Impact of Hostel Amenities on Students' Academic Performance in Federal Universities in North East, Nigeria

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Abstract

Determining the impact of hostel amenities on student academic performance is crucial given the increasing demand for excellence among students. However, there has been limited research conducted in Northern universities on this issue. This paper aimed to evaluate the impact of hostel amenities on students' academic performance in Federal Universities in North East Nigeria, intending to provide guidance for the provision of adequate amenities and services to enhance student satisfaction in their hostels. The population for this study consisted of students residing on campus in the study area, totaling 32,256 across seven federal university hostel blocks. A sample size of 2,700 students was selected for data collection using a proportional sampling technique based on the hostel blocks. A five-point Likert scale questionnaire was used as the data collection instrument, and pretesting surveys were conducted to validate the questionnaire. The collected data were analyzed using regression analysis. The findings indicated that amenities such as electricity supply, bathrooms, sporting facilities, recreational facilities, common rooms, wardrobes, internet services, surveillance cameras, wall sockets, whiteboards, fans, and plumbing showed positive coefficients with p-values less than 0.05, indicating a positive and significant effect on students' academic performance. Additionally, the results revealed that amenities like toilets, fire extinguishers, and laundry services had a weak negative impact on the relationship between amenity provision and students' academic performance. The study recommends regular assessments and feedback mechanisms to identify areas for improvement. Regular evaluations and students engagement strategies will facilitate informed decision – making and resource allocation and address any issues immediately, especially with critical amenities like water supply, showers, and kitchen equipment. Delays in repairs can worsen the problem and lead to higher costs.

Key words: Student hostel, Satisfaction, Student Performance, Amenities Provision

1.0   Introduction

Students' academic performance is impacted by several factors, including their living conditions. Hostel amenities, in particular, play a significant role in shaping their academic experience. This study examines the influence of hostel amenities on the academic performance of students in Federal Universities in North East Nigeria. Research suggests that proper hostel amenities boost students' comfort, well-being, and academic productivity, while inadequate living conditions can negatively affect academic success. Studies by Aithal and Aithal (2019) and Mbazor (2021) highlight that hostel accommodations and amenities are a major concern for university students worldwide. These facilities are critical in determining how effectively students engage with their academic work on campus. The quality and availability of hostel amenities have a direct effect on both students' academic performance and their overall well-being, making this an important topic of study. A comfortable living environment promotes focus and supports academic engagement, making it essential to understand and enhance the factors that contribute to student satisfaction in hostels.

Hostel amenities generally consist of basic necessities such as water, electricity, security, laundry services, internet access, cafeterias, parking spaces, health services, and wardrobes. According to Sa'ad (2021), students require a comfortable environment to unwind after classes in order to fully engage in lectures and other school activities. Ensuring the availability, upkeep, and proper management of these hostel amenities is essential for students' academic success.

Universities across the country must prioritize providing sufficient and functional amenities to improve student hostel life and enhance the overall university experience. Georger (2017) and Rahman et al. (2020) highlighted the crucial role that well-maintained hostel accommodations play in helping students attend lectures, participate in school activities, and carry out research. Improving the quality of life in student hostels requires addressing key issues related to the availability and distribution of suitable accommodations. Consequently, this study aims to assess the condition of hostel amenities to determining its effects on students' academic performance.

2.0   Literature Review
2.1   Determinant of Students' academic performance

Several factors influence students' academic performance, including socioeconomic background, quality of teaching, learning environment, and personal motivation. Students from low socioeconomic backgrounds often face challenges like poor nutrition, insufficient resources, and a lack of parental support, all of which can negatively affect their academic performance. In contrast, students from wealthier backgrounds tend to have access to better resources and support, which can positively influence their academic success. Additionally, the quality of teaching plays a crucial role in determining academic performance. Teachers who are knowledgeable can foster a positive learning environment, significantly impacting student outcomes (Lund et al., 2019).

