis three was rejected at 0.05 significant level. The regression equation $y=14.961-1.055x$ in Part B, indicated that an increase in students' commitment to personal preparatory studies will lead to an increase in their academic performance in chemistry and also a decrease in students' commitment to personal preparatory studies will lead to a decrease in their academic performance in chemistry. This finding is in line with Holmes (2021) who carried out a study on students' commitment to personal preparatory studies and academic performance of students in chemistry and found out that the students who were committed to personal preparatory studies achieved academically better than those that were not committed to personal preparatory studies. The research findings of Ogba (2019), Chukwuemeka and Oladayo (2021), are also in agreement with this present finding which revealed that students' commitment to personal preparatory studies has a strong positive relationship with students performance in chemistry and that there was a significant relationship between students commitment to personal preparatory studies and their academic performance. It can be said thus, that students' commitment to personal preparatory studies is a very crucial factor in the success of any academic pursuit and that when wrongly managed it is possible to produce a negative outcome but has a positive outcome if properly planned.

The fourth finding showed that the coefficient of relationship between students' use of library facilities and academic performance in chemistry is 0.660 while the R-

squared value is 0.436 indicating that students' use of library facilities accounts for about 43.6% of their academic performance in chemistry. When subjected to statistical analysis, the F-statistic shows that there is a significant relationship between students' use of library facilities and academic performance in chemistry $F_{1,272}=297.630, p<.05$. Therefore, the null hypothesis four was rejected at 0.05 significant level. The regression equation $y=10.986-1.287x$ in Part B, indicated that an increase in students' use of library facilities will lead to an increase in an increase in their academic performance in chemistry and vice versa. This result agrees with the research findings of Tallabuna (2022), whose research findings revealed that the relationship between students' utilization of library facilities and academic performance of students is strong and positive and also that there is a significant relationship between students' utilization of library facilities and academic performance in chemistry. However, this result disagreed with findings of Onifade (2019) whose result showed that students' utilization of library facilities and academic performance is not have no significant relationship.

Based on the study's findings, it was concluded that students' study habits—including class attendance, assignment submission efficiency, commitment to personal study, and library use—are all positively associated with their academic performance in chemistry, though the strength of these relationships varies. The results affirm that cultivating effective study habits plays a significant role in enhancing students' achievement in the subject. Consequently, students should be motivated to attend lectures regularly and punctually, engage more actively in independent study, utilize library facilities effectively, and receive guidance from academic counsellors to develop strong and sustainable study strategies.

REFERENCES

- Abalikwu, N. (2023). Study habits and junior secondary school students in basic science and technology. *Journal of Education and Counselling*, 2(4), 102-110.
- Ahmadat, S., & Frupala, W. P. (2021). *Techniques of science learning skills*. Golman and Perce Publishers
- Amaefuna, B. (2021). *Access to educational resources*. Kids and Peers Press.
- Apenmom, H. (2020). Impact of study skills on the academic performance of students in chemistry. *Journal of Academic Learning*, 5(2), 82-90.
- Bongoka, L.S. (2022). Study skills and students' achievement in basic science skills *Journal of Educational Advancement*, 2(2), 167-173.
- Calte, B. (2024). *Essentials of science education*. Abamio Book Press.
- Chukwuemeka, N.B., & Oladayo, G. (2021). Impact of student habits on the academic performance and retention of chemistry. *Journal of Academic Learning*, 6(1), 21-29.
- Dimkpa, B. S., & Onuah, K. D. (2022). *Introductory skills to teaching*. Mariam Printing Press.
- Egbujiro, C. J., & Ajagun, G. (2019). Measures of students' study habit as predictors of academic achievement in chemistry. <https://www.bsum.edu.org>
- Enekwechi, E. E., & Ezeanya, M. C. (2021). Study habit as a predictor of secondary school students' achievement in chemistry in Anambra

- State. *International journal of Education and Evaluation*, 9(2), 36-40.
- Good, A. A. (2018). *Determinants of successful education*. Celtik Publishers.
- Holmes, R. (2021). Study habits and students' academic achievement in chemistry. *Journal of Environmental Science Education*, 7, 59-70.
- Joseph, O., & Dada, A. D. (2022). Influence of senior secondary school students' study skills on the chemistry performance of students. *Journal of Learning and Social Acts*, 4(1), 16-22.
- Odum, H., & Amadi, F. V. (2023). *Basic chemistry*. Wholesome Publishers
- Ogba, V. F. (2019). Assessing the impact of senior secondary school students' study habits and their academic achievement in chemistry in the present digital era. *Journal of digital computing and Instruction*, 5, 71-80.
- Okore, G., Uchegbu, R., Ibe, C., Omerekpe, G., Affiah, D., & Bestman, P. (2023). Perception of students on the influence of study habits on academic achievement of senior secondary school students in chemistry in Abia State. <https://www.iosrjournals.org>
- Onifade, S. S. (2019). Study patterns and students' achievement in chemistry in Oyo State. *Multidisciplinary Journal of Science Education*, 7(9), 201-212.
- Tallabuna, E.U. (2022). Analysis of the factors for the successful laboratory practices in chemistry in tertiary institutions. *Education Providers and Students' Perspectives*, 1, 82-95.
- Uche, K. (2020). Relationship between study habits and academic achievement of secondary school II students in chemistry in Aguata local government area of Anambra State. <https://www.paper.ssrn.com>
- Udoma, T. (2022). *Predictors of subject mastery*. Abamio Book Press.