Online learning, however, can have negative effects, such as time wasted due to poor internet connectivity, inadequate course content, lack of proper supervision, and a lack of group discussions with peers (Anthonia, 2014). In a study conducted by Anthonia (2014), the impact of off-campus living on students' academic performance in Abia State was examined. Data was collected using a structured questionnaire and analyzed with descriptive statistics. The findings revealed that a lack of care from relatives and family members negatively influenced students' academic performance. Based on these findings, the study concluded that parents need to spend more time listening to their children's concerns and provide appropriate support.

Chaudhry (2011) examined the factors influencing students' academic performance in a metropolitan area in Pakistan. A questionnaire was distributed to participants, and data were analyzed using ANOVA to identify factors affecting performance. The findings indicated that parents' socioeconomic background and education level were the most significant factors, with parental education contributing greatly to student performance. Ali (2013) explored the factors influencing academic achievement in mathematics departments at a southern Nigerian university. A random sample of 100 students from each school was selected, and data were analyzed using their second-semester results from 2011/2012 through mean, standard deviation, and percentages. The results showed that Kaduna state University students performed slightly better than Collageof education students. Hamza and Abdulghani (2014) identified factors that contribute to students' success in medical studies, such as attending lectures, participating in focus groups, completing tests and assignments, revision, learning skills, note-taking, learning from patient interactions, time management, and family support. The study concluded that these factors, which are common to various students, could help improve academic performance. However, the study lacked an in-depth analysis of the university system's role in student performance.

2.2.1 Hostel amenities and academic performance

Hostel amenities can greatly influence students' academic performance. Students living in hostels with comfortable conditions, such as clean and well-maintained facilities, tend to focus better on their studies and achieve higher academic results. In contrast, students living in hostels with poor conditions, such as lack of internet access, overcrowding, insufficient lighting, and limited privacy, may struggle to concentrate and perform well academically (Animba & Nneji, 2020). Furthermore, hostels that offer resources like study areas, computer labs, and free parking can contribute to students' academic success (Ramli, Zain, Campus, Chepa, & Bharu, 2018). As noted by Animba et al. (2020), hostel amenities are essentially those that enhance the comfort of the residents. Silalahi (2020) categorized hostel amenities into two stages: those meant for students and those for administrative staff.

Maponya (2020) emphasized that the primary goal of providing hostel amenities is to support students' activities and ensure their comfort, which in turn can boost their academic performance (Ramli et al., 2018). Similarly, Nepal (2016) argued that hostel amenities enhance the effectiveness of teaching in schools. However, inadequate physical amenities can negatively affect students' interest in learning. Insufficient amenities have been shown to reduce students' motivation to learn, leading to a decline in their interest (Maponya, 2020).

Mlambo (2011) highlighted that students' academic success can be evaluated through various factors, such as gender or grades. Many studies have shown that a lack of amenities can cause a decline in academic performance. In line with this, Ramli et al. (2018) stated that students residing in newer hostels with better amenities tend to perform better academically than those living in older hostels with insufficient facilities. Abisuga, Wang, and Sunindijo (2019) revealed that the condition of hostel amenities directly affects students' academic success, with students in well-maintained hostels achieving higher marks compared to those in poorly maintained accommodations. Additionally, Herman, Reinke, Dong, and Bradshaw (2022) pointed out that the design of hostels is another important factor in improving student achievement.

The arrangement of classroom furniture also impacts academic performance. Creating a learning environment where students feel comfortable and supported is crucial. Previous studies have found that female students tend to feel more at ease when the classroom is arranged in clusters or rows, as these setups create a more intimate and personal atmosphere that fosters communication and collaboration.

However, Simmons, Carpenter, Crenshaw, and Hinton (2015) argued that classroom arrangements in clusters and rows can sometimes lead to disruptive behavior and distract students from their tasks. Additionally, Ramli et al. (2018) noted that students living in hostels with newer and functional amenities tend to perform better than those in older, nonfunctional accommodations, which can negatively impact their studies. Previous research has indicated a significant correlation between the school environment and students' behavior toward learning. Langer (2000) found that students achieve better academic results when they reside in well-organized and maintained hostels. A supportive living environment can foster greater involvement in academic activities, suggesting that the quality of hostels plays a crucial role in students' academic success.

At the same time, Souck and Nji (2017) examined how inadequate supervision and a lack of maintenance culture affect the lifespan of amenities. This highlights the importance of effective supervision of facilities, including buildings and technical systems, to ensure that amenities operate smoothly and efficiently. Ramli et al. (2018) emphasized that a properly estimated repair plan should be established to ensure efficient allocation of repair costs and proper functioning of amenities. Effective management of school facilities is essential for helping institutions achieve their goals and objectives. In a similar vein, Durán-Narucki (2008) pointed out that insufficient amenities can lead into poor student attendance in classes, ultimately weakening academic performance. Nduka, Oyeyemi, Olofinnade, Ede, and Worgwu (2021) explained that institutions with inadequate indoor recreational areas in hostels may hinder students' ability to study effectively in classrooms, resulting in some students missing classes due to health-related issues.

2.2.3 Relationship between Academic Performance and Amenities Provided

In a recent study, Asibu (2021) explored the factors affecting the academic success of medical students at the University of Cape Town. The findings revealed that the availability of amenities in hostels has a significant impact on students' academic performance and is crucial to their achievements. It is widely acknowledged that providing adequate amenities is essential for student

satisfaction, which in turn leads to improved academic outcomes. Jamelske (2009) reported on research conducted in North America regarding amenities in student residence halls. The study found that students living in dormitories achieved higher GPAs, maintained their grades more effectively, enrolled in more credit hours, and formed better connections with faculty due to the facilities available to them.

Nabaseruka (1997) also demonstrated a strong link between amenities and academic success, indicating that schools with superior hostel accommodations had students who achieved higher grades compared to those in schools with inadequate facilities. Similarly, Moore (2000) found that students who chose on-campus amenities generally performed better academically, attributing this to the convenience of being close to classrooms, as well as access to quality amenities and privacy. As a result, many students preferred to live on campus for its proximity to academic resources and comfortable living conditions.

2.2.4   Impact of Hostel Amenities on Students' Academic Performance

Maina and Aji (2017) investigated the influence of hostel amenities on the academic performance of architecture students. They conducted surveys and analyzed the data using a relative satisfaction index to assess the impact of factors such as cleanliness, power supply, water availability, and overcrowding on academic achievements. The results indicated that amenities play a vital role in academic success, with room size significantly affecting student performance. The study recommends that policymakers and amenities managers enhance current practices to improve living conditions on campus and plan for future accommodation needs.

Mbazor (2021) examined how the quality of campus housing and its amenities impact students' academic performance at the Federal University of Technology, Akure, Nigeria. The analysis showed a positive correlation between academic performance and the quality of housing amenities. This study suggests that the living environment can significantly influence students' ability to concentrate and succeed academically.

Previous research on the relationship between hostel amenities and academic success has produced mixed results. Thompson, Samiratedu, and Rafter (1993) studied the impact of living on campus among first-year college students and found that those residing on campus had higher retention rates, better academic progress, and greater academic achievement. Agron (1997) noted that research conducted in North America indicates that students living in university accommodations generally have higher GPAs, improved retention rates, take on more course credits, form connections with faculty members, engage in student leadership, and participate in campus activities.

Nabaseruka (1997) highlighted the negative effects of inadequate accommodations on students' academic success, showing that schools with better amenities were associated with superior student performance compared to those with lower-quality facilities. Additionally, studies indicate that students living in on-campus hostels tend to achieve higher GPAs than those in off-campus

accommodations due to easier access to university resources like computers, IT facilities, clubs, gyms, and extracurricular activities (Araujo and Murray, 2010; Owolabi, 2015).

Contrary to popular belief, Delucchi (1993) found in a study conducted in a college town that students living off-campus, within walking distance of their lecture halls and university resources, did not demonstrate a significant difference in academic achievement compared to those living on campus. Furthermore, Zhao and Kuh (2004) suggested that student's satisfaction with their living arrangement and the amenities provided by the university could also influence academic performance.

The allocation of hostels in public universities is crucial for determining students' academic performance. Respondents expressed varied opinions on how hostel allocations should be managed. Many opposed assigning rooms on a first-come, first-served basis, believing students should be allocated rooms based on need rather than arrival time. Some respondents argued that larger rooms should accommodate more students, while others disagreed and felt that the number of occupants should not exceed the room's capacity.

In contrast, opinions differed regarding smaller rooms, with some advocating for fewer students per smaller space and others seeing no need for such limitations. Respondents emphasized that hostel administrators should ensure a fair allocation process, free from bias or favoritism. They believed that room assignments should be made immediately upon admission, with a fair distribution based on need rather than personal connections. This finding aligns with Aluko (2011), who stated that the recommended occupancy ratio according to British standards is two persons per room. These rooms should meet high standards and be allocated fairly, as such practices impact students' academic performance.

3.0 Area of Study

North-East region of Nigeria is one of the country's six geopolitical zones and it comprises he following states: Adamawa, Bauchi Borno, Gombe, Taraba and Yobe States. The region have total number of around 30 million people, which is about one-third of Nigeria's total area and had a population as of 2011 of 23,558,674 or 13.5% of the country's population. The people living are mainly Fulani, with only the Borno state having Kanuri tribe as a majority, with about 100 minority ethnic groups. There are seven total number of federal Universities in the north east where by each state has the total number of one federal university except Borno State with has two federal Universities, Federal University Azare in Bauchi state is excluded being a newly established university. The amenities to consider in North East Universities students hostel include water supply, electricity, internet, etc as well as other amenities provided in the hostels for students.

4.0 **Fig 1**: Map of   North East States (case study area) showing specific universities location
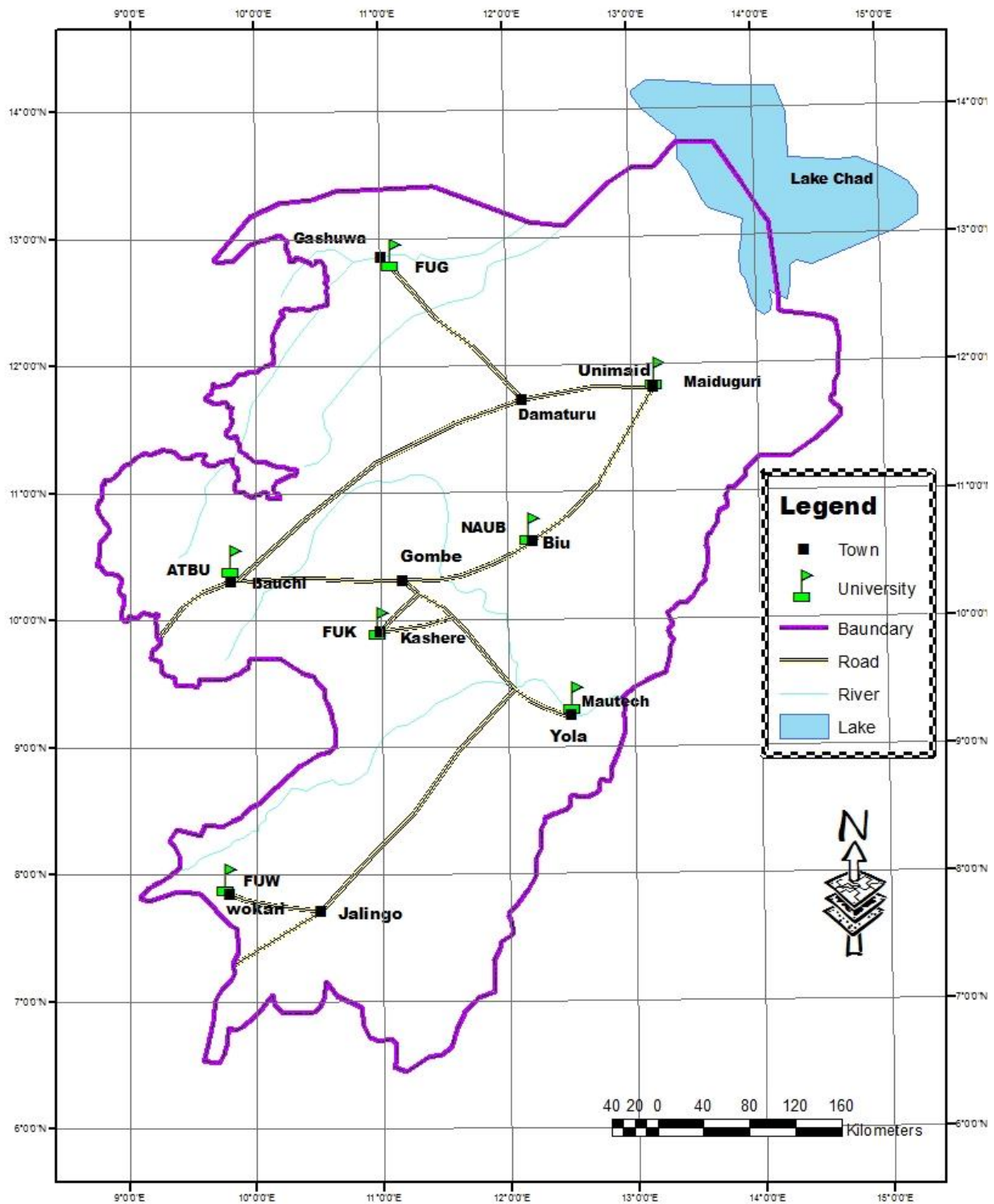
5.0 Fig; 2   Specific location of North East Federal Universities in Nigeria

4.0 Methodology
4.1 Data collection and Sources

In achieving the study's objective, data were gathered from 2,700 participants using a structured questionnaire. The collected data underwent multiple regression and ANOVA analyses. To validate the instrument, reliability and validity studies were conducted. On the other hand, this study adopted a survey research strategy, which involves collecting data through a questionnaire. The survey method encompasses the complete set of techniques used to conduct survey research, collect, and manage data (Lynn, Erens & Sturgis, 2012). This approach was utilized to analyze the data gathered in order to address the research questions, which are descriptive, correlational, and associational in nature. Table 2 presents sample size of each University

Table 2: Sample size of each University students

S/N	State	University	Students population	Sample Size
1	Bauchi	Abubakar Tafawa Balewa University Bauchi	6,260	450
2	Gombe	Federal University Kashere	5,452	450
3	Adamawa	Modibo Adama University of Technology Yola	4,927	400
4	Taraba	Federal University Wukari	3,750	400
5	Yobe	Federal University Gashuwa	2,379	300
6	Maiduguri	University of Maiduguri	7,677	500
7	Maiduguri	Nigerian Army University Biu	1,811	200
	Total		**32,256**	**2,700**

5.0   Result and Discussion

Pre-processing of data is crucial for model fitting especially for regression Analysis. Issues such as normality test, Probability Plot (p – p) of Regression Standard Residuals, Scatterplot, linearity homoscedasticity and reliability tests are discussed before the determination of the impact of hostel amenities on student academic performance.

Table 1: ANOVA Table

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	453.284	31	14.622	31.359	.000
	Residual	1230.971	2640	.466		
	Total	1684.255	2671			

a. Dependent Variable: Students' Academic Performance

Source: Researcher's computation using SPSS version 23

Table 1 presents the analysis of variance (ANOVA) results which was used to evaluate the overall significant of the fitted regression model. The $F_{(31, 2640)} = 31.359$, $p < 0.05$ indicates that the regression model is significant in predicting students' academic performance. This implies that at least one of the hostel amenities provided have significant ant impact on students' academic performance.
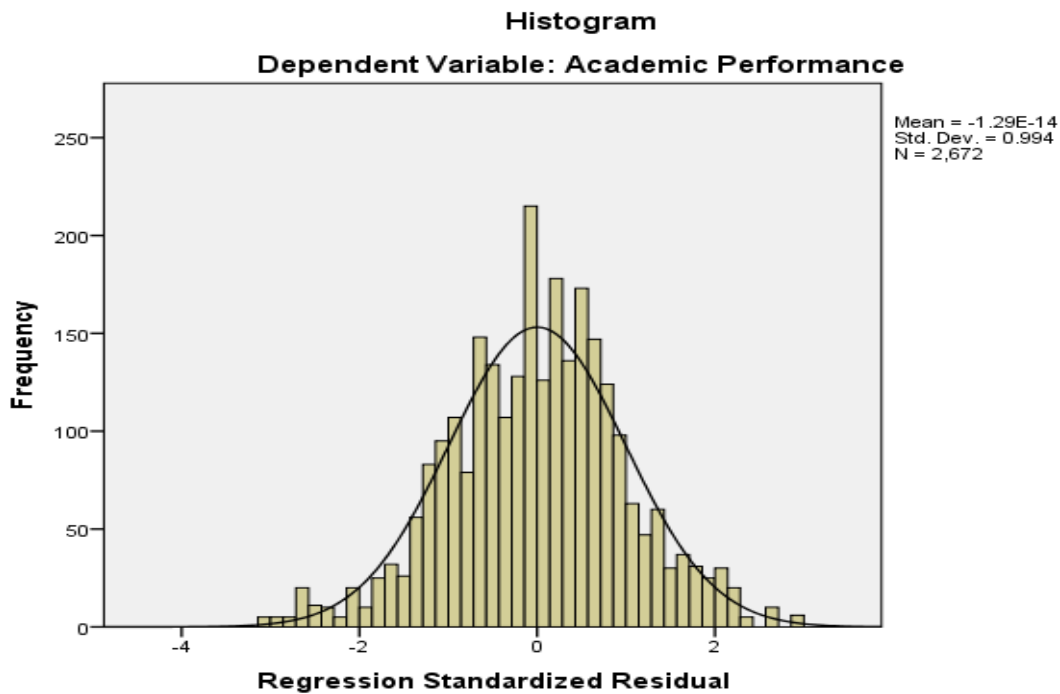

Fig. 1 Histogram Plots of Regression standardized Residuals

Figure 1 displays a histogram illustrating the distribution of standardized residuals from a regression model where academic performance is the dependent variable. The X-axis indicates the standardized residuals, which represent the deviation of actual values from predicted values in terms of standard deviations. Residuals close to zero imply that the model's predictions align well

with actual academic performance, while extreme positive or negative residuals indicate significant discrepancies. The Y-axis shows the frequency of these residual values in the dataset. The histogram reveals a symmetrical distribution centered around zero, with a greater concentration of residuals near the center and a gradual decrease towards the extremes.

The mean residual is nearly zero (approximately -1.29e-14), suggesting that the residuals are, on average, centered around zero, which indicates a well-fitting model. With a standard deviation of 0.994, most residuals lie within one standard deviation of the mean. The distribution closely resembles a normal curve, as shown by the overlaid normality line that closely follows the shape of the bars. This near-normal distribution indicates that the regression model's assumptions, especially the assumption of normally distributed errors, are largely satisfied, which is a positive sign for the model's reliability.

In terms of the model fitness, the residuals' symmetry and the mean being close to zero imply that the model provides unbiased and accurate predictions for academic performance. Overall, the histogram suggests that the regression model is a good fit, with normally distributed residuals and no significant skewness or bias.

Scatterplot
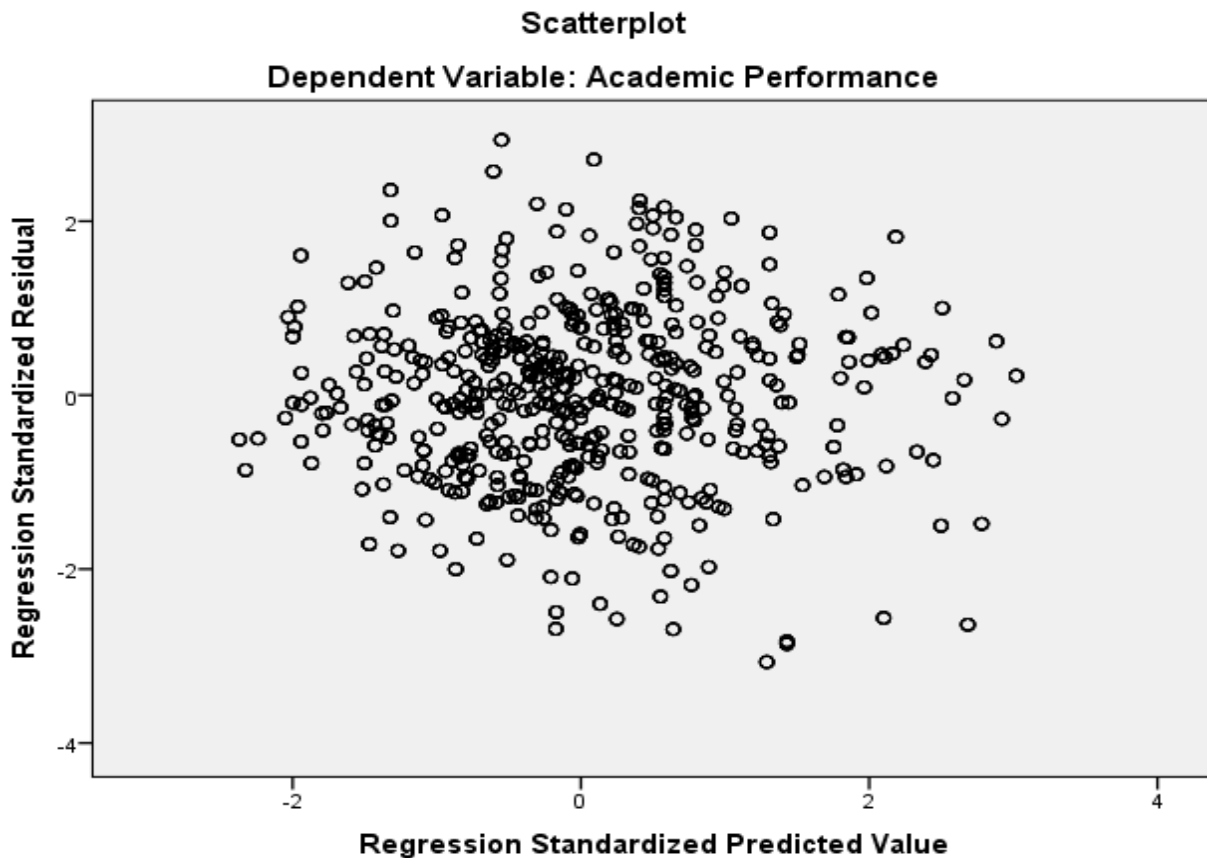Dependent Variable: Academic Performance

Figure 2 displays a scatterplot illustrating the relationship between the standardized predicted values from the regression (X-axis) and the standardized residuals (Y-axis), with academic performance as the dependent variable. The scatterplot reveals a random distribution of residuals, suggesting that the assumptions of linearity and homoscedasticity are met for this regression model. The lack of a distinct pattern indicates that the model is well-specified and yields unbiased predictions. Furthermore, there are no noticeable signs of heteroscedasticity or outliers, which further supports the model's validity.

Table 2: Regression coefficient of the impact of hostel amenities provided on students' academic performance

Hostel Amenities provided	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**T**	**Sig.**
(Constant)	2.704	.047		57.390	.000
Electricity supply	.106	.018	.198	6.017	.000
Kitchen	.023	.020	.036	1.138	.255
Water provision	-.114	.024	-.204	-4.740	.000
Bathroom	.178	.023	.304	7.792	.000
Restaurant provision	-.268	.022	-.421	-12.349	.000
Sporting facility	.199	.022	.295	8.997	.000
Recreational facility	.033	.012	.054	2.706	.007
Shower	-.197	.020	-.272	-9.605	.000
Fire protecting equipment	.008	.020	.011	.378	.706
Common Room	.131	.022	.224	5.954	.000
Desk and Chairs provision	-.004	.024	-.006	-.154	.878
Wardrobe	.174	.021	.288	8.186	.000
Cleaning services	.010	.023	.018	.437	.662
Internet services	.062	.020	.108	3.017	.003
Hostel security services	-.142	.021	-.243	-6.820	.000

Sickbay	-.061	.022	-.101	-2.769	.006
Study space	.018	.024	.030	.746	.456
General hostel maintenance services	-.135	.021	-.230	-6.521	.000
Intercom system	-.025	.024	-.040	-1.048	.295
Laundry services	-.031	.015	-.052	-2.049	.041
Smart temperature control	.012	.014	.021	.876	.381
Surveillance cameras	.037	.018	.059	2.069	.039
Deadbolt locks	-.038	.023	-.058	-1.646	.100
Toilets	-.006	.028	-.010	-.214	.830
Wall socket	.095	.028	.158	3.374	.001
White board suggesting	.062	.020	.101	3.070	.002
Booking room	-.051	.026	-.079	-1.988	.047
Extinguisher	-.030	.023	-.047	-1.280	.201
Reading corner	-.042	.023	-.063	-1.811	.070
Fan	.049	.021	.083	2.300	.022
Plumbing	.077	.018	.119	4.164	.000

Source: Researcher's computation using SPSS version 23

Table 2 displays the regression coefficients for the effect of hostel amenities on students' academic performance in Federal Universities located in Nigeria's North Eastern region. The findings indicate that amenities such as electricity supply, bathrooms, sporting facilities, recreational facilities, common rooms, wardrobes, internet services, surveillance cameras, wall sockets, whiteboards, fans, and plumbing all have positive coefficients with p-values below 0.05, signifying a positive and significant impact on students' academic performance. This suggests that improvements in these hostel amenities are likely to lead to a significant enhancement in students' academic performance. In contrast, amenities such as water provision, restaurant services, showers, hostel security services, sickbays, general hostel maintenance services, laundry services, and room bookings have negative coefficients with p-values less than 0.05, indicating a negative and significant impact on students' academic performance. This implies that an increase in these specific hostel amenities may result in a significant decline in students' academic performance.

The regression results also indicated that amenities such as kitchen provision, fire protection equipment, cleaning services, study spaces, and smart temperature control had positive coefficients with p-values greater than 0.05, suggesting that these hostel amenities have an insignificant positive impact on students' academic performance. This means that while an increase in these

amenities may lead to a slight increase in academic performance, the effect is not significant. Conversely, provisions for desks and chairs, intercom systems, deadbolt locks, toilets, extinguishers, and reading corners were associated with negative coefficients and p-values greater than 0.05, indicating a negative and insignificant impact on students' academic performance. This suggests that an increase in these specific amenities may lead to an insignificant decrease in academic performance.

6.0   Conclusion and Recommendation

The study assessed the impact of hostel amenities on students' academic performance in Federal Universities in North East Nigeria. The findings showed mixed results regarding the relationship between hostel amenities and academic performance. Certain amenities, such as electricity supply, internet access, and wall sockets, had positive coefficients, indicating a significant positive relationship with academic performance (P<0.05). This suggests that investing in these amenities can considerably enhance academic performance. Conversely, amenities like laundry services, room bookings, and sick bays displayed positive coefficients but had p-values greater than 0.05, indicating a non-significant positive relationship with academic performance. This suggests that these amenities may need further investigation or enhancement. Policymakers and educators should prioritize these amenities in hostel development and maintenance, as the study indicates that hostel amenities are essential for supporting students' success. This aligns with the findings of Makinde & Ayeni (2018) which stated that hostel amenities is an important indicator and contributed significantly to students' academic achievements.

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